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

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1 Introduction and Motivation

Army generals, it is said, are always preparing to fight the last war they won. The WTO is in danger of following the same logic. The WTO/GATT has all but won the war against tariffs. Tariffs on OECD imports of manufactured goods – which account for two-thirds of world trade – average only 3.8%, with duty free treatment applying to fully two-fifths of these trade flows. As in all wars, victory is never total. Tariffs on rich nation food imports and poor nations industrial imports are still high, as Table 1 shows, but these items account for little of world trade. Moreover, at least the poor-nation industrial tariffs seem to be falling of their own accord. Trade, nonetheless, is 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 'globalisation' was in fashion – when it was called internationalisation and interdependence – Baldwin (1970 p.2) wrote: "The 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." The intervening thirty years have witnessed completion of the swamp-draining, but the stumps have started to grow; three decades of every tighter regulation of goods – most of which was adopt for purely domestic policy aims – has escalated regulatory protection.

Trade nevertheless is, overall, much freer than it was when the GATT was signed. Yet somewhat paradoxically, this means that remaining barriers have a more important, not less important impact on production. The "magnification effect of globalisation" is the name for this. Falling tariff levels, teamed with lower transportation and communication costs, have cleared away many manmade and natural obstructions to trade, making the international 'playing field' flatter than it has ever been.[1] 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-ness of production, one thing is clear. As the field gets flatter, regulatory protection's influence on production will continue to grow, forcing its liberalisation ever higher on the negotiators' agendas.

The main thesis of this paper has five steps: (i) TBTs are important, (ii) TBT liberalisation will continue, (iii) this liberalisation will involve "hegemonic harmonisation" or mutual recognition of rules and test, (iv) such liberalisation 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 liberalisation initiatives. The WTO, in short, should be gearing up to "fight" the battle of frictional barrier liberalisation.

The remainder of paper is in six parts. Section 2 defines and describes TBTs and covers the basic economics of the impact of TBTs, focusing mainly on the discriminatory aspects of plurilateral TBT liberalisation. The section also reviews the available empirical evidence. Section 3 discusses the various TBT liberalisation experiences since a thorough understanding of the historical lessons is crucial to predicting the path of future liberalisation. Section 4 argues that the main difference between TBT liberalisation and tariff liberalisation is due to issues of obscurity rather than issues of sovereignty. This basic point is important in understanding why TBT liberalisation based on multilateral negotiations is almost sure to fail. The section also presents a political economy model that identifies large corporations engaged in two-way trade in similar products as the drivers of TBT liberalisation. Section 5 draws the conclusion that continued regional TBT liberalisation may create a two-tier structure of market access with rich nations systematically enjoying better access to each other's markets. The section also makes a number of proposals for WTO reforms that could help redress this problem. The final section presents a summary of the paper's findings.

2 TBT Liberalisation is Important

2.1 What are TBTs?

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.[2] There are two distinct aspects of this control: (i) content of the norm, and (ii) 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 minutia and technical complexity behind most regulations and standards makes it difficult to speak of 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 onwards, 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 optimised 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 frequently source of US-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 (Sykes 1995 p.25).

2.1.1 Vertical and Horizontal TBTs

It is useful to classify content-of-norm TBTs into two sub-types, horizontal and vertical. Vertical-norm TBTs involve norms that can readily be characterised being more or less stringent. For example, the US adopted a law (the so-called CAFE standard) requiring each car company's fleet to attain certain maximum levels of emissions when averaged over all company models sold in the US. This norm would have forced European carmakers to invest in more emission-abatement than their US rivals since US auto-makers lower their average, in part, by selling small-engine cars while European car companies sell mainly high-end cars with big motors. Likewise, Europe has much stricter rules than the US 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.

Horizontal norm differences, however, are probably more common. Many TBTs arise when a nation, or sub-national 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. Due 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 favours their varieties or at least disfavours 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 liberalisation 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.

2.2 Modelling 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 non-local 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 favour 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. Modelling TBTs in such "sexy" industries will certainly be the focus of much future work, but in this paper we 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 – e.g. of learning about the regulation and bringing the product into conformity – as well as on going costs, such as periodic testing, or higher marginal production costs that stem from a low scale of production.

2.3 The Economics of Regulatory Protection

There has been surprisingly little work 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 (i.e. tariff-like measures that generate no revenue or rents). Most of the simulation studies of the EU's 1992 programme, for example, modelled the liberalisation effects as lowering the real cost of intra-EU trade by about 2%. The industrial organisation 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 Matutes and Regibeau (1996) argues, the general presumption is that harmonisation of standards within a single market can be manipulated by incumbents to raise barriers to entry. In such industries, regional TBT liberalisation – which usually involves some form of harmonisation 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.

2.3.1 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 Helpman and Krugman (1989) show, quotas can lower prices, export subsidies can improve welfare, and small countries can have positive optimal tariffs. Clearly then, we should not be surprised that, theoretically, TBTs have an ambiguous impact on trade flows and welfare.

