An economic analysis of food safety issues following the SPS Agreement: Lessons from the *Hormones* dispute[1]

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Abstract:

The long-running feud between the US and the EU was the first to be disputed formally at the WTO. It provides a classic example of how cultural differences with respect to food attributes have the potential to hamper trade and to challenge WTO agreements designed to limit the disruptions, especially when scientific evidence is limited or spurious.

After outlining the legal arguments used by the parties to the Hormones dispute, simple economic models are used to represent the EU beef market and effects of the hormone-treated beef ban and its removal under certain conditions. The implications for the practical implementation of the SPS Agreement are then explored.

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1.1 Introduction

The beef hormones dispute is a classic example of how cultural differences with respect to the value of food attributes have the potential to hamper trade and challenge World Trade Organization (WTO) agreements designed to limit the disruptions, especially when scientific evidence is limited or spurious. The dispute between the United States (and Canada) and the EC over the use of growth-promoting hormones in beef provides researchers with a clear case study of how the SPS Agreement works in practice. As the first SPS measure to be formally disputed at the WTO, the legal and economic arguments used by the disputing parties and the dispute settlement bodies in the *Hormones* case provide regulatory agencies in Member countries with an idea of how their own SPS policies would fare under WTO scrutiny. The WTO Agreement on the Application of Sanitary and Phytosanitary Measures (the SPS Agreement)[3] was originally designed to provide clear and specific guidelines about human, animal and plant health protection measures relative to what had been the case under the TBT Agreement. Legal and economic analysis of specific cases is one way of measuring its success.

Before the SPS and TBT[4] Agreements, the role of science in settling trade disputes was limited. The effects of a tariff or a quota have no scientific aspect and hence trade disputes were relatively transparent and easy to resolve under the applicable articles of the GATT. But environmental and food safety issues – such as the case study presented here – deal inherently with scientific risk and uncertainty. These scientific aspects of measures affecting trade, and how they should be balanced against economic aspects more familiar to the WTO, are bound to present challenges to the WTO framework and Members wishing to ensure their trading partners abide by its rules. The emergence of genetically modified organisms (GMOs) in food production will present further challenges to national governments and the WTO to find a compromise between

[3] GATT (1994a). For an extended discussion on the SPS Agreement and its relation to other WTO Agreements, the interested reader is directed to Bureau *et al.* (1998), Roberts (1998) and the appendix of this paper.
[4] GATT (1994b), the Agreement on Technical Barriers to Trade, *hereinafter* the TBT Agreement.

promoting and securing free and fair trade while honouring legitimate consumer demands for safe food and an undisturbed environment.

This paper first outlines the beef hormones dispute and the legal arguments employed by the parties involved. An economic model is used to analyse the international trade effects of the EC[5] ban on hormone-treated meat and meat products and its removal on WTO instruction. Qualifications, such as how the analysis would change if the market for beef were to segment after the ban was lifted, are discussed in section 1.4. The implications for the practical implementation of the SPS Agreement, with particular reference to how it might be improved in light of the outcomes of the *Hormones* case and the analysis of its economic effects, are then explored in sections 1.6 and 1.7.

1.2 The *Hormones* Dispute

The European Commission, after a series of beef-related health scares in the 1970's and 1980's (see Roberts (1998)) enacted a series of directives banning the use of synthetic and natural hormones for growth promoting purposes in the production of beef. The prohibition (last adopted in Directive 96/22/EC) applies to both imported and domestically produced beef and so is *prima facie* GATT-legal since it abides by the national treatment and MFN principles. The EC allows the use of hormonal substances only for therapeutic and zootechnical purposes under veterinary supervision (Hurst, 1998; Roberts, 1998).

Following the adoption of the WTO Agreement including the Understanding on Rules and Procedures Governing the Settlement of Disputes (the Dispute Settlement Understanding), the United States, later joined by Canada, requested a dispute settlement panel to review the ban under the new rules (Roberts, 1998). The US questioned the

[5] In the following legal analysis, the European Communities (EC) is the official party to the dispute, since the ban on hormone-treated beef predates the formation of the European Union (EU). Similarly, the EC is the contracting party to the GATT (and a member of the WTO). The EU is used in the economic analysis of section 3.4, however, to denote the aggregation of economic interests in the common market in Europe (ie. "EU producers" "EU consumers", "EU market" etc). Thanks to a reviewer for alerting the author to the potential for confusion.

scientific basis to the ban on the use of hormones in beef production, and the timing of the ban given the large surplus of beef in the European Union. According to Roberts (1998), the US opinion was that "...the ban represented a crisis management decision which subsequently evolved into an expedient non-tariff barrier that lacked scientific foundation" (p 386). The main points of contention between the US/Canada and the EC, as outlined by Roberts (1998) were: the legitimacy and limitations of scientific evidence on the safety of hormone-treated beef, the level of protection afforded to EU producers by the measures, and the motives for the ban.

Outlined in the US and Canada Panel reports[6], and cited in Hurst (1998) and Roberts (1998), the complainants' main objections to the EC measure relating to the use of hormones in the production of meat and meat products were as follows:

Firstly, that the ban was implemented and maintained without sufficient scientific evidence to suggest such a measure was necessary to protect humans from consumption-related health risks, in direct violation of Article 2.2 of the SPS Agreement. According to the complainants, the Joint FAO/WHO Expert Committee on Food Additives (JEFCA) and some EC experts, there is no scientific evidence to suggest that the six hormones at issue pose risks to human health when used according to good animal husbandry practices. A JEFCA report published in 1988 found that residue levels in hormone treated meat were low relative to hormone levels occurring naturally in humans, and in other – non-banned – foods, and that residue levels in hormone-treated beef fell within the normal range of hormone residue levels occurring in non-treated beef (Hurst 1998). In any case, hormones administered exogenously (for growth promotion purposes or otherwise) are largely indistinguishable from those occurring endogenously.[7]

Secondly, the measure was not based on international standards as required by Article 3.1 of the SPS Agreement. For all of the considered hormones except one, relevant standards

[6] WTO (1997a) *hereinafter* U.S. Panel Report and WTO (1997b), *hereinafter* Canada Panel Report.
[7] This may be an argument to support the EC ban: if it is not possible to detect which hormones are endogenous and which are not, a ban may be the only way of avoiding, with any certainty, additional risks from hormones used for growth-promoting purposes in imported beef.

do exist. None of those standards or the evidence they imply, in the view of the co-complainants, justified the ban.

Thirdly, the US and Canada noted that the EC measure was not based on a scientific assessment of the risks of importing hormone-treated beef. Rather, it provided a level of protection that was arbitrary and unjustified, and constituted a disguised restriction on international trade, and thus violated Articles 3.3, 5.1 and 5.5 of the SPS Agreement.[8] The ban on hormone-treated beef was further seen by the complaining parties as being "a response to perceived, rather than actual, risks" (Roberts 1998, p 392).

As evidence of the arbitrary nature of the ban, the complainants noted that the EC allows the use of carbadox as a feed additive in pork production, despite its proved carcinogenicity, and attributed the inconsistency to the relative competitiveness of the EU beef and pork sectors. The US and Canada estimate the value of their combined trade loss from the ban to be US$250 million per year (ICTSD 1999a) and cite their loss of export sales since the bans inception as evidence of the EC's protectionist motive.

