Draft accepted for publication in (2015)12(3) *Manchester Journal of International Economic Law* (forthcoming December 2015).

Rethinking national treatment and the role of regulatory purpose: lessons from the 'theory of distortions and welfare'

WEIHUAN ZHOU*

Lecturer, UNSW Law

The article studies the 'Theory of Distortions and Welfare' and explains the significance of the theory to the interpretation and application of the GATT national treatment rule, and in particular, to the issue of whether regulatory purpose should be considered in determining whether an origin-neutral measure is consistent with the national treatment rule. The article argues that the theory provides important interpretative guidance on the role of regulatory purpose under the national treatment rule. Essentially, the theory suggests that purpose inquiries are fundamental to the determination of NT-legality of an origin-neutral measure and that in assessing purpose, the WTO tribunals should take a two-step test by, firstly, identifying the genuine policy objective of the measure and, secondly, evaluating whether the measure contains any discriminatory elements that are unnecessary for the attainment of the given objective. Using this approach, the WTO tribunals can effectively regulate Members' choice of policy instruments to pursue a chosen policy objective by encouraging the use of economically efficient measures without unduly interfering with Members' choice of policy objectives. The interpretative guidance drawn from the theory, therefore, provides an effective way to strike a balance between trade liberalization and domestic autonomy.

1. Introduction

Nowadays, the most significant and controversial issue relating to the interpretation and application of the rule of national treatment (NT), one of the fundamental principles of the World Trade Organisation (WTO), probably concerns the role of regulatory purpose, that is, whether regulatory purpose should be considered in determining whether an origin-neutral measure, as opposed to an origin-specific measure, has violated the NT rule.[1] The issue does not concern origin-specific measures because such measures ostensibly discriminate against goods of foreign origin by affording more favourable treatment to domestic goods. It is believed that origin-specific discrimination rarely serves any policy objectives other than protectionism and hence is transparently protectionist.[2] In contrast, origin-neutral measures, which do not differentiate between foreign and domestic goods based on their nationality, may turn out to have disparate impacts upon imported products *vis-a-vis* domestic goods but at the same time, serve certain

* Lecturer, Faculty of Law, University of New South Wales. Ph.D, LLM (Sydney Law School), MIB (Sydney Business School), LLB (SISU). Email: weihuan.zhou@unsw.edu.au.

The article is based on the author's Ph.D thesis completed at Sydney Law School in 2012. See Zhou, Weihuan, "Adjudicating *De Facto* Discrimination under the GATT National Treatment Rule: The Role of Regulatory Purpose" (Unpublished Ph.D. Thesis, University of Sydney, 2012). I am indebted to Dr Brett Williams for numerous discussions on this topic. I am also grateful to Dr Mark Melatos for correcting my understanding of trade economics. Thanks must also go to Professor Asif Qureshi and one anonymous reviewer for valuable comments. Any errors or oversights are my own.

[1] For an overview of this issue, see Zhou, Weihuan, "*US – Clove Cigarettes* and *US – Tuna II (Mexico)*: Implications for the Role of Regulatory Purpose under Article III:4 of the GATT" (2012)15(4) *Journal of International Economic Law* 1075-1122 at 1075-1077.

[2] See Hudec, Robert E., "GATT/WTO Constraints on National Regulation: A Requiem for an 'Aim and Effects' Test" (1998)32 *International Lawyer* 619-649 at 622; Regan, Donald H., "What Are Trade Agreements For? – Two Conflicting Stories Told by Economists, with A Lesson for Lawyers" (2006)9(4) *Journal of International Economic Law* 951-988 at 985; Sykes, Alan O., "Regulatory Protectionism and the Law of International Trade" (1999)66(1) *The University of Chicago Law Review* 1-46 at 16.

policy objectives other than protectionism. At the core of the issue, therefore, lies the difficulty in achieving a desirable balance between trade liberalisation and domestic autonomy so as to ensure the disciplining of protectionist origin-neutral measures is not to unduly restrict WTO Members' capacity to pursue non-protectionist policy objectives.