To highlight the main sources of ambiguity, we lay out a baseline model. Specifically, we 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 $p_i=1-Q_i$, where p_i and Q_i are the price and total sales in market i (i=H,P,or R). The total quantity in market j is $(\Sigma n_i q_{ij})$ 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 normalised 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; non-local firms face higher variable costs and/or fixed costs when selling to the local market. Specifically, firms located in home (called H-based firms for short) face no additional costs when selling to the home market. Partner-based firms face a specific cost $0\leq\tau$ when selling to the H-market. The per-unit cost facing rest-of-world-based firms in the home market, τ^* , is initially identical to τ. The home and partner nations are always identical. TBTs may also face non-local firms with additional fixed cost. 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, etc. In particular, the equilibrium price in market H, p_h, equals the sum of two terms. The first term, $1/(1+\Sigma n_i)$, reflects the level of overall competition. The second term, $(\Sigma n_i c_{ih})/(1+\Sigma n_i)$, reflects the average marginal cost of firms active in the market (c_{ih} is the market-specific marginal cost, normalised to zero for H-firms, to τ for P-firms and to τ^* for R-firms). The focus of our inquiry, however, is on the distortionary impact of TBTs, so we highlight the 'trade bias', defined as the difference between home's imports from all P-based firms and home's imports from all R-based firm; this roughly corresponds to a preference dummy in a gravity model equation. When TBTs among all nations are symmetric (i.e. there is no discriminatory dimension favouring Partner-based firms over RoW-based firms), the bias equals zero. Specifically,

$$Trade\,Bias = p_h(n-n^*)-(n\tau-n^*\tau^*)$$

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, we 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 equilibrium "n" falls with F and rises with F* while the equilibrium "n*" falls as F* rises or F falls.

2.3.2 TBT Liberalisation

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

Open vs Exclusionary Mutual recognition: Liberalisation of Fixed Cost TBTs

We start by studying the liberalisation of fixed-cost TBTs and, for simplicity's sake, we neutralise variable cost TBT discrimination by assuming $\tau=\tau^*$. Initially we suppose that the same fixed-cost TBT applies on an MFN basis, so R-firms, H-firms and P-firms have to pay a total of 2F to sell in both H and P. The liberalisation considered is meant to resemble one aspect of the EU members' mutual recognition of each other's norms and testing. After the liberalisation a product that complies with either home's or partner's norms, can be sold freely in both markets. That is, H-firms and P-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-firms. On one hand, mutual recognition can be "open" – i.e. R-firms can also sell to both H and P markets after certifying their product in either. In this case, the fixed cost liberalisation benefits all firms equally; after liberalisation, the total fixed costs 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 liberalisation 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 Agreements encompass TBT liberalisation, 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-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 liberalisation of fixed-cost TBTs is not discriminatory when it is "open", but it is discriminatory when combined with rules of origin.

TBT Liberalisation that Favours Rest-of-World Firms

Open fixed-cost TBT liberalisation can actually favour rest of world firms. Due to fixed market entry costs, not all firms will sell to all markets. Rather firms will sell to markets where their cost advantage makes it worthwhile sinking F. 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 firms a distance-related marginal cost advantage (compared to R-firms) in the H and P markets. If this advantage is large enough, R-based firms may chose 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 liberalisation, which lowered the fixed cost from F in each market to F for both the H and P markets could induce new R-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-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 firms face zero trade costs when selling into each others' markets. From the first order conditions, a typical R-firm's sale to the H-markets equals p_h-T, where p_h is the equilibrium H-market price. Sales of a typical P-firm in H will be higher, namely p_h. Noting that with linear demand operating profit is the volume of sales squared, we see that R-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 $(p_h\text{-}T)^2<F$, so R-firms sell to neither the H or the P markets, but $(p_h)^2<F$, so H-firms and P-firms will sell to both markets. Now, consider the impact of an open, fixed-cost TBT equalisation between the H and P nations. Post-liberalisation, R-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, $2(p_h\text{-}T)^2>F$ is the condition, where p_h is the post-liberalisation price. The impact of this on the trade bias is straightforward. The liberalisation has no impact on P-firm sales to home (since the liberalisation only affected F and all P-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 liberalisation, now falls.

Liberalisation of Variable Cost TBTs

Regional TBT liberalisation can easily affect the variable cost of complying with product and process norms. For some products, such harmonisation 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 due 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 harmonisation – call it prejudiced harmonisation – shows up as a change from the initial situation of $\tau=\tau^*$ to a situation where τ^* exceeds τ. This sort of regional liberalisation has the usual 'supply switching' effect of inducing H and P consumers to switch away from R-made products and towards H-made and P-made goods. In particular, taking n=n*, for simplicity, the trade bias – which reduces to $n(\tau^*\text{-}\tau)$ in this case – is positive. In the second type of harmonisation - call it neutral harmonisation - $\tau=\tau^*$ both before and after liberalisation, but the level of costs fall. Plainly, this will have no effect on the trade bias.

TBT liberalisation may affect trade bias by altering firms' ability to price discriminate internationally, i.e. 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 (Markusen and Venables 1988). Only one of such implications is exposed here; see Baldwin and Venables (1995) for more on the economics of preferential liberalisation.

Markets are segmented when firms can assume that their customers will not re-sell across markets. Markets are integrated when firms treat the two markets as one. As it turns out, even when the two markets are symmetric, i.e. 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 liberalisation of TBTs may have important effects that are not captured by standard 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 re-sale by consumers or middlemen and thus allows each firm to treat the two markets as segmented. When the two markets are segmented, yet there are some natural trade costs, and the two firms engage in reciprocal-dumping trade a la Brander and Krugman (1983). 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 in the sense re-sale across markets is possible. Of course, such arbitrage goes on until producer prices are equalised.

Interestingly, this market integration has a dramatic and counterintuitive 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.