The EC rejected these claims, and specifically disputed each one. The scientific evidence on the long-term health effects from ingesting hormone-treated beef is, it was argued, insufficient or non-existent (Hurst, 1998). Given the current state of scientific knowledge, the EC asserted it was well within its rights under the terms of the SPS Agreement to exercise the precautionary principle (Roberts, 1998). With regards to the claims about the measure itself, the EC deferred once again to the precautionary principle, arguing that its general level of acceptance in international law justified the conservative approach taken (Hurst, 1998; Sampson, 1999).[9]

The complainants' accusation that the level of protection chosen by the EC in relation to hormone-treated beef was arbitrary and unjustified was rejected by the EC on grounds of

[8] Since none of the disputing parties made claims or counter-claims in relation to its allowances, and the EC considered its ban to be permanent, Article 5.7 was found to be inapplicable (US Panel Report, para. 8.249).

national sovereignty. It is each country's sovereign right under Article 2.1 of the SPS Agreement to choose a level of protection which is acceptable to society – an argument not refuted by the complaining parties. There are, however, qualifying restrictions on how this right can be exercised under the terms of the SPS Agreement (specifically outlined in Articles 3.3 and 5.1). The reviewing bodies' decisions on the validity of the EC's sovereignty claim is discussed below.

Notwithstanding the EC's right to choose an appropriate level of protection, the justifications given for the ban related to the practicalities of achieving it using less extreme measures. The EC maintained that a ban was the only economically and practically feasible option given the "substantial economic incentives" (Roberts, 1998, p. 390) for producers to abuse hormonal growth promotants. Furthermore, the practical difficulties of testing and compliance monitoring would render regulated use of hormones expensive, and largely ineffectual (Roberts, 1998).

The EC denied the charge that its measure was a disguised restriction on international trade and that it was unduly trade restrictive in pursuit of its chosen appropriate level of protection. Total import levels of beef, according to the EC, had remained fairly constant before and after the introduction of the *de facto* ban against US and Canadian beef and therefore it cannot be considered a non-tariff barrier (Roberts, 1998).[10]

After the initial hearing, the US and Canada Panel Reports concluded that the EC had violated the SPS Agreement -- a conclusion that was appealed by the EC in September 1997. The Panel's opinion[11] was broadly shared by the Appellate Body in its report[12] which was delivered to WTO Members in January 1998 (Hurst, 1998). The main disagreements between the Panel and the Appellate Body related to the arbitrary and

[9] The complaining parties claim that the EC measure was not based on existing international standards was not refuted by the EC on appeal (Hurst 1998).
[10] The question still arises as to what the level of imports would have been had the ban not been implemented, especially considering that hormone-free imports from the rest of the world are restricted by a tariff quota regime.
[11] Since the findings in the reports of the Canadian and US Panels were very similar, they will henceforth be referred to as "the Panel".
[12] WTO (1998a) *hereinafter* Report of the Appellate Body.

unjustifiable nature of the measure itself and whether or not it constitutes a disguised restriction on international trade.

The Panel's main conclusion was that the EC ban on hormone-treated beef imports constituted a violation of the SPS Agreement, specifically with respect to Articles 3.1, 5.1 and 5.5. The Panel interpreted the wording of Articles 3.1 and 3.2 to conclude that the requirement that a measure be "based on" international standards implies that it should conform to international standards and that the measure in dispute did not fulfil this obligation (U.S. Panel Report, para. 8.72; Canada Panel Report, para. 8.75).

With regards to Article 5 of the SPS Agreement which covers provisions and obligations relating to risk assessment, the Panel found insufficient evidence to suggest that the measure was based on a risk assessment, in direct violation of the procedural and substantive requirements of Articles 5.1 and 5.2 (U.S. Panel Report, para. 8.134). The EC's claim that controlling the use of hormones as a growth promotant in beef production would be more difficult than controlling other regulated substances was also found to be insufficiently substantiated by evidence (U.S. Panel Report, para. 8.146).

The Panel further found the EC in violation of Article 5.5 by adopting different levels of protection in comparable situations in the treatment of hormones occurring naturally versus those administered for growth-promoting purposes; hormones administered for therapeutic and zootechnical purposes versus hormones administered for growth promoting purposes; and hormones administered for growth-promoting purposes versus the administration of other growth-promoting substances (eg. carbadox) (U.S. Panel Report, paras. 8.193-6; Canada Panel Report, paras. 8.196-9)).[13] The measure chosen by the EC to provide its chosen level of protection – a ban on imports of hormone-treated beef from US and Canada – necessarily restricts international trade.

[13] Only the last distinction was found to be arbitrary and unjustifiable by both the Panel and the Appellate Body (Hurst 1998).

The single provision in the SPS Agreement under which the EC could implement the ban while considering the scientific evidence (according to the precautionary principle) is contained in Article 5.7 which allows " Members[s to] provisionally adopt sanitary or phytosanitary measures...[while they]...seek to obtain...additional information...and renew the sanitary or phytosanitary measure accordingly within a reasonable period of time" (GATT, 1994a). The EC, however, considered its ban to be permanent and so did not choose to defend its measure under the terms of Article 5.7. The Panel ruled that the EC must therefore comply with the provisions of the other Articles of the SPS Agreement, a view shared by the Appellate Body which found that the clear wording of the rest of Article 5 meant that the other provisions prevail over the precautionary principle embedded in Article 5.7 (Report of the Appellate Body, para. 253(c); Sampson, 1999).

There were few other procedural or substantive aspects of the Panel's interpretation of the terms of the SPS Agreement with which the Appellate Body concurred. The Appellate Body did, however, find against the EC on the grounds that the measure was not based on an adequate risk assessment, and the Arbitrator ruled[14] that the EC implement the findings within 15 months (Report of the Appellate Body, para. 208; Arbitration Award, para. 48)). Some observers maintain that the Appellate Body had taken a far more generous view of the Agreement's provisions in favour of the EC and may have lost substantial ground claimed by the Panel with particular regards to the discrimination-based test of SPS measures affecting trade (Cottier, 1999; Hurst, 1998). That is, while the Panel found the measure constituted a disguised restriction on international trade (despite its *prima facie* non-discriminatory nature), the Appellate Body disagreed on the basis that the intent of the EC was to protect its consumers from unidentifiable health risks (Report of the Appellate Body, para. 245).

By making the intent of a member a relevant, indeed crucial, consideration, the Appellate Body's conclusion weakens the ability of the SPS Agreement to discipline measures strictly on scientific bases (as was its designed purpose) and on the extent to which they interfere with international trade:

[14] WTO (1998b) *hereinafter* Arbitration Award, (granting a period of implementation up to May 13, 1999).

> The SPS Agreement is...not designed to protect measures which have no basis in science, regardless of whether the party imposing such measures *intends* to restrict international trade. The Appellate Body's conclusion condones measures which – although imposing arbitrary and unjustifiable distinctions in levels of protection which interfere with international trade – are imposed to address purely political concerns...[In any case], because legislation reflects mixed objectives, it may be fallacious to speak of a Members "intent" at all.
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> Hurst, 1998, p. 23

The Appellate Body's interpretation of Article 3.1 and 3.2 of the SPS Agreement was more favourable to the EC. In the opinion of the Appellate Body, the Panel's requirement that measures "conform to" international standards to meet Article 3.1 obligations was excessively burdensome (Report of the Appellate Body, paras. 167, 253(g)). However, although the Appellate Body confirmed the SPS Agreement specifies no threshold level of risk, the acceptable level of risk chosen by the Member imposing the measure must base its decision on an objective risk assessment (Hurst, 1998). In the opinion of the Panel and the Appellate Body, the latter requirement had not been sufficiently met, and the EC was requested to implement the findings of the reviewing bodies.

