Cost-benefit analysis and the SPS Agreement

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Abstract

The WTO Agreement on the Application of Sanitary and Phytosanitary Measures requires member governments to base trade measures on scientific risk assessment. Relevant assessment factors include the costs of entry and establishment of pests, including costs of controlling such pests, but the benefits of importing risk goods appear to be excluded from consideration. This exclusion may be desirable in order to promote consistency and to reduce the chances of measures being used for protectionist purposes. However excluding benefits goes against economic logic, which suggests that both benefits and costs should be considered when choosing the appropriate level of protection from risk. The paper reviews recent economic literature on the use of cost-benefit analysis, the relevant clauses of the SPS Agreement, and recent rulings in disputes over SPS measures. Tensions between economics and the SPS Agreement are identified and a possible resolution is suggested.

1. Introduction

Implementing quarantine and border security policies requires decisions to be made about whether, and under what circumstances, to allow importation of goods that may pose a risk to human, animal, or plant life or health. In New Zealand and in other countries, these decisions are typically based on the likelihood and consequences of the entry and establishment of unwanted pests and diseases, and how any risks from such organisms can be managed.

This is the approach taken in New Zealand's Biosecurity Act 1993 (BSA)[1]. S.22 of that Act provides that, in making recommendations about border control measures, officials must have regard to the likelihood that the goods in question may bring

[1] In New Zealand, biosecurity policy is managed primarily under the Biosecurity Act 1993 (the BSA) and the Hazardous Substances and New Organisms Act 1996 (the HSNO Act). The BSA deals with pest management and the risks associated with harmful organisms entering as a result of the importation of commodities and other "risk goods", whereas the HSNO Act deals with the risks associated with the deliberate importation of "new organisms".

unwanted organisms into New Zealand, and to the nature and possible effect such organisms could have on the people, environment and economy of New Zealand. The responsible officials must also have regard to international obligations and other matters they consider relevant to the purpose of Part III of the Act (Importation of Risk Goods). The BSA, however, contains no clear statement of decision-making criteria for quarantine and border control measures. Consideration of benefits is not specifically excluded, and might conceivably be included as a relevant matter in some decisions, but this is generally not done because of the focus on risks in both the BSA and in the SPS Agreement[2]. Rather, decisions appear to be made based on the criteria that risk should be "as low as reasonably practicable".

The Hazardous Substances and New Organisms Act 1996 ("the HSNO Act") takes a somewhat different approach. The Act directs the Environmental Risk Management Authority to establish a decision-making methodology that includes assessment of monetary and non-monetary costs and benefits (s.9), and to consider the balance of positive and adverse effects of allowing the importation of a new organism (see, for example, s.38). The Authority has established such a methodology and has taken both benefits and risks into consideration in the decisions it has made since the implementation of the HSNO Act. However, the cost-benefit criteria are not binding. In its decision-making methodology, the Authority states that it must take into account the extent to which the risks and costs may be outweighed by benefits, but does not indicate that this will be the determining factor.

Which criterion or set of criteria is appropriate for quarantine and border security decisions? What bearing does the SPS Agreement have on the freedom of governments to apply various criteria? This paper suggests that it is appropriate to consider benefits as well as costs in some decisions, but acknowledges that doing so can create some tension with certain provisions of the SPS Agreement. These tensions are discussed in light of the Articles of the Agreement and rulings on two disputes that have arisen under the Agreement. A possible way to resolve the tension is put forward, along with further questions that need to be addressed.

2. Economic considerations in biosecurity decision-making

The discipline of economics is concerned with the allocation of resources by society in order to maximise public welfare. This includes decisions about whether resources should be devoted to producing a good domestically instead of importing it. A typical test used by economists is "pareto optimality" or "pareto efficiency". An outcome is pareto efficient or pareto optimal if the benefits exceed the costs and if those who gain could, at least in theory, compensate those who experience losses relative to the status quo. Thus, pareto optimality can also be described as a net benefit test and can be evaluated using cost-benefit analysis (CBA)[3].

[2] The World Trade Organisation (WTO) Agreement on the Application of Sanitary and Phytosanitary Measures ("the SPS Agreement"), concluded in the Uruguay Round of Multilateral Trade Negotiations and signed as part of the broader WTO Agreement at Marrakesh in April 1994 (WTO 1994).

[3] The terms "cost-benefit analysis" and "benefit-cost analysis" are used interchangeably. The former is the more common usage, but the latter is sometimes preferred because, when benefits and costs of an

The use of cost-benefit analysis in regulatory decision-making has been increasing in the past two decades, particularly in the United States. Each of the last five U.S. presidents has issued an executive order requiring estimation and consideration of the benefits and costs of major regulatory actions. In 1990, the US Congress created the Presidential/Congressional Commission on Risk Assessment and Risk Management "to make a full investigation of the policy implications and appropriate uses of risk assessment and risk management in regulatory programs…." The Commission recommended that the tools of economic analysis should be recognised as legitimate and useful ways to inform regulatory decision-making about health, safety and the environment, but not as the sole or over-riding determinant of those decisions. The Commission noted in particular that distributional effects of regulatory options need to be taken into account in addition to overall net benefits (Presidential/Congressional Commission 1997).