2.4 Empirical Evidence

The economics profession does not yet have direct empirical measurements of the trade inhibiting effects of TBTs in general. [3] There is hope that this lacuna will soon be

filled since there is a World Bank project on this topic underway. At this point, indirect evidence is all that can be marshalled.

2.4.1 Sapir's Evidence

Sapir (1997) aims to gauge the impact of EU integration on non-member nations since 1960. To this end, he estimates year-by-year gravity equations for the 1960-1992 period on aggregate, bilateral trade flows among a set of West European nations. 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 a care. Sapir does not include a dummy for trade flows among the original 6 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 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-EFTA trade had been eliminated by 1968. The signing in 1973 of the EU-EFTA FTAs 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 West Europe was part of an industrial duty-free zone by 1973. The importance of this fact should be clear. Almost all of the West European integration since 1973 has involved the removal of frictional trade barriers, with TBT liberalisation 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 EEA agreement was finalised in 1993.

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

The annual point estimates are plotted in Figure 2.[4] 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 due to Sapir's omission of an adjacency variable.[5] In any case, the point estimates on the EFTA-EFTA dummies are never significant (at the 95% confidence level) when they are positive. 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 intraEFTA 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 6 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 FTAs is quite clear in

the point estimates. Somewhat less evident is the gradual decline of point estimates after the mid1980s. 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.

2.4.2 Head and Mayer

Head and Mayer (1999) find more conflicting evidence using industry-level data and the more sophisticated gravity model approach inspired by Wei (1996). Head and Mayer (1999) use fairly disaggregated industry-level data (3-digit NACE) to estimate the so-called border effects, i.e. the effect that an international border has on purchasing patterns. In particular, the authors set out to answer three questions. How big were border effects in Europe before the non-tariff liberalisation 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 98 industries in their sample over the 1984-1986 period to find a large border effect. Depending upon the exact specification, they find that EU nations buy between 13 and 20 times more from local producers than from producers based in other EU nations. 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 non-tariff barriers 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%. The point is that the only non-member 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 non-tariff barrier liberalisation. Consequently, one possibility is that the impact of EU membership reflects the trade-inhibiting effects of the EU's preferential liberalisation of non-tariff barrier and the border effect reflects the impact of the remaining non-tariff barriers.

The authors, however, fail to find any correlation between industry specific border effects and two measures of intra-EU trade barriers. The first measure is based on a 1980s survey of EU firms, the second on an educated guess by Buiges et al (1990). This presents a puzzle. Industry-specific border effects are un-correlated 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 non-tariff barriers, or non-tariff 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 liberalising regulatory protection, or it was effective at removing the barriers but the barriers had little impact on trade.

2.4.3 Moenius

One of the most direct attempts to measure the trade impact of TBTs is Moenius (1999). 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 specific or common to the specific bilateral trade relationship. The latter aspect is of the greatest interest here. The point is that standards shared bilaterally may preferentially lower marginal and/or fixed costs of market and thus may have a trade distorting effect. As the theory section argued, however, the expected sign of the distortion is not clear.

Moenius' data set is an enormous panel covering 471 industries in 12 West European nations from 1980 to 1995. He finds that a shared standard has a large trade promoting effect between the nations sharing the standard. For instance, in his central regression, which controls for a wide range of other factors, he finds that a one 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 concerning the discriminatory impact of preferential TBT liberalisation. 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 promotes trade in manufacturing sectors, but hinder trade in non-manufacturing sectors such as agriculture. Since the current comparative advantage of many developing nations lies in non-manufacturing 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 liberalisation has an important discriminatory trade effect. As the discussion of TBT liberalisation in section 3 below makes clear, the TBT liberalisation in the EU's Single European Act induced non-EU governments nations 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 US, Canada, Australia, etc.) 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 liberalisation schemes that have been pursued in the past. The

lessons from historical attempts are crucial to predicting the path of future TBT liberalisation.

3 Liberalisation Experiences

TBTs inhibit trade by raising costs faced by foreign firms more than those faced by domestic firms. Liberalisation requires a lowering of the gap and there are two main dimensions to this, content-of-norms and conformity-assessment. Liberalisation of the first involves making product norms more cosmopolitan and thus narrowing the cost advantage of domestic firms. Liberalisation 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, harmonisation (i.e. convergence to a single norm or conformity assessment procedure) and mutual recognition (i.e. acceptance of foreign norms and conformity procedures). Harmonisation can be accomplished via negotiation, i.e. by narrowing the differences between various nations' norms, or via the hegemonic route, i.e. other nations adopt the norms of a hegemon.[6]

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 due largely to 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 liberalisation interest has focused on behind-the-border measures, with TBTs being one of the chief attention-getters. More generally, since trade integration among European nation is two or three decades ahead of WTO integration, Europe's experience with thorny issues – such as labour standards and trade, trade and competition policy, trade among rich and poor nations, dispute settlement, etc. – provides a natural departure point for the study of most 'new' trade issues.

3.1 EU Initiatives

The EU recognised TBTs as a barrier to the Common Market in 1957 with Article 100 of the EEC Treaty a.k.a. the Treaty of Rome (see Box 1 for details). This requires approximation (Euro-speak for harmonisation) of national regulations for the "proper functioning of the common market". As in the WTO/GATT system, Europe's first liberalisation efforts focused on the 'easy' barriers, tariffs and quotas. With these eliminated by 1968, liberalisation attention turned to TBTs.[7]

3.1.1 Old Approach, 1969-1984

The EU systematically took up the removal of technical barriers in 1969 with its 'General Programme', which launched what came to be called the 'old' approach to TBT liberalisation. 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 Programme comprised four Council resolutions and a framework decision adopted on 28 May 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, a procedure for adapting directives to technological advances. The framework decision prescribed a standstill of Member State measures concerning products covered by the General Programme, and a requirement that Member States inform the Commission of new provisions for products not covered; this also was largely ignored. See Lauwaars (1988 p.152) for details.