1.3 Economic analysis

The EC ban on hormone-treated beef imports necessarily affects international trade. The purpose of the present section is to analyse those effects using an economic model. The assumptions of the model are designed to keep the analysis as simple as possible, while maintaining a credible level of reality.

Firstly, negative externalities – in either production or consumption – are initially assumed to be negligible. That is, the presence of hormone-treated beef is assumed to have no effect on the production of other goods or the natural environment or on human

health. Secondly, hormone-treated beef is assumed to be in fact safe for human consumption even though it is *perceived* as unsafe by some consumers in the EU because of lack of scientific evidence, or evidence which lacks credibility in the opinion of those consumers. Thirdly, except for their hormone status, the beef from the EU, the US and Canada, or the rest of the world is assumed to be identical in quality and safety attributes. Initially, the US and Canada are assumed to produce only hormone-treated beef.[15] Likewise, EU beef and imports to the EU from the rest of the world are assumed to be hormone-free, consistent with the current EU requirements.

Consumer decisions about the purchase of beef are assumed to be made under conditions of imperfect information. The total demand for beef in the EU depends on the perception of the average quality of beef available on the EU market and the relative amounts of the different types of beef (ie hormone-treated or hormone-free) available on the market. The average demand for beef decreases as the amount of hormone-treated beef on the market increases because some EU consumers, for either health or ethical reasons, see hormone-treated beef as less desirable. The model therefore allows for differences in preferences among EU consumers – some are indifferent between the different types of beef and will purchase the hormone-treated beef if it is cheaper. We assume that EU consumers trust the labelling and certification regimes of the European Commission and private standards groups (such as ISO) but not those of the North American governments or private enterprise. Society is assumed to be risk neutral.

We assume, in order to keep the model as realistic as possible, that the EU is a large country ie. is a large buyer on the world beef market and therefore the supply curves of the importing countries (such as the US) are upward sloping from the perspective of the EU.[16] The US and Canada, although complaining parties in their own right in the *Hormones* dispute are, for simplicity's sake, referred to as NA (North America).

[15] In reality, some US producers do produce and export hormone-free beef, but the EC has placed a temporary (until November 15 1999) ban on *all* US beef imports since supposedly hormone-free US beef was found (in April 1999) to contain (allegedly) exogenously administered hormones (ICTSD, 1999b, c). This situation is therefore consistent with the assumption of no US imports while the ban is maintained.

[16] The EU's share of world production of beef and veal in 1998 was approximately 14.2% (FAO, 1999a). In 1997, the EU contributed 14.6% of the world's beef and veal exports, and consumed 13.6% of total world

The EU beef market is represented in diagrammatic form in Figure 1.[17] The demand for (initially hormone-free) beef by EU consumers is shown as D_{EU}. The supply of hormone-free beef by EU producers is shown as S_{EU} and the supply of (initially hormone-free) beef to the EU from the EU and the rest of the world other than the US and Canada (ROW) is shown as S_{ROW+EU}. Since hormone treated beef from North America is currently banned, the market equilibrium is found at A, where the S_{ROW} curve intersects the EU's demand curve. The equilibrium price is denoted P_{ROW} and the equilibrium quantity, Q_{ROW} is supplied by EU producers (OQ_{EU}) and imports from ROW (Q_{ROW}-Q_{EU}). Producer surplus to EU producers is equal to the area P_{ROW}CD and consumer surplus to EU consumers is represented by area FAP_{ROW}. Producer surplus to importers is shown by the area CAD.

Assume that the EC follows the recommendations of the reviewing bodies in the *Hormones* dispute, and the ban on hormone treated beef is lifted and replaced with a publicly monitored labelling scheme, which has been suggested as an efficient policy alternative to the ban (Canada Panel Report, para. 8.278; Roberts, 1998). Usually, in the case of credence goods, the qualities of the goods and the claims being made by producers are not detectable or verifiable. Producer-sponsored labelling schemes are ineffectual if the public does not believe them. In such a situation, the labels lose their informational content and producers have no incentive to implement such a scheme (Bureau *et al.*, 1998). Through the assumption here that labels are credible in the view of consumers if they are government sponsored, the normal problems with credence goods, or indeed with credence *attributes* such as the biotechnology used to produce goods, can be overcome.

If the labels claim no more than country of origin, then they will convey enough information to those consumers who are concerned with the use of hormones in beef

consumption (inferred from FAO, 1999a, b). In this same year, however, the EU consumed only 3.7% of world imports (FAO, 1999b). It is clear that the EU is a net exporter of beef and veal. Hence, the 11417 MT of beef and veal imported in 1997 (FAO, 1999b) may represent specialised types of high quality beef.

production to be able to avoid NA beef if desired. Those consumers who are adverse to the use of hormone technology will know that NA uses hormones to treat their beef and will purchase beef from elsewhere: they are infra-marginal consumers who are not indifferent and hence will be self selected from the market at the margin. The indifferent consumers – those who do not care if beef has been treated with hormones – are marginal consumers who will be made better off when the ban is removed. In this case, the relevant supply curve becomes S_{TOTAL} which equals S_{NA} plus S_{ROW+EU} . The price facing EU consumers and producers is now the world price, P_W.

It is useful to compare how welfare in the EU, NA and the rest of the world changes when the ban on hormone-treated beef is lifted and a (costless) labelling scheme is introduced. At price P_W domestic production is equal to OQ_{EU}' and EU producer surplus is P_WID instead of P_{ROW}CD, a decrease of $P_{ROW}CIP_W$. Imports to the EU from NA at price P_W are OQ_{NA} and NA producer surplus is shown by P_WED or BMD. EU imports from the rest of the world are equal to Q_{ROW}'-Q_{EU}' such that ROW producer surplus is equal to the area IBD instead of CAD, a decrease of CABI. Consumer surplus in the EU is equal to FMP_W instead of FAP_{ROW}, an increase of $P_{ROW}AMP_W$ which is enjoyed by those who refuse to eat NA beef as much as those who are indifferent. The net gain in EU economic welfare is the difference between the EU producer and consumer surplus changes, or CAMI. According to this analysis, the EU would be better off adopting the recommendations of the WTO reviewing bodies, suggesting that political economy forces within the EU are preventing a net benefit from being realised.

What if, to take the extreme case, no EU consumer wants NA beef? The outcome cannot be worse than what currently occurs under the ban regime in which $D_{NA} = 0$. If this is indeed the case, then the EC could adopt free trade and achieve two goals: firstly, to have zero imports of hormone-free beef such that the ban result is achieved under conditions of free trade; and secondly, to discourage the use of hormones in beef production in other

[17] A more complete model of the EU beef market, including an analysis of how the market would be affected when the TRQ regime is considered, is outlined in James (1999).

countries wishing to import to the EU, thus addressing any ethical concerns the EU consumers may have with the use of hormones in world beef production.