A report by the United States Environmental Protection Agency (USEPA) reviewed cost-benefit analyses prepared by the agency for 15 major proposed regulations from 1981 to 1986 (USEPA 1987). The study found that using CBA improves environmental regulation. Three analyses alone showed that net benefits from recommended improvements in the regulations would exceed US$10 billion. The total cost of preparing all 15 analyses was approximately US$10 million. The USEPA study also found that in some cases CBA provides the basis for stricter environmental regulation, while in others it reveals regulatory alternatives that achieve the desired outcome at a lower cost.

As for food safety and border security issues, some recent studies identify how cost-benefit analysis can inform decision-making. Caswell and Kleinschmit (1997) examine how the incidence of costs and benefits within and beyond the borders of the regulatory authority can inform consideration of regulation that has effects on people outside the authority's jurisdiction. The study addresses only the disputes that sometime arise in the United States between state and federal authorities. For instance, one criterion put forward is that the in-state benefit-cost ratio should be roughly equal to the out-of-state benefit-cost ratio. Another criterion is "no net negative spillover", i.e. that the out-of-state benefits of a regulation exceed the out-of state costs. The authors do not state a preference for any one criterion out of four identified, but rather state that the choice will depend on the legal and other circumstances of a given case, and that in some cases a combination of criteria will be appropriate. They note that the criteria could also be applied to judge regulation by one country that imposes costs and/or benefits on another country.

Caswell (1998) discusses the use of cost-benefit analysis in food safety regulation in the United States, reviewing some key techniques and examples of how they have been applied. She notes that, for the introduction of the mandatory HACCP (Hazard Analysis and Critical Control Points) programs for meat, seafood and poultry, separate cost-benefit analyses arrived at quite different numbers. These conclusions did not

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outcome are expressed as a ratio, benefits are generally in the numerator (i.e. a ratio greater than 1.0 indicates positive net benefits).

necessarily contradict each other, but were simply measuring different things or using different assumptions. Caswell notes:

> From companies' viewpoint what is important is their private benefits and costs from improvements in food safety and nutrition. For example, will an improvement in food safety be marketable and generate enough revenue to be profitable? From society's viewpoint, the question is whether a given improvement has overall benefits greater than costs *and* where that improvement ranks relative to other possible improvements that could be made with the same resources, not only in the food industry but across all areas (p. 419).

James and Anderson (1998) apply cost-benefit methodology to phytosanitary measures, bringing the trade policy aspects of the issue into stark relief. Their study demonstrates that removing Australia's ban on banana imports would increase net public welfare in Australia by A$90-240 million per year. Even if the banana industry in Australia becomes completely non-viable as a result as a result of imports, the net gains to Australia from trade would be roughly A$100 million per year.

James and Anderson conclude that it would be in Australia's interest to remove the trade ban unless it can be shown that the adverse impacts from disease importation on other producers and/or the natural environment had an expected net cost that exceeded the gains. They point out that the probability of disease importation is less than 100%. Similar analysis for some of New Zealand's smaller production sectors, e.g. poultry, would probably show similar results, i.e. that some SPS measures impose net costs on New Zealand overall. Even where SPS measures produce net benefits, James and Anderson point out, there may be less restrictive measures which produce greater net benefits. They urge the use of cost-benefit analysis in quarantine policy to improve the economic outcomes from SPS measures per se and also to position Australia to "take the moral high ground" when the SPS Agreement is up for review.

If Australia's domestic banana production were protected by tariffs rather than phytosanitary measures, such analysis would be standard and accepted as valid by most policy-makers. It would be clear that Australia does not have a comparative advantage in banana production and that Australia, not to mention other countries, would benefit from trade liberalisation. The principle of comparative advantage and the recognised gains from trade have driven forward several multilateral round of trade negotiations in which tariffs and quantitative restrictions on imports have been progressively reduced. But this analysis has to date bypassed the realm of sanitary and phytosanitary measures.

> The SPS Agreement, like most countries' national quarantine policies, pays virtually no attention to the impact of SPS trade restrictions on consumer prices. This seems surprising to economists…. But it is a natural consequence of quarantine policy-making being simply reactive to producers' (and increasingly environmental groups') complaints about the risk of imported products carrying disease with them, and/or counter-claims by importers. If scientific analysis reveals a significant plant or animal health risk associated with importing a product, then a quarantine restriction tends to be imposed or retained with little thought given to whether its cost to others outweighs the benefit to those lobbying for the restriction. In this sense, … SPS policy assessment is about where environmental policy assessment was two or three decades ago (James and Anderson, 1998, p. 426).

The prospects for economics are not all bad, however. New Zealand's Biosecurity Act requires cost-benefit analysis of management strategies for established pests.