In short, the old approach dealt with the content-of-standards issue via negotiated harmonisation. 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 'directives' of the European Council (the EU's main decision-making body). [8] Once adopted, such directives supplant national laws, regulations and standards. The conformity-assessment issue was tackled in a more decentralised fashion. For products on which directives were adopted, EU members recognised 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 harmonisation failed completely, " according to Majone (1994), although it deserves credit as the world's first serious attempt to tackle TBTs. The detailed timetable was roundly ignored and harmonisation of standards and regulations proceeded much more slowly than the development of new national TBTs. For example, ten years were required to adopt a directive on gas containers made of unalloyed steel and 9.5 years was the average delay for the 15 directives adopted *en masse* in 1984. 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 11 notifications annually between 1975 and 1982 (Pelkmans 1989 p.109) while thousands of new regulations sprang up in Member States (Majone, 1994 p.166). 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" (Emerson et al, 1989).

3.1.2 New Approach, 1985 to Present

The EU's 'New Approach', formally launched in January 1985, is something of a misnomer since it evolved over the 1960s and 1970s.[9] 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 genus of the New Approach is to distinguish sharply between the goals ('essential safety requirements' in Euro-ese) and means ('harmonised standards') of product and process regulation. Two elements must be distinguished, 'mutual recognition' and 'technical harmonisation'.

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 European Economic Area 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 (e.g. health, safety, consumer protection, environmental protection). The EU Court has taken a very narrow view of allowable justifications (see Sykes 1995 for legal analysis). Of course implicit in this 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 harmonisation. It is here that the new approach is truly new. With the new approach, the goals are completely harmonised via 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).[10] For example the Lifts Directive (95/19/EC), which is only 15 pages long, lays out essential health and safety requirements relating to the design and construction of lifts and safety components. Paragraph 1.2 in Annex I 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 liberalisation is bolstered by two principles. First, the essential safety requirements must be transcribed into Member States' laws. Second, while the resulting harmonised 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 harmonised 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 due to 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 (Pelkmans, 1989 p.105).

For products subject to technical harmonisation (rather than mutual recognition), the conformity-assessment aspect of TBT liberalisation is addressed by the 1989 'global approach'.[11] 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 (Pelkmans 1989 p.107). 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 harmonising 'essential requirements' directive exists can earn the "CE" mark; this mark ensures free access to all EEA markets.

The whole process of content-of-standards technical harmonisation was expedited by the 1986 Single European Act (i.e., the 1992 programme) 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 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 harmonisation directive in the meantime. Additionally, national standard-setting organisations 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 organisation, 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 non-compliance as an infringement of Community law (a Council Directive has the force of a national law in all Member States, and is enforceable via 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 harmonised standards in the EU; in 1999, there are nearly 5,500 (Moenius 1999, p.1).

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.

3.1.3 The Reaction of European 'Outsiders': EEA and Switzerland

TBT liberalisation 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.[12] The agreement is very complex and required the creation of extensive institutions (see Box 4), but for our purposes it can be thought of bringing the EFTAns into the New Approach.

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 EFTAns when it comes to future EU legislation. In essence, it forces the EFTAns to accept future Council Directives (the *Acquis Communautaire*) concerning the Single Market, without formal participation into the

formation of these new laws.[13] Second, the EU insisted on a good deal of supranationality among EFTAns to simplify the task of keeping the Single Market homogeneous. EFTAns have resisted such supranational authority since the end of WW-II, so it is astounding that they said they would accept it. As it turns out, virtually none of the EFTA governments were willing to live with the EEA as it 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 EFTAns, the EEA was to be merely a transitional arrangement. Swiss voters rejected that 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 EU15 on one hand and Norway, Iceland and Liechtenstein and on the other.

In 1997, Switzerland initialled a bilateral accord with the EU after 6 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 liberalisation of TBTs is concerned, the lessons from this episode are twofold. First it is not easy to deeply liberalise TBTs among nations – even among rich industrialised nations that share similar views on the subject of regulation (e.g. 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 liberalisation requires institutions that permit surveillance, enforcement and adjudication.

3.2 TBT Liberalisation in the GATT/WTO

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

It is difficult to judge the liberalising 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 (Stephenson 1997 p.42). TBTs have, however, been the subject of many disputes. Of the 48 requests for consultation to the WTO's Dispute Settlement Body, 11 concerned standards or invoked the TBT agreement. Another measure of the TBT Agreement's success, or lack of it, is the fact that much of the energy and momentum in TBT liberalisation has developed outside the WTO framework, in regional arrangements (EU, NAFTA, APEC, US-EU MRA, etc.) and on a sectoral basis. According to Wilson (2000), there is "little evidence to indicate that the WTO Committee on TBTs has influenced the debate."