Since the creation of the multilateral trading system in 1948, GATT panels and WTO tribunals "have attempted to accommodate trade and non-trade interests in their interpretation and application of" the NT rule and "have shifted back and forth around the issue of whether regulatory purpose should be considered within the NT regime."[3] In a number of recent WTO disputes, the Appellate Body has continued to attempt to resolve the tension between trade liberalization and domestic autonomy. For example, in its adjudication of the *US – Clove Cigarettes*[4] case and the *US – Tuna II (Mexico)*[5] case under Article 2.1 of the *Agreement on Technical Barriers to Trade* (TBT Agreement) (which provides almost identical NT rules as Article III:4 of the GATT), the Appellate Body has explicitly allowed for consideration of regulatory purpose under Article 2.1 of the TBT Agreement and has arguably left the flexibility for doing the same under GATT Article III:4.[6] However, in *EC – Seal Products*[7], the Appellate Body appears to have closed the door for assessment of regulatory purpose under GATT Article III:4 suggesting that the determination of whether an origin-neutral measure is consistent with Article III:4 is to entirely hinge on whether the measure inflicts disparate impacts on imports.[8] Unsurprisingly, the Appellate Body's rulings on Article III:4 in *EC – Seal Products* have received immediate criticism by WTO commentators arguing that the rulings may have overly widened the scope of the NT rule and are likely to unduly impede the regulatory autonomy of WTO Members.[9] In the meeting of the Dispute Settlement Body where the Appellate Body Report on *EC – Seal Products* was adopted, the US also challenged the rulings of the Appellate Body with the following submissions:

> … the United States was not fully persuaded by the Appellate Body's finding that the national treatment provisions of the TBT Agreement were to be interpreted differently from the national treatment provisions of the GATT 1994 in light of the fact that these two provisions contained

[3] See Zhou, above n 1, at 1077-1083, citing DiMascio, Nicholas and Pauwelyn, Joost, "Non-Discrimination in Trade and Investment Treaties: Worlds Apart or Two Sides of the Same Coin?" *American Journal of International Law* (2008)102(1) 48–89 at 58–66.

[4] Appellate Body Report, *United States – Measures Affecting the Production and Sale of Clove Cigarettes*, WT/DS406/AB/R, adopted 24 April 2012.

[5] Appellate Body Report, *United States – Measures Concerning the Importation, Marketing and Sale of Tuna and Tuna Products*, WT/DS381/AB/R, adopted 13 June 2012.

[6] See Zhou, above n 1, at 1111-1118. The GATT NT principle is contained in Article III of the GATT. Article III:2 and Article III:4, respectively, applies to internal fiscal measures and internal non-fiscal measures. While Article 2.1 of the TBT Agreement deals with internal technical measures, Article III:4 of the GATT deals with internal non-fiscal measures in general.

[7] Appellate Body Report, *European Communities – Measures Prohibiting the Importation and Marketing of Seal Products*, WT/DS400/AB/R, WT/DS401/AB/R, adopted 18 June 2014.

[8] See Joel Trachtman, "The WTO Seal Products Case: Doctrinal and Normative Confusion", American Society of International Law (25 June 2015), available at: http://www.asil.org/blogs/wto-seal-products-case-doctrinal-and-normative-confusion; McGrady, Benn, "Principles of Non-Discrimination after *US – Clove Cigarettes*, *US – Tuna II*, *US – COOL* and *EC – Seal Products* and their Implications for International Investment Law" (2015)16(1) *Journal of World Investment & Trade* 141-161 at 156-157; Du, Ming, "'Treatment No Less Favourable' and the Future of National Treatment Obligation in GATT Article III:4 after *EC – Seal Products*'", *World Trade Review* (forthcoming). A copy of the article can be found at http://www.research.lancs.ac.uk/portal/files/81920434/National_Treatment_in_GATT_Article_III.pdf, at 16.

[9] See Trachtman, above n 8; McGrady, above n 8, at 159-160; Howse, Rob, Langille, Joanna, and Sykes, Katie, "Sealing the Deal: The WTO's Appellate Body Report in *EC – Seal Products*" (2014)18(12) *ASIL Insights*, available at http://www.asil.org/insights/volume/18/issue/12/sealing-deal-wto%E2%80%99s-appellate-body-report-ec-%E2%80%93-seal-products.