Furthermore, the use of economic analysis in quarantine policy is increasing, in particular for the analysis of the economic consequences of pest or disease introduction. For instance, the New Zealand Ministry of Agriculture, in reviewing its SPS measures aimed at preventing the introduction of Q fever (*Coxialla burnetti*), examined the financial costs to farmers and the costs of human infections if Q fever were to become established in New Zealand (MAF 1998). But there was apparently no attempt to analyse the costs of the current SPS measures to New Zealand consumers.

The reason for this, according to various MAF officials, is that under the SPS Agreement costs and benefits to consumers are not valid considerations for setting quarantine measures (O'Neil et al, personal communication). To the SPS Agreement we now turn.

3. Relevant assessment factors under the SPS Agreement

In adopting the SPS Agreement, the signatory countries reaffirmed in the preamble that no WTO member "should be prevented from adopting or enforcing measures necessary to protect human, animal or plant life or health, subject to the requirement that these measures are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between Members where the same conditions prevail or a disguised restriction on international trade." To this end, the SPS Agreement aims to establish "a multilateral framework of rules and disciplines to guide the development, adoption and enforcement of sanitary and phytosanitary measures in order to minimize their negative impact on trade."

The SPS Agreement, and Article 5 in particular, provides guidance on risk assessment and identifies relevant considerations that should be taken into account. (See excerpts from the SPS Agreement in the Appendix.) Paragraph 1 of Article 5 states:

> Members shall ensure that their sanitary and phytosanitary measures are based on an assessment, as appropriate to the circumstances, of the risks to human, animal or plant life or health, taking into account risk assessment techniques developed by the relevant international organizations.

The definition of "risk assessment" in Annex A of the Agreement makes it clear that assessment is limited to the entry and establishment of a pest and the associated consequences. The "relevant economic factors" cited in paragraph 3 of Article 5 reflect similar concerns, and make no mention of impacts on consumers. Thus, there is no provision for assessing other effects of a decision to import, including benefits that may arise from the importation. It is worth noting that trade competition costs, e.g. impacts on producers of competing products, substances or organisms in the importing country, are also excluded.

The main argument for excluding consideration of benefits appears to be that government's role is to determine whether risks are acceptable or tolerable. If risks are below this threshold, the marketplace can determine whether there are sufficient benefits to generate trade. In addition, there is the difficulty in defining what benefits should be included and an associated potential for discrimination against imported products (for which benefits may accrue primarily to foreign interests). In particular,

governments might seek to introduce arguments that an imported organism would make a domestic industry non-competitive. If individual countries were allowed to reject applications because the benefits of importation are insufficient (especially if only domestic benefits are considered), this could be used to prevent trade that might well be beneficial overall. Thus, the exclusion of benefits can be seen as an attempt to limit the abuse of SPS measures for protectionist purposes.

On the other hand, the study by James and Anderson shows that SPS measures that are based on sound risk assessments can still be used to protect an industry from competition, and that such protection is not in the interest of the wider public in the country in question.

It is not just economics that suggests benefits as well as costs should be assessed when risky actions are being considered. Human intuition also suggests that decisions regarding risk management should take into account beneficial as well as harmful effects. Everyday decisions about risk involve a balancing of potential costs and benefits: we cross many a busy street, despite the chance of getting hit by a car, because there is something we want on the other side. Indeed, our willingness to cross a busy street may vary depending on how much we want what is on the other side and the time savings in crossing at a point other than a proper crosswalk. Hence the common reference to "running a calculated risk". A risk management framework should allow for situations in which society is willing to accept a somewhat higher level of risk than it might normally accept because of the benefits to be reaped.

4. Consideration of benefits and costs in import decisions

If benefits were considered in making biosecurity decisions on import applications, there are two situations in which the outcome would vary from current practice:

a) where very low benefits are insufficient to outweigh otherwise tolerable, i.e. low or very low, risks; and
b) where moderate to high benefits outweigh low to moderate risks.

a. Benefits insufficient to outweigh very low risks

Consideration of benefits could present problems because an application to import goods that present low risks could be declined on the grounds of insufficient benefits to the importing country. Imports may not offer lower prices or higher quality to consumers, but simply aim to capture market share for instance through advertising. In such a case, gains in consumer surplus would be negligible and would might be seen as insufficient to warrant risks that, while very low, were not zero. In addition, losses in profits of domestic producers would probably exceed any gains to consumers. If a net benefit approach were taken, then, the trade might be disallowed. Governments of an exporting country could file a complaint with the WTO if imports of other goods with similar risks were allowed. Thus, if benefits were taken into consideration, trade that might be efficient in international terms could be prevented because the benefits accrue outside the importing country.