Even if only a few EU consumers are indifferent, however, gains will be made by lifting the ban. This model shows it is not possible for the EU as a whole to lose by lifting the ban under these assumptions. Clearly, though, EU beef producers would lose from freer trade if some NA imports occur.[18]

The change in welfare of non-EU suppliers to the EU market is the sum of the NA producers' unambiguous gain of area BMD, and ROW beef producers' loss of CABI. Thus, the ban on hormone-treated beef is preventing an outcome which would be welfare improving for its own citizens (on net) by area CAMI as well as NA producers.

If we further assume that ROW producers are able to adopt hormone technology (but the EC ban on growth promoting hormones remains in place for EU producers) then the S_{ROW+EU} and hence S_{TOTAL} curves would shift down. The equilibrium world price will fall, reducing EU and NA producer surpluses while raising ROW producer surplus and EU, NA and ROW consumer surplus further – assuming EU consumers unwilling to buy hormone-treated beef remain infra-marginal. Furthermore, if EU producers were allowed to use hormones, S_{EU} also would shift down, perhaps enough to offset their welfare loss from the drop in price.

1.4 Qualifications

The above model shows that, given its assumptions including that a country-of-origin labelling scheme is implemented, EU net economic welfare cannot be reduced by lifting the current prohibition on hormone-treated beef and beef products. A number of qualifying comments should be made, however, regarding possible developments in the EU market which would affect the analysis outlined above, and hence its conclusions.

[18] Presumably, that loss to EU producers could be offset or even reversed if they were allowed to lower their costs of production by using beef hormones, an option discussed below.

It would be expected that the EU beef producers would place pressure on the European Commission to allow them to employ hormone technology in order to compete more favourably with hormone-treated imports. If the beef producers were successful in their bid, the cost structure and efficiency of the EU producers would change and presumably the S_{EU} curve would shift down. Clearly, the closer becomes the EU's efficiency to that of the importers, the lower are the additional gains from trade *per se* but the larger are the gains to EU producers and to consumers at home and abroad. Assuming no adverse health effects and zero ethical externalities (ie. consumers do not experience disutility from the existence of hormone technology), and assuming consumers unwilling to eat hormone-treated beef remain infra-marginal, the EU cannot be worse off from relaxing that regulation on producers.

In reality, the EC's beef tariff rate quota is not binding, and is in fact less than one quarter filled. There could be several possible explanations for this. Firstly, the EU producers may be so efficient as to preclude imports apart from specialist high-quality lines of beef. Secondly, the 20% in-quota tariff may be prohibitive for many overseas suppliers, as has been suggested by Australian beef industry sources. It could also be that an administrative decision was made to allocate the quota to countries whom the administrators knew could not compete. In any case, the fact that the quota is not filled may give a non-SPS reason for the EC's reluctance to lift the ban on hormone-treated beef. Hormone technology may yield efficiency gains enough to undermine the EU producers' efficiency (or the assistance given to them) such that the tariff on in-quota sales is a less effective import barrier.

The labelling scheme used to provide information to consumers is assumed to be costless. If, however, the implementation, enforcement and monitoring costs are positive, they would have to be weighed against the welfare gains from freer trade. Following Bureau *et al.* (1998), the "quality" difference between the two types of beef must be sufficiently large for the labelling scheme to yield positive welfare results. The EU consumers who benefit from the freer trade and the labelling scheme can be seen in Figure 1 to enjoy

consuming an extra amount of beef equal to $Q\text{-}Q_{ROW}$, and their welfare gain is represented by area $P_{ROW}AMP_W$. Only if the EU consumers' share of the labelling cost is less than their welfare gain will the EU consumers be better off. If there are not many consumers who would be willing to buy NA beef given the choice, then $Q_{NA}\text{-}Q_{ROW}$ will not be large, and the condition that AMB be larger than the labelling costs is less likely to be satisfied. The label will be a waste of resources if consumers perceive little difference between hormone-free and hormone-treated beef.[19]

The above analysis recognises differences in consumer preferences, but assumes those with a higher willingness to pay for hormone-treated beef are infra-marginal consumers. It is helpful to consider how the analysis would change should the market segment such that there are two separate demand curves for the two types of beef.

The hormone-free beef market is shown in the first panel of Figure 2 and shows the supply of EU beef as S_{EU}, the total supply of beef as S_{ROW+EU} and the (initial) demand for hormone-free beef as D_f. The equilibrium price for beef is P_f at point E. The initial quantity of hormone free beef sold is O_fQ_f, of which HE is imported and P_fH is produced domestically. Following the lifting of the ban and the introduction of hormone-treated beef, the hormone treated beef market is shown in the second panel of Figure 2. The equilibrium for the hormone-treated beef market is found at the intersection of S_{NA} and D_{EU}, yielding a price P_t and a quantity traded of O_tQ_t.

Once hormone-treated beef is available, the hormone-indifferent consumers will buy it since it is cheaper ($P_f > P_f' > P_t$).[20] The demand for hormone-free beef (which was the demand for total beef before the hormone ban was lifted) decreases to, say, D_f' since the hormone-indifferent consumers switch to the hormone-treated beef market. The equilibrium price for hormone free beef falls to P_f' where the S_{ROW+EU} curve meets the new demand curve. The quantity of hormone-free beef consumed falls to O_fQ_f'. The total

[19] Bureau *et al.* (1998) use a similar model and conclude that the optimal policy for the EU depends on the cost of the labelling scheme and the perceived quality difference between the two types of beef.
[20] The equilibrium prices and quantities traded of the two types of beef will be determined simultaneously as participants adapt to the liberalised market(s).

quantity of beef sold in the EU has increased, that is, $O_fQ_f < (O_fQ_f' + O_tQ_t)$. EU consumers gain $ABP_t + P_fGE'P_f' - FEG$. The EU producer surplus loss is equal to P_fHJP_f' and the ROW producers lose HEE'J. The NA producers gain area P_tBC. The net gain to the EU is equal to ABPt + HGE'J – FEG.

For ROW producers supplying the EU market, the fall in the price of hormone-free beef represents a loss in producer surplus. If, however, they too employed hormone technology following suspension of the EC ban of its use, it is conceivable that they might regain some of their lost surplus, or even be better off, by competing in the hormone-treated beef market. This would shift resources from hormone-free to hormone-treated beef production, but hormone-free beef may still be priced less than P_f.

For a labelling scheme to be successful, consumers must have confidence in the programme, and see the information as credible and correct. Kerr (1999) suggests that labels will not necessarily provide assurance that trade disputes will no longer arise, as labels are essentially an information device to enable consumers to do their own risk assessment. Given the evidence (see Henson, 1998; Mahe and Ortalo-Magne, 1998; Pollack, 1995 and Deane 1999) on consumer (mis)perceptions of risk, those advocating a purely scientific approach to risk assessment may view this as an unsatisfactory solution.

Moreover, to ensure the claims made on labels are seen as credible by consumers, rigorous and hence expensive testing and monitoring systems may be required. If these systems are perceived by exporters to be excessively cumbersome and disproportionate to the purpose they ostensibly serve (as may be the case in the hormones situation given the lack of scientific evidence on the associated health risks), there is scope for disputes to arise under the auspices of the TBT Agreement (Kerr, 1999).

The analysis in section 1.3 focuses on the short-term and ignores dynamic effects. For instance, the infra-marginal "beef hormone-averse" consumers may over time become accustomed to the use of hormone technology and may find it more acceptable, especially if new scientific evidence comes to light that hormone-treated beef presents no more of a

health risk than does hormone-untreated beef. Conversely, if scientific evidence that the presence of exogenously-administered hormones is harmful to humans, the indifferent consumers may become less so and be more willing to pay for hormone-free beef. Moreover, if the scientific evidence is strongly adverse, NA producers may cease to use hormone technology for producing their beef and the S_{NA} curve would be higher. Clearly, such a situation will moderate the gains from trade reform.