3.3 The ISO

There are three main international standard-setting organisations, the International Organisation for Standardisation (ISO), the International Electrotechnical Commission (IEC) and the International Telecommunications Union (ITU). The ISO and IEC are private, non-governmental 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 length process involving voluntary participation and a consensus decision making rule (Stephenson 1997). 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 Stephenson (1997), European members have dominated the international standardisation process. For example, European members hold two-thirds of the ISO secretariats (roughly equivalent to a chair). The United States, by constrast, participates in almost all of the ISO's work but it helds only 13 percent of the secretariats. Stephenson (1997 p.51) claims that the predominance of European in this process derives from the fact that there are 18 European countries with long established and sophisticated national standards bodies well-acquainted with international standardisation. Most of these co-ordinate their actions under the aegis of the EU.

While the ISO and brethren organisations have an important role to play in TBT liberalisation, 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 50-year history. While this is a big number, it is small compared to the 100,000 or so standards that exist in the US and EU today (Stephenson 1997 p. 47).

3.4 The EU-US MRA

In June 1997, the EU and US signed a Mutual Recognition Agreement (MRA) that deals with the trade inhibiting aspects of conformity assessment. The MRA commits each party to recognise the results of product testing or certifications of both governments

in the six specified sectors. This should liberalise trade in these sectors by reducing the cost of duplicative testing, inspection and certification. The covered sectors are telecommunication equipment, electromagnetic compatibility, electrical safety, recreational craft, pharmaceutical good manufacturing practice, and medical devices.

Importantly, the agreement does not mutually recognise 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 US-based laboratories and some US standards to be assessed by EU-based laboratories. EU and US industries, nevertheless, viewed this, as an important step to reducing trade barriers. Indeed, the initiative came mainly for industry-to-industry talks in the Trans-Atlantic 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.

4 Future Liberalisation

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

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

4.1 Obscurity not Sovereignty

It is often asserted that liberalisation of behind-the-border measures – product norms being a prime example – intrinsically engages issues of sovereignty that did not arise in tariff-cutting talks (Vogel, 1997, Bagwell and Staiger 1998, Brittan 1997). This is misleading.

Tariffs, like many TBTs, are adopted in pursuit of governance goals – e.g. income distribution – that the community of nations views as legitimate. However, via the 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 labour market policies, and the like.[14] The point here 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 liberalisation efforts are concerned. TBTs are harder to liberalise 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 liberalisation.

4.1.1 Negotiated Harmonisation Doesn't Work

TBT liberalisation can proceed in two ways, mutual recognition or harmonisation, with harmonisation coming in two basic 'flavours', negotiated harmonisation and hegemonic harmonisation. Here we argue that negotiated harmonisation 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 via the EU budget, had a super-national judicial system for dispute settlement, and had similar income levels and regulatory goals. Even in this near-ideal setting, negotiated harmonisation by unanimity proved unworkable in all but a handful of cases. This suggests that the prospect of negotiated harmonisation in the wider world is nil for most products.

More can be learned by studying *why* the EU failed at harmonisation in the 1970s. As a matter of fact, the 'failure' took the form of interminable delays (in one famous example, it took 11 years to set norms for mineral water). Why the delay? International negotiations must strive for a balance of commercial gains since each government must align a political consensus behind the final liberalisation package. Moreover, when it comes to product norms, all governments must be convinced that the synchronised 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 us to the conclusion that obscurity can quickly render such negotiations impractical. In fact, obscurity-induced delays are important enough to make the negotiated harmonisation approach a non-starter.

4.1.2 Mutual Recognition

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

Mutual recognition, or more precisely mutual recognition teamed with some 'new approach' harmonisation in sensitive areas, is the standard procedure inside the EU. It is also the liberalisation route adopted in the bilateral trans-Atlantic trade talks, APEC and

other regional arrangements (see Stephenson 1997, Wilson 1999 and OECD 1998 for details). Interestingly, the most important MRA pursued to date – the US-EU MRA – is limited to mutual recognition of conformity assessments, not of norms themselves.

4.2 Political Economy of TBT liberalisation

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

Presenting this paper in Washington DC allows one to assume a certain political sophistication among the audience. Stating the obvious may, nonetheless, have some value. Protection does not result from random acts of nature and trade liberalisation 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 equalising the demand and supply of protection.[15] Regulatory protection, like most protection, arises from Mancur Olsen's asymmetry. Asymmetric organisation and information costs means that industries organise 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 cost of imported goods more than the cost 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 read that the level of protection is set in a political market, trade liberalisation 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 very regular basis over 50 years and the revisions coincide with multilateral trade negotiations.

4.2.1 The Juggernaut Model of Reciprocal Trade Liberalisation

Baldwin (1994 Chapter 3) proposes a puzzle-solution that focuses on exporters as the key anti-protection force and import-competitors as the key pro-protection force. Announcement of a reciprocal trade talk – where better foreign market access is bought with domestic liberalisation – starts the juggernaut rolling by multiplying the ranks of

pro-trade forces. Exporters, in search of foreign market access, shrug their normal indifference to domestic protection and don the cloak of anti-protectionists. The same goes on in other nations, so the political market for protection clears at a lower level implying some liberalisation in all participating nations. With the phasing in of the liberalisation, export interests get stronger as they expand output and employment. Import-competitors get weaker as they scale back or shutdown. A few years down the road, another round is launched and the juggernaut rolls on. Barriers are initially lower, but anti-trade 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' (e.g. developing nations due to MFN and S&D treatment) and in markets left off the bargaining table (e.g. food and clothes).

4.2.2 Application to TBT Liberalisation

Consider next the application of this model to TBT liberalisation. In the political economy approach, changing the level of regulatory protection requires a change in the forces that determined the political equilibrium. In particular, liberalisation 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 exposed above.