This particular problem might be avoided if governments were required to consider costs and benefits of SPS measures to other countries as well as to their own people

and resources. This would follow the direction suggested by Caswell and Kleinschmit (1997). While conceptually appealing, however, such an approach would be problematic in practice. It is difficult enough for governments to obtain information on the likelihood and consequences of pest establishment in their own territories. To expect them to do cost-benefit analyses of production and trade flows for other countries is probably not realistic. It would also invite a country making an import decision to judge the relative merits of production in another country. For example a country seeking to prevent dairy imports might claim that the environmental costs of dairy production in other countries were much higher than its own, and deny market access on that basis. These types of claims and trade barriers the world can do without.

b. Benefits outweigh low to moderate risks

In the second situation, if benefits of importation are taken into account a government might allow the importation of goods that would have been prohibited had benefits been excluded from consideration. The Australian import restriction on bananas is a case in point. James and Anderson (1998) acknowledged that risks of disease introduction were present (i.e. were low to moderate) but showed that these were outweighed by benefits of allowing banana imports.

Removing such a measure would cause no problem in terms of the SPS Agreement in that the Agreement only constrains the imposition of measures that have negative impacts on trade. Countries exporting bananas would have no grounds for complaint unless Australia discriminated against some without justification.

However, a concern could arise if subsequently the same government rejected, due to insufficient benefits, an application for other goods that presented similar risks to goods approved because the benefits of its importation outweighed otherwise significant risks. The SPS Agreement, paragraph 5 of Article 5, reads in part:

> With the objective of achieving consistency in the application of the concept of appropriate level of sanitary or phytosanitary protection against risks to human life or health, or to animal and plant life or health, each Member shall avoid arbitrary or unjustifiable distinctions in the levels it considers to be appropriate in different situations, if such distinctions result in discrimination or a disguised restriction on international trade.

For instance, assume guava imports to Australia are banned because of disease risks similar to those associated with bananas imports to Australia, and that imported guavas were only marginally cheaper than guavas produced in Australia. In such a case, the disease risks of guava imports and associated costs to Australian guava producers would probably outweigh the consumer benefits. If Australia allowed imports of bananas but not guavas, a prospective guava exporter might complain on the grounds that the distinction in the levels of protection was not consistent and constituted an arbitrary or unjustifiable distinction. The guava import ban might be disallowed as contrary to obligations under Article 5.5 of the SPS Agreement.

To recap, in the first case use of net benefit criteria could result in trade measures that are inefficient if only domestic costs and benefits are considered. Expanding the consideration to costs and benefits in other countries would allow even more scope for

protectionist abuse. In the second case, consideration of benefits would improve social welfare by allowing comparative advantage to operate, but consistency provisions in the SPS Agreement might constrain such decisions in some circumstances.

The remainder of this paper explores a possible resolution to this tension between economics and the SPS Agreement.

5. Implications of recent disputes over SPS measures

The challenge, then, is to identify criteria for SPS measures that result in economically efficient outcomes and make sense in trade policy terms, both from the standpoint of practicality and avoiding protectionist abuse of SPS measures. Although the SPS Agreement is up for review and therefore amendments are not out of the question, it would be preferable if a resolution to this issue could be found that is consistent with the existing wording of the Agreement.

Such a resolution may be found in the fact that, under the SPS Agreement, conducting a risk assessment is a separate step from establishing a measure to achieve a given level of protection. While there is considerable guidance on factors to consider in a risk assessment, there is very little said about setting the appropriate level of protection, apart from article 5.5 cited above. Hence while consideration of benefits cannot be part of a formal risk assessment as called for by the Agreement, a government could consider benefits when determining its appropriate level of protection for a given decision. This would not violate Article 5.5 as long as distinctions were not made in an arbitrary manner that resulted in discrimination or a disguised restriction on trade.

a. Situations of very low risk

As noted above, the SPS Agreement requires that biosecurity measures be based on a scientific risk assessment. Imports should therefore be allowed if they present no "ascertainable risk", a term which is discussed below. There would be no reason to consider specific benefits in such cases, as there is no scientific basis for a trade measure to reduce risk. Even when there are no direct or tangible benefits to a country from importing a particular good, all countries benefit considerably from a system which allows trade to proceed when risks are negligible. In other words, a net benefit test would not be applied explicitly, but it would be implicitly acknowledged that there are net benefits of allowing imports with no ascertainable risks.

Such an interpretation would be unlikely to present significant trade policy problems. There are sufficient trade barriers that have no basis in identifiable risks that governments would be unlikely to contest those that are based on ascertainable, non-negligible risks. One concern is that a government might argue that negligible risks are in fact ascertainable. These risks are acceptable where sufficient benefits are present, that government might argue, but applications for importing certain goods would be declined where benefits are considered insufficient, e.g. where domestic production already exists.

Two WTO dispute panel reports are instructive in considering how such arguments might play out under the SPS Agreement. These are the Appellate Body reports regarding the United States and Canadian complaints against European Communities' measures restricting the sale of beef produced with hormones (WTO 1998a) and a complaint filed by Canada over Australia's import restrictions on salmon (WTO 1998b). Both cases involved trade restrictions that were imposed in response to risks that were acknowledged by all parties to be low, if not very low. In both cases, the WTO ruled in favour of the complainant on the grounds that the government imposing the measure had failed to conduct a proper risk assessment as required by the SPS Agreement.