1.5 Summary of findings

Issues such as environmental protection and food safety are seen by many as the concern of domestic policy makers, and the constraints placed on governments by WTO rules are increasingly resented by civil society groups, NGOs and governments themselves (Sampson, 1999; *The Economist*, 1999). The challenge for the WTO is to find the balance between pursuing free trade in the face of the 'new protectionism' while recognising the genuine national sovereignty issues behind the policies providing it.

Policies to mitigate food safety risks are especially contentious given the nature of the risks involved, and the emotive and dramatic consequences of recent food safety scares. The case study of the EC ban on beef produced using hormones for growth-promotion purposes concludes that the SPS measure chosen by the EC ostensibly to protect consumers' health is welfare inferior to free trade, under the assumptions used. It is likely that beef trade liberalisation combined with a labelling scheme is the best way of securing consumer choice while abiding by WTO rules. Furthermore, producers outside the EU will also gain from EU beef trade liberalisation, as the technological constraint imposed by the ban is removed.

The *Hormones* dispute made visible the dilemma between free trade and national sovereignty, and exposed weaknesses both in the agreements designed to address it and in the WTO itself. Clearly, the distinction between what is and what is not WTO jurisdictional territory needs to be better articulated, as do the guidelines concerning

implementation, if disputes such as those that have already arisen are to be avoided in the future.

1.6 Legal implications of the *Hormones* dispute

Recent crises such as BSE, the beef hormones dispute and the Belgian dioxin scare have been somewhat of a precursor to what many fear may be a crippling challenge to the WTO – namely, how to handle disputes over the emergence and growth of GMOs, particularly in foodstuffs. The same sorts of issues that arose in *Hormones* – uncertainty, lack of (or disagreement concerning) objective and/or conclusive scientific evidence, and differing consumer and producer perceptions of risk – are equally relevant for the use of GMOs. If the WTO is to maintain its credibility as an umpire in SPS trade disputes (particularly in the face of 'new protectionist' measures), then any weaknesses in the WTO framework must be addressed.

The SPS Agreement grew from a recognition by WTO Member countries that measures used to address human, animal and plant health risks, no matter how legitimate, have the potential to restrict international trade. The Agreement provides Members with clear guidance as to an acceptable basis on which to implement SPS measures – that of scientific evidence of a health risk. This general directive is more specifically articulated in Articles 3 and 5, which describe in detail what constitutes acceptable evidence on which to base a measure. The legal arguments used in the *Hormones* dispute, and particularly the interpretations given by the reviewing bodies of the case, shed some light on how the SPS Agreement might work in practice.

Overall, as outlined in Chapter 3, the WTO's Appellate Body seemed to take a more generous view of Member's obligations than did the Panel in the *Hormones* case.[21] The Appellate Body, for example, found that the requirement that a measure be based on

[21] Of course, had the wording of the SPS Agreement been more specific, especially with regards to Articles 3.1, 3.2, 3.3, 5.1 and 5.5, there would have been less scope for disagreement between the reviewing bodies. If an agreement refers explicitly to an international setting organisation, it should be clear as to what role that organisation should have (see also Cottier, 1999 and Hurst, 1998).

international standards was not the same, or should not be interpreted, as a requirement that a measure "conform to" international standards (Report of the Appellate Body, paras. 163, 168, 170 and 171). Such an interpretation weakens the requirements of Article 3.1 (and the analogous Article 5.1 and, by extension, the less specific Article 2.2). It also gives perhaps undue deference to the opinion of the reviewing body: "When only a weak link between measure and standard is required, measures pass easily by Articles 3.1 and 5.1 and land squarely on Article 5.5 – where the viewpoint of the reviewing body is outcome determinative" (Hurst, 1998, p. 27). The "conform to" interpretation, however, precludes subjective interpretation of the requirements of Articles 3.1 and 5.1 and makes their requirements for SPS authorities clearer and more transparent.[22]

The Panel found that Article 5.1 had a procedural as well as substantive requirement, ie that a risk assessment must be considered in advance of implementation (US Panel Report, para. 8.113; Canada Panel Report, para. 8.116). The Appellate Body, by contrast, found that a measure is considered to be in accordance with the requirements of Article 5.1 so long as an "objective relationship" can be found between scientific evidence and the measure when the measure is challenged (Report of the Appellate Body, para. 189), implying that there is no procedural requirement to Article 5.1. If this view prevails, however, there is potential for the spirit of the SPS Agreement to be undermined. As Hurst (1998) points out, the Appellate Body's interpretation implies that a Member has a responsibility to ensure its measure is consistent with scientific evidence only when it is challenged. Conversely, by requiring (or at least encouraging) scientific evidence to be obtained before a measure is implemented, the procedural obligations of Article 5.1 – as interpreted by the Panel – means the SPS Agreement's explicit objective of harmonisation is more likely to be achieved (Hurst, 1998).

In addition to its more liberal interpretation of SPS rules, the Appellate Body failed to address the EC's evident desire to give more favourable treatment to domestic beef producers (Hurst, 1998). This seems to be a major omission on the part of the Appellate

[22] It could also limit the potential for disputes. As Bureau and Doussin (1999) point out, "…regulations in conformity with international standards are unlikely to be successfully challenged." (p. 4).

Body, and in serious and direct violation of the initial goal of the SPS Agreement – to prevent the disguised re-instrumentation of barriers to agricultural trade.

1.7 The legitimate role for economics under the SPS Agreement

Concern has been expressed by some SPS officials and commentators (see, for example, Sinner, 1999; PC, 1999; Kerr, 1999; Roberts, 1998; Bureau *et al.*, 1998) that using economic tools such as cost benefit analysis and frameworks such as that presented here may be inconsistent with various Articles of the SPS Agreement, especially Articles 5.5 and 2.3. The SPS Agreement requires, indeed exclusively allows, scientific justification for measures.

More specifically, using cost-benefit analysis (or any other economic tool) to justify SPS measures could breach the SPS Agreement if it engenders

a) different results for different import sources with similar risk status (thereby contravening the non-discrimination principal embedded in Article 2.3); or
b) different levels of acceptable protection in different but comparable situations – a violation of Article 5.5 (this, however, ignores recent panel rulings which specify the differences must be arbitrary and unjustifiable, as discussed below).

Sinner (1999) expresses concern that using economic analysis, even if it has a positive influence on trade, could fail to satisfy the consistency criteria of Article 5.5:

> "...concern could arise if ... [a] government rejected, due to insufficient benefits, an application for ... goods that presented similar risks to [other] goods approved because the benefits of its importation outweighed otherwise significant risks."
>
> Sinner (1999), p. 7

Drawing on the interpretation of Member obligations from *Hormones*, Article 5.5 was deemed to have three separate parts, each of which must be proved in order to conclude that Article 5.5. as a whole had been violated (Hurst, 1998):

1) The Member must have adopted different levels of SPS protection in different (but comparable) situations;
2) the differences must be arbitrary and unjustifiable; and
3) the differences must result in discrimination or a disguised restriction on international trade.