Most of the TBT liberalisation 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 liberalisation, 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 de-fragments 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 each other.

The key result here is that two-way liberalisation of TBTs systematically favours large firm's profits. Intuitively, big firms gain both from the liberalisation and the exit of the small firms. Given this, the juggernaut logic applies directly with large firms in the role of the main pro-liberalisers and small firms in the role of the main anti-liberalisers. 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 liberalisation.

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

5 A Two-tier World Trade System?

Most liberalisation of regulatory protection in the past has been bi- or pluri-lateral and based on the MRA approach. Future liberalisation is likely to continue being so for reasons laid out above. 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 liberalisation 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 programme liberalised TBTs on a preferential basis, which implied that non-EU Western European nations had second-class access to EU markets. Outsiders, such as the EFTAns, 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, as explained in Box 7, emphases the tendency for a general lowering of natural and man-made 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 liberalisation 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 unintentional effect of distorting developing nations' post-tariff comparative advantages away from industry.

What is wrong with a two-tier system?

1. 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.
2. It violates the non-discriminatory and multilateral spirit of the WTO and this, in turn, tends to undermine the rule-based world trade system. [16] For both bilateral MRAs and hegemonic harmonisation, the basic principle is 'might makes right'.
3. 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 programme led to investment diversion (Baldwin, Forslid and Haaland 1997) and trade diversion (Sapir 1997). By the same logic, the EU-US MRAs may well divert investment and divert 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 actually content of standards will be affected. Public choice reasoning would indicate that such an outcome is likely to lead to product norms that disfavour 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 US and the EU agreeing to a standard that would offset the comparative advantage of developing country manufacturers.

5.1 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.

5.1.1 Open Liberalisation or Article 24 Disciplines

TBT liberalisation can have radically different results when it is "open" and when it is "exclusionary" (see Section 3 for the arguments). When it is open – as is the case in the EU's Single Market – the TBT liberalisation may actually improve the market access of third nations.[17] For example, a Turkish-made skateboard can, in principle, be sold in all 15 EU markets after having been certified in any one. To illustrate the importance of open liberalisation, 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 to 15 different norms.

Generally, exclusion in TBT liberalisation is enforced via rules of origin. This then suggests the first proposal. Regional TBT liberalisation 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 Article-24 like disciplines. 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 liberalisation arrangement create unnecessary discrimination. The 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 liberalisation is liberalisation rather than preference.

I would proposed that these discipline include something like the "substantially all trade" dictate in Article 24. This would clearly be difficult since all existing MRA 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 US chip makers in the EU and Japanese markets. The regulatory protection thus provided might be very appealing in the domestic politics of both the EU and Japan. Of course, the US is big enough to counter such moves. But what would happen if the US 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 liberalisation 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 the negotiation of the EU-US MRA but were rebuffed by the US (Wilson 2000 p.39). The US's stance, however, was based on the impracticality of ascertaining 'the' country of origin for sophisticated industrial goods (now a days, 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 US.

5.1.2 GSP-like Treatment

A second proposal concerns policies that could actively seek to offset any anti-developing nation bias arise from regional TBT liberalisation. The WTO TBT Agreement already contains hortatory statements about providing technical assistance to developing nations. The WTO, or some other organisation such as the World Bank or UNCTAD, should more explicitly promote the TBT equivalent of GSP. For instance, industrial nations might directly or indirectly subsidise conformance assessment procedures for products made in developing nations. Right now, the TBT Agreement has discipline on members charging foreign firms certification fees that are too high. To offset the cascading effects of discriminatory TBT liberalisation, the WTO might encourage a subsidisation of fee charged to firms based in developing nations.

6 Summary

This paper covered the economics of technical barriers to trade (TBTs), evidence on their importance and the various initiatives made to liberalise them. It was found that most liberalisation of regulatory protection in the past has been discriminatory and based on the MRA approach; future liberalisation 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.

The paper also points out that the discriminatory liberalisation 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 liberalisation becomes increasingly important. More directly, MRAs – especially when they employ rules of origin to exclude third nations from the liberalisation – can harm the competitiveness of firms located in excluded nations.

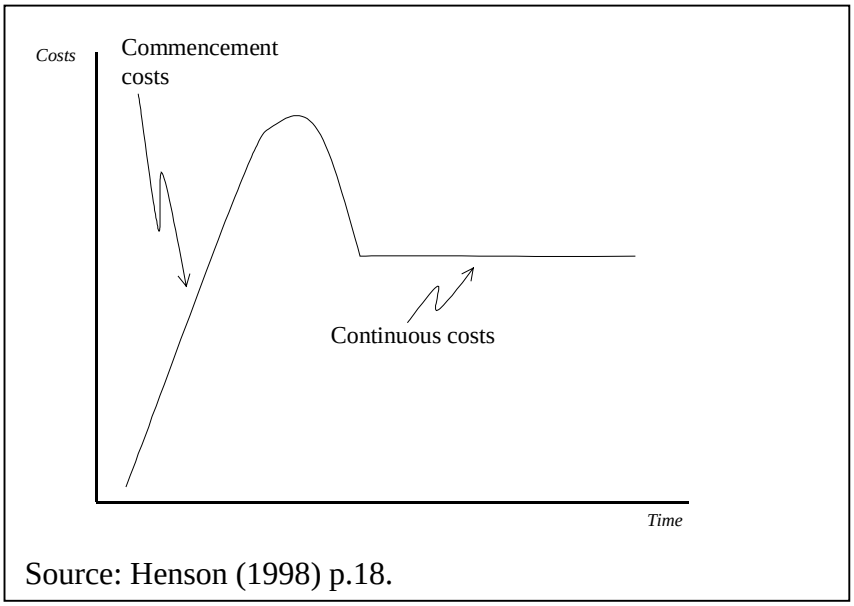
The paper also proposes that the WTO be modified to discipline regional TBT liberalisation. Specifically, bilateral and plurilateral TBT liberalisation schemes should not include rules of origin. Rules of origin exclude third nations from the liberalisation without serving a legitimate purpose (either a product meets the norms or it does not). If nations do chose to include rules of origin, then the liberalisation 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.