Article 5.1 – "based on" risk assessment

In the *Hormones* case, the original dispute panel's analysis of the phrase "based on" a risk assessment was confirmed and reinforced by the Appellate Body:

> We believe that Article 5.1, when contextually read as it should be, in conjunction with and as informed by Article 2.2 of the SPS Agreement, requires that the results of the risk assessment must sufficiently warrant – that is to say, reasonably support – the SPS measure at stake. The requirement that an SPS measure be "based on" a risk assessment is a substantive requirement that there be a rational relationship between the measure and the risk assessment (WTO 1998a, para 193).

"ascertainable risk"

In the Australian *Salmon* case, the Appellate Body elaborated on what a risk assessment must contain to support a measure. Its report said:

> As stated in our Report in *European Communities – Hormones*, the "risk" evaluated in a risk assessment must be an ascertainable risk; theoretical uncertainty is "not the kind of risk which, under Article 5.1, is to be assessed." This does not mean, however, that a Member cannot determine its own appropriate level of protection to be "zero risk" (WTO 1998b, para. 125).

This statement is significant for three main reasons. First is the fact that the report, following the earlier ruling in the *Hormones* case, accepted the concept of "ascertainable risk" or "scientifically identified risk" as opposed to "the uncertainty that theoretically always remains since science can *never* provide *absolute* certainty that a given substance will not *ever* have adverse health effects" (WTO 1998a, para. 186, emphasis in original). "…if a risk is not ascertainable, how does a Member ever know or demonstrate that it exists?" However, the appellate body in the *Hormones* case rejected any suggestion that a risk assessment had to establish a minimum magnitude of risk, saying this had no basis in the SPS Agreement.

"zero risk"

The Appellate Body also accepted that "zero risk" might in some cases be an appropriate level of protection for a government to adopt. While this seems somewhat at odds with the statement that science can never provide absolute certainty, the Appellate Body found nothing in the SPS Agreement that allowed them to question the level of protection chosen by a sovereign government (WTO 1998b, para 199). In the *Salmon* case, however, Australia did not claim to be seeking "zero risk", only that it had "... a high or "very conservative" level of sanitary protection aimed at reducing risk to "very low levels", while not based on a zero-risk approach" (*ibid*., para 197).

In any case, even a country claiming a zero-risk approach would presumably be required to demonstrate an "ascertainable risk" as a basis for an import restriction. Such a country would also need to demonstrate that it was not making arbitrary or unjustifiable distinctions in the levels of protection it considered appropriate in different cases, if such distinctions resulted in discrimination or a disguised restriction on international trade (Article 5.5).

Taken together, the *Hormones* and *Salmon* cases give some confidence that allowing consideration of benefits would not enable governments to establish SPS measures where there is no ascertainable or scientifically identified risk. The WTO dispute process has set a rigorous standard in requiring trade measures to be based on a proper risk assessment, and in requiring that an assessment show an ascertainable risk to reasonably support the measure.

Some governments may wish to go the next step and challenge measures that are based on risks that are scientifically identified but determined to be extremely low or negligible. In that case they could utilise Article 5.5 if a country imposing a trade measure had made arbitrary or unjustifiable distinctions in the levels of protection it considered appropriate in different situations. In the *Salmon* case, the Panel found and the Appellate Body confirmed that the measures in question constituted unjustified and arbitrary distinctions in the levels of protection adopted by Australia, and that the measures resulted in trade discrimination and hence violated Article 5.5 (WTO 1998b, para 177).

In the *Hormones* case, the original Panel found unjustifiable distinctions in the levels of protection for several substances and trade discrimination from the measures, and hence a violation of Article 5.5. The Appellate Body, however, disallowed the Panel's comparison between hormones occurring naturally and those administered by humans, arguing that it would be "an absurdity" to expect the European Communities to regulate naturally occurring hormones in the same way as administered hormones (WTO 1998a, para 221). This finding seems to miss the Panel's point, however. The Panel, it would seem, found an arbitrary distinction because there was little risk reduction to be obtained by prohibiting added hormones when there were no controls on naturally-occurring hormones that were indistinguishable.

In any event, the Appellate Body did confirm an arbitrary distinction between the levels of protection on added hormones and two other veterinary drugs. However, it

found there was no violation of Article 5.5 because there was no discrimination or disguised restriction on trade proven by the United States and Canada.

Thus, of two SPS measures reviewed by the WTO dispute resolution body, both were found to not be based on proper risk assessments, both measures were found to be based on an arbitrary or unjustifiable level of protection, and one measure was found to have resulted in trade discrimination. These cases suggest that measures purporting to protect against negligible or unsubstantiated risks will be hard to defend in the WTO.

In cases of import decisions where the risks are not scientifically identified or are negligible, governments should approve imports without consideration of benefits. This should represent no change in current practice for those governments that are already taking a strict interpretation of the SPS Agreement.

b. Situations of low to moderate risks

Imports of goods with low to moderate risks that are outweighed by benefits represent the second situation identified above in which consideration of benefits would alter the outcome of quarantine policy decisions. Where risks exceed the levels that would normally be acceptable or tolerable, it is suggested that other considerations should be taken into account, such as potential benefits of importing the goods in question. Applications that present moderate risks which are acceptable (or tolerable) because of the associated benefits might be approved whereas other applications with similar risks, but without the consequent benefits, would be declined.