Hence if the *method* of determining the appropriate level of protection includes cost-benefit analysis, the second part of Article 5.5 will not be violated (ie. the differences will not be arbitrary or unjustifiable) and the WTO may not be able to object. Sinner (1999) likewise concludes "...there appears nothing in the SPS Agreement that prevents [cost-benefit analysis] as being the basis for distinctions between situations of comparable risk..." (p. 11). Procedurally, the task of reviewing bodies (in the event of a dispute over risk management decisions) would be to ensure the method for determining the appropriate level of protection is valid and consistent. According to Bureau and Doussin (1999), the rulings of *Salmon* and *Hormones* confirm the right of Member to choose their own standards so long as they are chosen in an appropriate manner: "…what is imposed is a procedure for setting regulations rather than a particular standard." (p. 4).

Risk management – the choice of the appropriate level of protection – is the proper (and WTO-legal) place for economic analysis. There are no limits on factors which can be considered by authorities in risk management decisions, indeed it is recognised as a sovereign right of a country to choose their acceptable level of risk. The list of factors outlined in Article 5.3 relating to allowable considerations for risk assessment decisions does not apply to risk management, which is covered by Articles 5.4 to 5.6 and called "the determination of the appropriate level of sanitary and phytosanitary protection". While this allows some degree of flexibility for SPS authorities and risk management agencies when setting the appropriate level of protection, it could be used for a potentially unmanageable array of non-scientific reasons for restricting trade.

There is another danger in allowing economic factors to be included in risk assessment. If economic considerations – including consumer gains from trade – are allowed to be considered when choosing or justifying a SPS measure, the opportunity will arise to use

producer losses from import competition as a reason for restricting trade (see also Roberts, 1998; Robertson, 1998; Sinner, 1999). When advocating economic analysis in SPS decisions, it should be kept in mind that the economic efficiency test will not always yield a trade liberalisation recommendation and anyway is not a legal basis for a SPS measure under the terms of the SPS Agreement.

On the other hand, WTO legal-measures may be economically inefficient. Bureau *et al.* (1998) point out that under the terms of the SPS Agreement, "...[s]hould a country be able to prove that there is a risk of dissemination of a pathogen, and even if the risk level is small, the economic consequence of dissemination negligible, and the economic costs of the ban considerable, the ban would be legitimate." (p. 22). From an economic standpoint, this seems to be an undesirable possibility, especially considering the SPS Agreement was designed to discipline the use of unnecessarily restrictive non-tariff barriers to agricultural trade. But unnecessarily restrictive measures are the fault of domestic policy makers and lie not with the SPS Agreement itself – indeed, Article 5.6 specifies that measures should not be more trade restrictive than required to achieve the appropriate level of protection.

From the *Hormones* dispute it has become clear that the SPS Agreement provides few guidelines for situations of uncertainty, or scientific ambiguity, except for the precautionary principal embedded in Article 5.7. Measures implemented on the basis of uncertainty (and not applicable under Article 5.7) will be difficult to defend under Article 5.1, since an "uncertainty assessment" is nonsensical. This weakness in the SPS Agreement will become increasingly obvious and cumbersome with the growth of GMOs and measures to restrict their use and trade.

Moreover, the deference given to international standards-setting bodies is only helpful if standards exist. Otherwise, the situation will once again be one of uncertainty. Kerr (1999) explains that where standards exist (eg. in Codex and IPPC), it was expected that they would be used. Thus the WTO would not be in the difficult and dubious position of judging which standards (and hence measures) were necessary and acceptable. This is,

however, precisely the position of WTO reviewing bodies when they are asked to judge on uncertainty.

The role of international standards-setting bodies should in any case be more tightly defined. The difference in opinion between the Panel and the Appellate Body in *Hormones* over exactly how a Member should interpret its obligations under Article 3.1 (and the analogous Article 5.1) is likely to be repeated in future SPS disputes. Robertson (1998) furthermore suggests that "...the role of international standards organisations will be crucial in holding back 'consumer sentiment' against scientific evidence" (p. 2). The wording of Article 3.1 needs to be altered, or more specific directives implemented, if confusion is to be avoided in the future.

Notwithstanding the question of its relevance, as discussed in section 1.2, the intent of a Member is difficult to judge in situations of uncertainty or questionable science, since there is no objective information with which to compare the measure imposed and the possible hazard it seeks to remedy. Again, the best way of ensuring compliance with the SPS Agreement is to scrutinise the *method* by which a Member reaches a decision. In cases where the outcomes are unscrutinable, procedural scrutiny may be the only way of ensuring consistency.

Concerning implementation, the conclusions of the reviewing bodies and the Arbitrator in *Hormones* seem prohibitively vague. The ambiguous recommendation that the EC "implement the findings" (Arbitration Award, para. 48) can to some extent account for the ongoing nature of the beef hormones dispute. More specific directives (eg. that a Member must remove the offending measure) will reduce any confusion arising from different interpretations of dispute settlement rulings by the parties and prevent subsequent retaliation.

1.8 Practical implications for policy makers

The case study presented above clearly show that excessively protective policies, aside from being illegal in many cases, can be net welfare reducing. The analysis of the EU beef market show that, under specified assumptions, it would be in a government's best interest to remove distortionary policies, from both a legal and an economic point of view. This conclusion will not be news to those familiar with the economics of distortions and welfare, but in the context of SPS policy it represents a new approach and a significant departure from the view that SPS measures are beyond the scope of economic analysis.

While it is not possible under the terms of the SPS Agreement for a government to justify an illegal measure on economic welfare grounds, there is nothing in the Agreement to prevent governments from choosing the most efficient policy instrument so long as it adheres to its provisions. As long as economic analysis is not used to justify politically motivated trade restrictions but is used to examine the gains from trade liberalisation, any policy changes will be WTO-legal. There are no directives in the SPS Agreement to prevent governments from *removing* SPS restrictions if doing so is found to be welfare increasing.

Governments must further recognise that ensuring a measure complies with Article 5.6 (ie. that a measure is not more trade restrictive than required to fulfil an SPS objective or to achieve the appropriate level of protection) is in many cases in a country's best *economic*, not to mention its legal, interests[23].

Kerr (1999) reports that consumer preferences are now being touted as a reason for restricting trade, and as an issue that is so important as to warrant special inclusion in the SPS Agreement when it is next reviewed: "...the EU would like to renegotiate the [SPS Agreement] to permit trade restrictions for reasons of consumer preference" (p. 245). Such a proposal is risky since we cannot be sure of consumer preferences. In any case, consumer preferences can, and should, be included when determining the appropriate

[23] The requirement of Article 5.4 – that Members should attempt to minimise negative trade effects when determining its appropriate level of protection – is the counterpart of Article 5.6. Compliance with Articles 5.4 and 5.6 will clearly require the input of economic analysis.

level of protection. Risk management is the appropriate place to consider economic, political and social interests. Risk assessment should be based solely on scientific principles.

Economic analysis should become more prevalent in import risk analyses. A comprehensive review of current SPS barriers may reveal inefficiencies, if WTO challenges do not reveal them first. The use of SPS barriers is typically seen as a scientific issue, and necessary to protect humans, animals and plants from health risks. But economists would see them as a resource issue as well, and hence amenable to economic analysis. The fact that SPS measures are different from standard trade barriers in that they can correct externalities does not mean they always efficient, or that the externalities cannot be corrected in better ways. And while standard trade theory is not able to account precisely for some of the special features and complexities of SPS measures, economics itself should not be ignored.