Table 1: Post-Uruguay Round Protection, % tariff equivalents

	NAFTA	EU	EFTA	South America	Asia Pacific	Japan	North Africa	Sub-Saharan Africa	Central Europe	Rest of World
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, bev. & tobac.	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

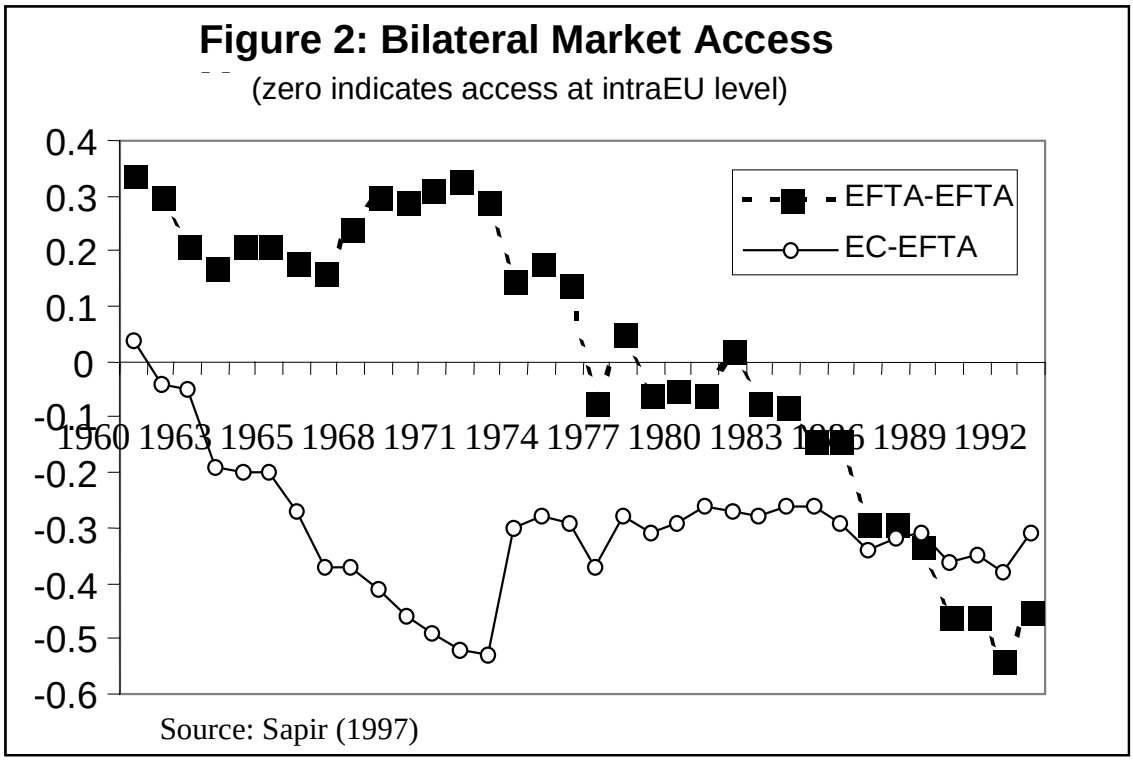
Notes: based on 1992 trade weights. Low protection levels may therefore actually indicate low trade flows for high tariff items, instead of zero protection.
Source: Global Trade Analysis Project data set version 3.

Figure 1: Compliance costs profile over time



Source: Henson (1998) p.18.

Figure 2: Sapir's Evidence



Source: Sapir (1997)

Box 1: Legal Basis of EU TBT Liberalisation

The general legal basis for TBTs liberalisation, Article 100 of the Treaty of Rome, is too general to challenge specific barriers. The EU Court refers to Article 30 (similar to the US Constitution's Commerce Clause) that states "quantitative restrictions on imports and *all measures having equivalent effect* shall, without prejudice, 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, drawn mainly from Sykes (1995), presents some details on these cases and directives.

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 liberalisation schemes throughout the world (Vogel 1997 p.6).

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.[1] 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 (e.g. 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 where only rules necessary to protect the health of people, animals or plants could plausibly be used to justify TBTs (Sykes 1995 p.98). For universally applied provisions, the ruling expanded the range of permissible, trade-inhibiting barriers. The main test for such measure was whether they were necessary to satisfy "mandatory" requirements, such as safeguarding the effectiveness of fiscal supervision, protection of public health, and defence of the consumer. The Cassis de Dijon case, however, is an example of where the Court rejected the Member State's assertion that the measure was necessary, thus serving notice that the Court would scrutinise 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 knock-on 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 Economics Area agreement.

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 12 Member State Parliaments. Second, it has led to considerable liberalisation. 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.