As suggested above, the consideration of benefits can be justified because setting the appropriate level of protection is distinct from risk assessment. A risk assessment must be scientific and include only those matters allowed under the SPS Agreement. Once non-negligible risks are identified in the risk assessment, however, there appears to be nothing in the SPS Agreement that prevents a wider consideration of costs and benefits as being the basis for distinctions between situations of comparable risk, when determining the appropriate level of protection. As long as such considerations are applied *consistently*, they would not be "arbitrary or unjustifiable." Even if such a distinction were deemed to be arbitrary or unjustifiable, it would still be admissible under Article 5.5 as long as it did not result in discrimination or a disguised restriction on trade.

Setting the appropriate level of protection

The Appellate Body in the *Salmon* case recognised that setting the appropriate level of protection is a separate step and should precede establishment of an import measure. In some cases, the appropriate level of protection can be set before a risk assessment is carried out. In other cases, the information from the risk assessment, and an associated examination of other costs and benefits, may be needed in order to determine the appropriate level of protection. In any event, both of these steps should be completed before import measures are selected, based on the risk assessment, to achieve the appropriate level of protection (WTO 1998b, para 203ff).

The Appellate Body acknowledged, however, that nothing in the SPS Agreement actually requires governments to determine their appropriate level of protection as a distinct step. Where a government consistently expresses its appropriate level of protection, the report said, nothing in the WTO agreements allows a dispute panel to substitute its own reasoning for that. In cases where the appropriate level of protection has not been set, dispute panels must infer the level from the measures themselves.

A rather lengthy quotation from the *Salmon* case is warranted:

> 200. The "appropriate level of protection" established by a Member and the "SPS measure" have to be clearly distinguished. They are not one and the same thing. The first is an *objective*, the second is an *instrument* chosen to attain or implement that objective.
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> 201. It can be deduced from the provisions of the *SPS Agreement* that the determination by a Member of the "appropriate level of protection" logically precedes the establishment or decision on maintenance of an "SPS measure". …
>
> …
>
> 206. We thus believe that the *SPS Agreement* contains an implicit obligation to determine the appropriate level of protection. We do not believe that there is an obligation to determine the appropriate level of protection in quantitative terms. This does not mean, however, that an importing Member is free to determine its level of protection with such vagueness or equivocation that the application of the relevant provisions of the *SPS Agreement*, such as Article 5.6, becomes impossible. It would obviously be wrong to interpret the *SPS Agreement* in a way that would render nugatory entire articles or paragraphs of articles of this Agreement and allow Members to escape from their obligations under this Agreement.
>
> 207. … we believe that in cases where a Member does not determine its appropriate level of protection, or does so with insufficient precision, the appropriate level of protection may be established by panels on the basis of the level of protection reflected in the SPS measure actually applied. Otherwise, a Member's failure to comply with the implicit obligation to determine its appropriate level of protection – with sufficient precision – would allow it to escape from its obligations under this Agreement and, in particular, its obligations under Articles 5.5 and 5.6 (WTO 1998b).

This statement reinforces the point that determination of the appropriate level of protection is distinct from risk assessment. Therefore the provisions of the SPS Agreement that define risk assessment and what it may include should not constrain what factors are taken into account in determining the appropriate level of protection. The critical question is whether a distinction in levels of protection that is based on differences in benefits would be considered arbitrary or unjustifiable. It is suggested here that as long as the determination is made transparently and the reasons are clear, there is no reason why trade measures based on such a judgement should be found in violation of the SPS Agreement.

Thus, when imports present low or moderate risks but also significant benefits, the potential benefits should be taken into account when setting an appropriate level of protection and when selecting a trade measure. This approach should not lead to any violations of the SPS Agreement.

“zero risk” revisited

There is one concern, however, related to how this approach might affect situations of risks which are scientifically identified but extremely low. Suppose that, in the salmon case, Australia had maintained that its appropriate level of protection was "zero risk", that a proper risk assessment were done, and that an extremely low but nonetheless finite disease risk were identified. Suppose, furthermore, that Australia had justified the distinction between this and other levels of protection on the basis that salmon imports offered negligible benefits to Australia. Based on the logic evident in the two rulings cited above, the Australian measure might have withstood challenge in the WTO as long as Australia could have supported the statement that there were negligible benefits.

If Australia attempted to justify a continued ban on banana imports on similar grounds, however, it would have to explain why it was discounting the A$90-240 million per year in net benefits to Australia identified by James and Anderson (1998). A WTO dispute panel considering either a salmon measure or a banana measure would presumably look at other goods imported by Australia and their associated risks and benefits, to test whether Australia was making arbitrary or unjustifiable distinctions.