The role of private health and safety standards is likely to increase in the future. It is difficult to see how these could be brought under the auspices of the SPS Agreement, or whether it would be desirable to do so even if it were possible. The best way of ensuring these do not become excessive barriers to trade is to exercise the transparency provisions according to Article 7 and Annex B of the SPS Agreement.[24] A transparent, consultative approach will deter transgressions and check the use of SPS measures as disguised barriers to trade.

1.9 Areas for further research

The case study of the EC ban on beef hormones would benefit from a more thorough analysis of the tariff quota system characterising the EU beef market. The distinctly opaque nature of the TRQ regime means that an assessment of the welfare effects of the

[24] In a sense, there is an adverse selection problem inherent in publicising SPS regulations, since the least restrictive members are the ones more likely to comply with the transparency clause. Conversely, because more transparent Members are necessarily more open to challenge, Members promulgating excessive restrictions are less likely to publicise their SPS measures, unless required to do so by law. Countries are

beef hormone ban and alternative food safety measures taking into account the present trade policy is likely to be a complex and difficult process. More details on how the quota is allocated, and a thorough investigation of why the quota is currently not binding, may reveal extra subtleties of the market not accounted for here. Similarly, details on the precise efficiency gains from the use of hormonal growth promotants is likely to make welfare calculations more accurate.

The *Hormones* case study, and all SPS policy decisions, are likely to be enhanced by a more thorough understanding of society's attitudes towards risk. If society is not risk neutral, the welfare calculations would need to reflect this, and may reveal different policy rankings from what an economic assessment based (as here) on the assumption of risk neutrality would suggest.

Regular reviews of area freedom status and domestic quarantine and food safety policies will be needed to ensure methods of determining acceptable risk and measures to achieve it are beyond legal reproach and reflective of changing technology and risk conditions in the home country and abroad. Using economic analysis, particularly in risk management decisions, will improve the efficiency of SPS policies, and promote the balance between achieving gains from trade reform and protecting human, plant and animal health.

unlikely to be transparent unless obligated, hence the necessity and benefits of the transparency provisions.

Appendix: The Origins and Rationale of the SPS Agreement

Measures enacted to protect human, animal and plant life and health were, previous to the Tokyo Round of multilateral trade negotiations, covered by Article XX(b) of the General Agreement on Tariffs and Trade (GATT) which specified that

> Subject to the requirement that such measures are not applied in a manner which would constitute a means of arbitrary or unjustified discrimination between countries where the same conditions prevail, or a disguised restriction on international trade, nothing in this Agreement shall be construed to prevent the adoption or enforcement by any contracting party of measures:...(b) necessary to protect human, animal or plant life or health.
>
> GATT (1994d)

At the conclusion of the Tokyo Round in 1979, SPS measures were additionally covered by the Agreement on Technical Barriers to Trade (the TBT Agreement). However, the TBT Agreement (also known as the Standards Code), like other agreements attached to the GATT, was a plurilateral Agreement to which not all GATT signatories were obligated. Hence SPS barriers were not subject to a single, common discipline to which dispute settlement bodies could refer. As Roberts (1998b) points out, not one SPS barrier was successfully challenged in the interim between the Tokyo Round and the implementation of the SPS Agreement.

The potential for governments to resort to technical standards (including those to protect human animal and plant health) once the use of traditional agricultural trade barriers had been disciplined has been noted by many commentators. According to Roberts (1998b), this potential was recognised before the Uruguay Round commenced and it was suggested that disciplines covered by the use of SPS measures be incorporated into the TBT Agreement.

SPS measures are defined by their *objective* (ie to protect human, plant and animal health) rather than the measure itself. Myriad instruments – from bans to labelling requirements – are employed by authorities to achieve SPS objectives. Secondly, the SPS Agreement disciplines measures employed to protect both market and non-market goods, including those related to the natural environment. These features of SPS measures apply equally to technical barriers to trade and so do not explain why SPS measures necessitate a separate agreement from technical barriers, although they do warrant special treatment under the GATT.

The most compelling argument for a separate agreement to discipline measures designed to protect human, animal and plant health relates to how their use coexists with other principles in the GATT, particularly with the Most Favoured Nation (MFN) and national treatment rules.[25] Article 2.1 of the TBT Agreement explicitly reinforces the obligations of signatories with regards to the MFN and national treatment principles of the GATT/WTO. By contrast, the SPS Agreement explicitly recognises that pest and disease risk conditions within and between Member countries may differ sufficiently as to make adherence to Articles I and III of the GATT undesirable for the importing and (actual and potential) exporting countries, and may be welfare decreasing.

Both the MFN and national treatment principles have embedded in them the assumption of 'like product'. This is clearly not the case under the SPS Agreement; different levels of risk associated with products according to their origin mean that products are not 'like' in the GATT sense. Differences in, for example, pest or disease status between exporting countries legitimises differences in stringency levels of SPS measures implemented against them by a third, importing country. Moreover, SPS measures necessarily change the product itself. A tariff will change the price of a good but not its safety or quality attributes. Quarantine treatment, by contrast, ensures that the risk associated with importing a good is minimised and so the good itself is changed.

[25] It was this particular feature of SPS measures, according to Roberts (1998b), which convinced negotiators to draft a separate SPS Agreement rather than incorporate them into the existing disciplines of the TBT Agreement.

SPS measures necessarily violate the MFN principle, but do not necessarily violate the national treatment rule, which applies to the treatment of goods only after the goods have entered the market. Hence SPS barriers at a country's border need not violate national treatment.

In contrast to SPS measures, it is not possible under the terms of the TBT Agreement for a country to place more stringent restrictions on one importer than another. For instance, either a particular practice is deceptive or it is not, regardless of the country involved. Likewise, measures to protect national security interests (such as restrictions on the sale of certain firearms) apply to domestic firms and importers alike and therefore abide by the MFN and national treatment rules.

Strictly speaking, the SPS Agreement is an exception to the general rule of the TBT Agreement. However, the TBT Agreement also refers to the "protection of human health or safety, animal or plant life or health, or the environment" (GATT 1994c, Article 2.2) as a legitimate objective to which trade restrictions can be applied in accordance to its obligations. Therefore, despite explicit deference given in the TBT Agreement to the SPS Agreement for sanitary and phytosanitary measures, the applicable discipline for a given measure could be questionable (Roberts 1998b). As Bureau *et al.* (1998a) point out, some measures could fall under either agreement according to the *objective* of the measure in question. For instance, a measure such as labelling to ensure credible food quality would be covered by the TBT Agreement, whereas a label for the purpose of securing food safety is covered by the SPS Agreement. The intent of a measure is of critical importance to – indeed, forms part of the definition of – the SPS/TBT decision.

Prior to the implementation of the SPS Agreement, it was very difficult to prove that SPS measures were not justified under the terms of the TBT Agreement (Bureau *et al.*, 1998a). By introducing disciplines not found in the TBT Agreement – especially the need to comply to more stringent standards of scientific proof and risk assessment procedures, and the explicit mention of international standard-setting bodies – the SPS Agreement

arguably holds governments to greater account and requires them to give more deference to scientific evidence to meet the higher standards (Bureau *et al.*, 1998a; Roberts, 1998b).