The first point is that 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 in, and probably overturned in court. Of course, the Court could not feasibly eliminate each TBTs one-by-one – Germany's standards organisation DIN has 22,000 standards on its book (Stephenson 1997 p.59) – and exceptions based on health concerns could survive a challenge (Sykes 1999 p.39). 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 regulatory protection. One can wonder how the Court got so far out in front of EU politician, but having destroyed the non-co-operative status quo, EU industry had little to gain from opposing the further liberalisation.

The second point is that by shifting the focus of harmonisation from technical standards to essential requirements, much of the inevitable political friction that arises from competition among firms' competitive advantages (e.g. proprietary technologies) was shifted from the Council to the European standard-setting bodies.

The third point is that since the resulting Euro-standards are voluntary, an escape value exists. The adoption of a particular standard is, therefore, much less likely to result in massive gains or losses due 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/liberalisation 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 Casiss de Dijon. In the world at large, national firms still have much to gain by inducing their national regulators adopt protective standards and regulations.

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 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 fulfil their Agreement obligations; to enforce EEA competition rules (i.e. antitrust and state aid); to make sure public procurement rules are respected; and to co-operate, 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. ESA decisions are by majority voting and can be appealed to the EFTA Court.

The EFTA Court, composed of judges appointed by EFTA governments, 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; to settle disputes among EFTA states concerning 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 EFTAns speaking with one voice. The EEA Council, consisting of members of the Council of the EU, 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 Commitment decides not to amend the EEA agreement in accordance to new EU legislation, the affected part of the EEA agreement will be "suspended". Thus, although the EFTAns 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.

Box 5: TBT Disciplines in the GATT/WTO

This box, which is based on Sykes (1995, 1999) and Stephenson (1997), summarises the main GATT/WTO TBT disciplines.

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 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, the Article 20 nullifies most of the Article 11 discipline on TBTs. Article 20's preamble, however, does introduce an important precept, what Sykes (1995) calls the "sham" principle. That is, Article 20 exceptions should not by disguised restrictions on international trade. The sham principle has apparently never been used to challenge at 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 NICs). 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, to use of international standards except where 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 importantly, the Code re-enforced the sham principle with what might be called the "shame" principle, i.e. 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 an information clearinghouses 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 six main GATT TBT principles (national

treatment, MFN, sham, shame, 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 sub-national and non-governmental standard organisations to adopt the six main GATT TBT principles. Perhaps the most important progress was the improvement of the dispute resolution procedure (see Wilson 1999 for analysis of the cases). Disputes panels, however, can by no stretch of the imagination be considered an efficient means of eliminating TBTs. Disciplines on food standard (which tend to be very public and emotive) were split off into the 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."

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, however 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 industries. As it turns out, it is not clear which production method is more environmentally friendly. Recycling paper requires energy and lots 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 is the obscurity of technical standards permits. It also illustrates how regional norm setting can subtly create barriers for outside nations.

Box 7: The Magnification Effect of Globalisation

Liberalisation and technological advances have reduced the level of barriers between nations to an all time low. Yet this means that the remaining barriers have a more important, not less important impact on production. The "magnification effect of globalisation" is the name for this. Falling tariff levels, teamed with lower transportation and communication costs, have cleared away many manmade and natural obstructions to trade, making the international 'playing field' flatter than it has ever been. 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-ness of production, one thing is clear. As the field gets flatter, frictional barriers' influence on production will continue to grow, forcing their liberalisation ever higher on the negotiators' agendas.

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ENDNOTES

[1] See Baldwin and Martin (1999) for a detailed comparison of current and pre-WW1I levels of openness.

[2] According to common usage, regulations are mandatory while standards are voluntary.

[3] The existing estimates are based on very informal methodologies and often undertaken by interested parties. For instance, an OECD study roughly calculates the cost of TBTs to be 2-10% of firms' production costs. The US Commerce Department claimed that foreign TBTs affected 65% of US exports in 1993. And the ITI found that duplication in US and European testing and certification for telecommunications equipment and information technology products cost industry and consumers over $1.1 billion per year.

[4] In the figure, I have assigned the non-preferential dummy coefficient to EC-EFTA trade prior to the 1973 EC-EFTA FTAs.

[5] Most EFTA-EFTA trade is among adjacent nations, viz. among Nordic nations or among Alpine nations.

[6] Liberalisation additionally involves issues of surveillance, enforcement, adjudication and the introduction of new standards.

[7] 1968 also saw the eradication of tariffs on intraEFTA industrial trade by the Stockholm Convention, on EU-EFTA industrial trade by the 1974 EU-EFTA free trade agreements.

[8] An exception, which was a precursor to the new approach, was the 'Low Voltage' Directive of 1973; See Lauwaars (1988 p.156) for details.

[9] Commission Communication to the Council of 31 January 1985, "Technical harmonisation and standardisation, a new approach." Elements of this emerged earlier in 1973 with the Council's favourable 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 e.g. the 'global' approach to conformity assessment in 1989. For a succinct summary see www.NewApproach.org.

[10] These harmonised 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.

[11] "A Global Approach to Certificate and Testing", EC Commission, 24 July 1989.

[12]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 2 May 1992 in Oporto, together with an Agreement establishing the EFTA Court of Justice and the EFTA Surveillance Authority.

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

[14] Counterexamples serve to 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, the GATT allows import prohibitions when these are the only practical means of pursing a legitimate goal, such as reducing the consumption of illegal drugs.

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

[16] Note that the TBT Agreement actually encourages MRAs, so the current course of liberalisation is by no means GATT-illegal.

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