This approach could take the WTO dispute settlement process into new territory, consideration of costs and benefits, but it is territory that the United States court system has managed to navigate without undue difficulty. WTO dispute panels would not need to determine costs and benefits precisely, but simply ensure that governments citing this as a justification had done a proper cost-benefit analysis. This would be a similar test to the current requirement that governments base their SPS measures on a proper risk assessment.

It should be noted that, though it is not always explicit, some governments already take benefits into account when making decisions on sanitary and phytosanitary protection. The Ministry of Agriculture in New Zealand has done so for some applications to import new organisms, and the Environmental Risk Management Authority has indicated it will continue to do so for the same kind of applications. It would also seem apparent that some governments allow imports despite identified risks of pest and disease when domestic supply of the good is either non-existent or insufficient to satisfy domestic demand.

6. Which costs and benefits?

The above analysis argues for consideration of costs and benefits in border control policy, including the selection trade measures for sanitary and phytosanitary protection. This raises questions of how costs and benefits should be used in the decision process and which costs and benefits should be considered.

Use of cost-benefit analysis in decision-making

Regarding how cost-benefit analysis should be used, a leading expert on the subject noted that a determination that a proposal has a positive net benefit means it is pareto

efficient, but does not necessarily make it a good prescription for society. "It must also be shown that the resulting distributional changes are not regressive, and no gross inequities are perpetrated" (Mishan, 1972, p. 13).

In terms of distributional effects, there is often concern that those who benefit from importing risk goods are not the ones who bear the risk, and hence have little incentive to minimise the risks apart from compliance with any regulatory requirements. Asking a small minority to bear certain risks to promote the broader public good does not seem unreasonable, especially if the public is willing, via its government, to compensate the minority for costs incurred.

However to expect the public to bear risks so that a small minority can benefit is often more difficult to justify. Conceptually, this problem could be addressed by having the beneficiaries make a payment to the government or to some identified subset of the public. If this is not considered acceptable, a government may decide to decline permission to import the risk goods despite the positive net benefits such imports might bring. It should be emphasised that such action should only be taken where a risk has been scientifically identified and is no smaller than other similar risks which have been deemed acceptable.

Thus, the balance between benefits and costs should not be the sole determinant of the appropriate level of protection, but rather should inform the process. Any departure from the position of maximum net benefits should be able to be justified in clear terms.

Which costs and benefits?

As Caswell and Kleinschmit (1997) demonstrate, the choice of costs and benefits to include in an analysis depends on the question being asked.

The following issues arise:

a) whether benefits should include the benefits to consumers of lower prices;
b) whether costs should include lost profits of domestic producers; and
c) whether cost and benefits should be calculated only for the country considering an SPS measure, or for all importers and exporters of the product in question.

As near as possible, cost-benefit analysis should be based on opportunity costs and a "with/without" comparison rather than a "before/after" comparison. This requires some analysis of what would occur in the absence of imports as well as what would occur if imports were allowed. With respect to consumers, this involves asking whether the price or the amount of the product consumed will change significantly. If either or both is likely, then the benefits to consumers should be included.

With regard to producers, the analysis should ask whether domestic production will change significantly, and if so to or from what alternative use the land, capital and human resources are likely to move. If these alternative uses offer returns similar to returns from the current use, there should be no long term costs to producers. However, there may be one-off transition costs, and these should be recognised as

such and considered. Externalities of production should also be considered, e.g. effects of production on the environment, on a "with/without" basis, that is, considering the externalities of any alternative activities that resources move to or from.

Finally, as to whether costs and benefits should be counted only for the country considering a measure or also include other countries, it was argued above that the latter option raised more problems than it resolved. There should perhaps be a presumption that trade offers benefits to the exporting country, but it is suggested here that effects beyond the country considering the measure not be otherwise taken into account.

The selection of costs and benefits suggested here follows the analysis of James and Anderson (1998) in their study of benefits of relaxing Australia's ban on banana imports. James and Anderson considered the benefits to Australian consumers of lower prices, including likely changes in demand, and they calculated lost profits of domestic producers under various scenarios. They did not extend the production analysis to considering alternative uses for land, capital and labour displaced from the Australian banana industry, but basically assumed that returns would be similar in other sectors. Given their assumption that all profits ("producer surplus") would be lost, they ignored profits that might have been made by putting the management resources to alternative uses, and thus may have overstated the costs to producers.

James and Anderson did not examine the production externalities of the Australian banana industry, or whether the externalities would be worse if resources moved to another sector. They referred to, but did not estimate, the possibility of banana imports imposing disease risks and associated costs on other industries, but indicated that they doubted these costs would be sufficient to outweigh the estimated benefits of allowing banana imports.

All of these factors should be taken into account when conducting a cost-benefit analysis. However the analysis need not be quantitative in all respects, and need only examine the various factors to a degree of precision sufficient to make the outcome of the analysis reasonably clear.

7. Conclusions

In sum, this paper reaches the following conclusions:

- Consideration of benefits in setting the appropriate level of protection would improve trade policy outcomes when risks are outweighed by benefits.

- When risks are extremely low or negligible, there is no need to consider benefits, and trade should be allowed to proceed.