This would suggest the potential for strategic decisions on the part of governments. Indeed, according to Roberts (1998b), authorities do consider the relative demands of the SPS and TBT Agreements in their decisions about if and how to restrict imports of certain foods. In the course of the beef hormones dispute settlement process, the Panel decided that the SPS Agreement, and not the TBT Agreement, was the applicable Agreement under which to address the case (Hurst, 1998).

An interesting legal question arises as to who – the defendant, the complainant or the reviewing body(ies) – should decide on which agreement to refer. Given that the EC could have defended its measure under the TBT Agreement on, say, ethical grounds, (and arguably have had a smaller burden of scientific evidence) should they have been given a choice?[26] Obviously, this dilemma occurs only when a measure is defendable under either agreement and will not, in general, pose a great challenge to the administration of the Agreements.

[26] In any case, it is doubtful that the EC would have had any more success by citing ethical, rather than SPS, reasons for the ban. The *Shrimp-Turtle* and *Tuna-Dolphin* cases are examples where a country attempting to impose their ethical beliefs on other countries by restricting their imports has been found to be in contravention of WTO rules.

Figure 1: The EU beef market

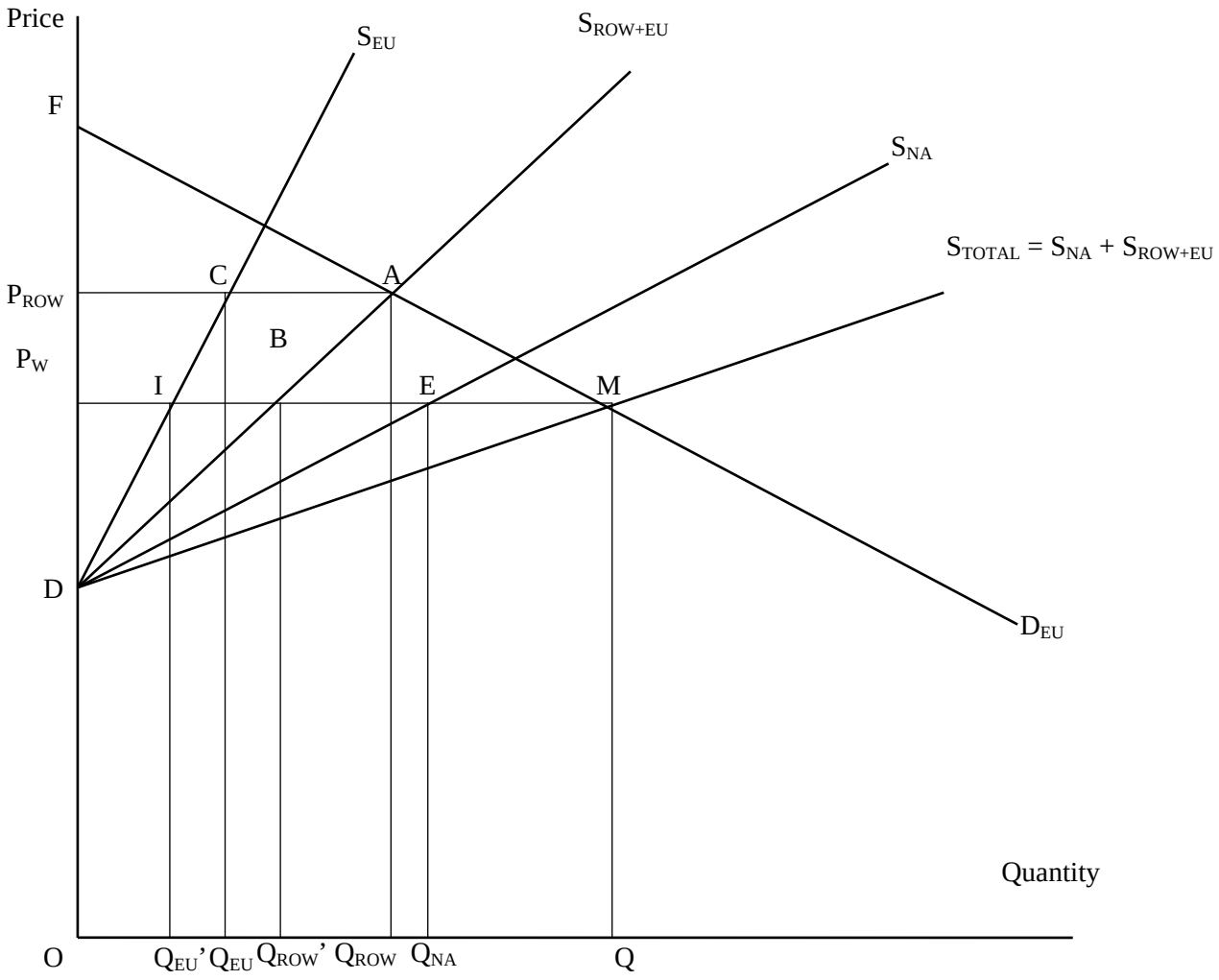
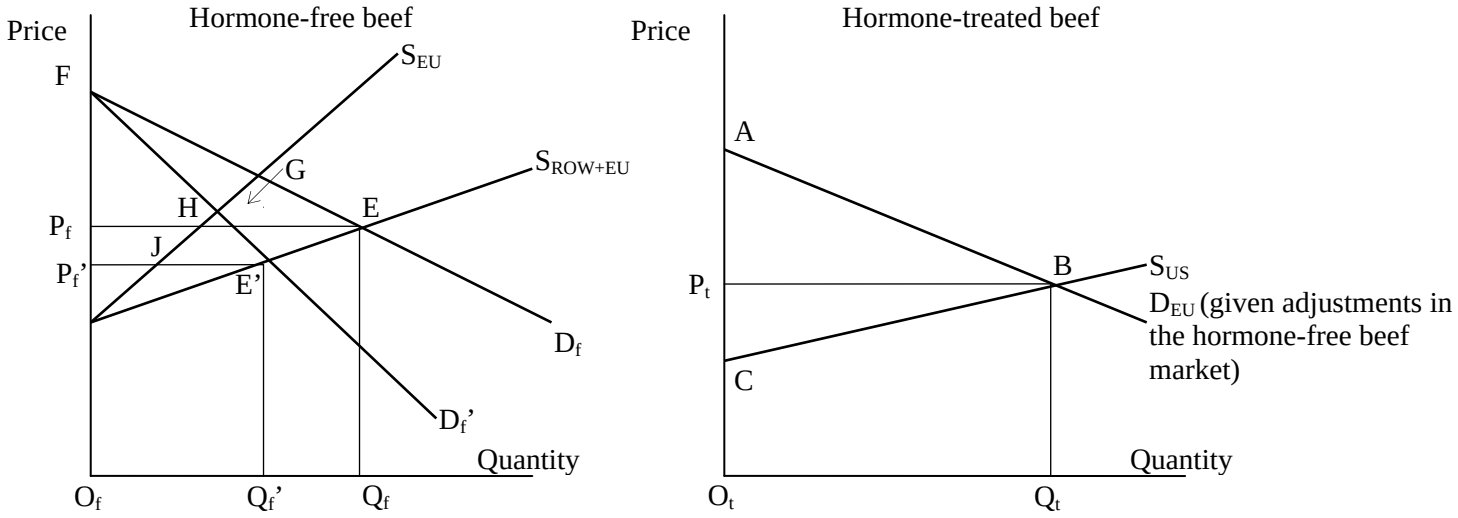


Figure 2: The EU markets for beef after a labelling scheme is introduced



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