- If governments attempt to maintain or impose trade measures that are not based on scientifically identified risk, recent experience suggests those measures will be found in violation of the SPS Agreement.

- Where risks are scientifically identified but extremely low, governments may in some cases seek to justify trade measures by citing an absence of benefits. In such cases, they would need to demonstrate that they had done a proper cost-benefit analysis.

- Cost-benefit analysis should be used to inform decision-making rather than as the sole determinant, but departures from maximum net benefit positions should be explained.

- Analysis should include cost and benefits to domestic producers and consumers from changes in prices, as well as any externalities of production and consumption, but should not extend to effects in other countries apart from a presumption of some benefit to exporting countries.

This approach may be seen by some as novel at best and perhaps dangerous at worst. Yet it is probably only a matter of time before a government seeks to justify a trade measure along the lines suggested above.

Prior to the beginning in earnest of another multilateral trade round, WTO member governments should give serious consideration to whether this approach will improve policy-making. In future negotiations, they should seek any amendments to the SPS Agreement necessary to ensure that cost-benefit analysis is used to improve trade policy outcomes rather than as a disguise for protectionist trade measures.

Appendix: Excerpts from the SPS Agreement

Article 5

Assessment of Risk and Determination of Appropriate Level of Sanitary and Phytosanitary Protection

1. *Members shall ensure that their sanitary or phytosanitary measures are based on an assessment, as appropriate to the circumstances, of the risks to human, animal or plant life or health, taking into account risk assessment techniques developed by the relevant international organisations.*

2. *In the assessment of risks, Members shall take into account available scientific evidence; relevant processes and production methods; relevant inspection, sampling and testing methods; prevalence of specific diseases and pests; existence of specific pest- or disease-free areas; relevant ecological and environmental conditions; and quarantine or other treatment.*

3. *In assessing the risk to animal or plant life or health and determining the measure to be applied for achieving the appropriate level of sanitary or phytosanitary protection from such risk, the Member shall take into account as relevant economic factors: the potential damage in terms of loss of production or sales in the event of the entry, establishment or spread of a pest or disease; the costs of control or eradication in the territory of the importing Member; and the relative cost-effectiveness of alternative approaches to limiting risks.*

4. *Members shall, when determining the appropriate level of sanitary or phytosanitary protection, take into account the objective of minimizing negative trade effects.*

5. *With the objective of achieving consistency in the application of the concept of appropriate level of sanitary or phytosanitary protection against risks to human life or health, or to animal and plant life or health, each Member shall avoid arbitrary or unjustifiable distinctions in the levels it considers to be appropriate in different situations, if such distinctions result in discrimination or a disguised restriction on international trade. Members shall cooperate in the Committee, in accordance with paragraphs 1, 2 and 3 of Article 12, to develop guidelines to further the practical implementation of this provision. In developing the guidelines, the Committee shall take into account all relevant factors, including the exceptional character of human health risks to which people voluntarily expose themselves.*

6. *Without prejudice to paragraph 2 of Article 3, when establishing or maintaining sanitary or phytosanitary measures to achieve the appropriate level of sanitary or phytosanitary protection, Members shall ensure that such measures are not more trade-restrictive than required to achieve their appropriate level of sanitary or phytosanitary protection, taking into account technical and economic feasibility.*[4]

[4] For the purposes of paragraph 6 of Article 5, a measure is not more trade-restrictive than required unless there is another measure, reasonably available taking into account technical and economic feasibility, that achieves the appropriate level of sanitary or phytosanitary protection and is significantly less restrictive to trade.

7. *In cases where relevant scientific evidence is insufficient, a Member may provisionally adopt sanitary or phytosanitary measures on the basis of available pertinent information, including that from the relevant international organizations as well from sanitary or phytosanitary measures applied by other Members. In such circumstances, Members shall seek to obtain the additional information necessary for a more objective assessment of risk and review the sanitary of phytosanitary measure accordingly within a reasonable period of time.*

8. *When a Member has reason to believe that a specific sanitary or phytosanitary measure introduced or maintained by another Member is constraining, or has the potential to constrain, its exports and the measure is not based on the relevant international standards, guidelines or recommendations, or such standards, guidelines or recommendations do not exist, an explanation of the reasons for such sanitary or phytosanitary measure may be requested and shall be provided by the Member maintaining the measure.*

In Annex A (Definitions) of the SPS Agreement, "risk assessment" is defined as follows:

> *"The evaluation of the likelihood of entry, establishment or spread of a pest or disease within the territory of an importing Member according to the sanitary or phytosanitary measures which might be applied, and of the associated potential biological and economic consequences; or the evaluation of the potential for adverse effects on human or animal health arising from the presence of additives, contaminants, toxins or disease-causing organisms in food, beverages or feedstuffs."*

For the purposes of all definitions in Annex A, "animal" includes fish and wild fauna, "plant" includes forests and wild flora, "pests" includes weeds, and "contaminants" include pesticide and veterinary drug residues and extraneous matter.

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