> identical wording. These findings appeared to ensure that a measure could be found consistent with Article 2.1 of the TBT Agreement, yet inconsistent with the identically worded Article III:4 of the GATT 1994. Indeed, these findings raised the very real possibility, as had been demonstrated in this dispute, that Article 2.1 of the TBT Agreement would become superfluous, and the legal approach developed in the recent TBT disputes would become just an historical footnote. The Appellate Body Report sought to respond to this concern in part by stating that "the European Union has not pointed to any concrete examples of a legitimate objective that could factor into an analysis under Article 2.1 of the TBT Agreement, but would not fall within the scope of Article XX of the GATT 1994". However, there had been such examples that were provided during the appeal. One such example was provided by the TBT Agreement text itself and that was – the preamble referred to "measures necessary to ensure the quality of" a Member's exports. There was no parallel provision in Article XX of the GATT 1994. It was also difficult to understand how a "detrimental impact" on imports from one Member compared to another Member could by itself be sufficient to find that those imports were being treated less favourably. One would expect that any measure would affect some products differently from others. Yet that different treatment would not amount to discrimination unless one also looked at the reason why there was such a difference in treatment. [10]

The US' submissions provide a good summary of the popular concerns about the role of regulatory purpose in the adjudication of GATT NT cases. First, the Appellate Body's taking of inconsistent approaches under Article 2.1 of the TBT Agreement and Article III:4 of the GATT potentially provides a much broader policy space for technical regulations than for all other types of internal regulations.[11] Second, GATT Article XX, which provides only ten policy justifications for GATT-inconsistent measures, is unlikely to satisfy the need of WTO Members to address all non-protectionist policy objectives. [12] Third, inquiries as to purpose are essential to the determination of the NT-consistency of origin-neutral measures which ought not to be based on the effect of the measures only.[13] More importantly, the US' submissions suggest that the issues relating to the role of regulatory purpose under the GATT NT rule may have not been resolved despite the rulings of the Appellate Body in *EC – Seal Products*. Rather, the issues are likely to continue to cause complex interpretative problems in future WTO disputes and remain at the core of the difficulty in striking an acceptable balance between the pursuit of trade values and the pursuit of non-trade values.[14]

This article is not intended to engage in the legal debate over the role of regulatory purpose under the GATT NT rule; there have been significant volumes of publications in this regard including two from the author.[15] Instead, the article studies the significance of the 'Theory of

[10] See WTO, Dispute Settlement Body, Minutes of Meeting held on 18 June 2014, WT/DSB/M/346 (28 August 2014) at 21-22.

[11] See Trachtman, above n 8; Zhou, above n 1, at 1112. Du, above n 8, at 18-19.

[12] See Roessler, Frieder, "Diverging Domestic Policies and Multilateral Trade Integration", in Frieder Roessler (ed.), *The Legal Structure, Functions & Limits of the World Trade Order: A Collection of Essays* (London: Cameron May, 2000) 119-153 at 129; Zhou, above n 1, at 1111-1112; Du, above n 8, at 19-20.

[13] Generally see Hudec, above n 2; also see Regan, Donald H., 'Regulatory Purpose and "Like product" in Article III:4 of the GATT (With Additional Remarks on Article III:2)' (2002) 36(3) *Journal of World Trade* 443–478 at 450; Mavroidis, Petros C., *Trade in Goods: The GATT and the other Agreements Regulating Trade in Goods* (Oxford University Press, 2007) at 251–252.

[14] See Howse *et al.*, above n 9; Du, above n 8, at 23-34. (both arguing that after *EC – Seal Products* there are still flexibilities for the assessment of regulatory purpose under the GATT NT rule)

[15] For publications in support of purpose inquiries under the GATT NT rule, see, for example, Hudec, above n 2; Regan, above n 13; Zhou, above n 1; Zhou, Weihuan, "The Role of Regulatory Purpose under Articles III:2 & 4 – Toward Consistency between Negotiating History and WTO Jurisprudence" (2012)11(1) *World Trade Review* 81-118. For publications against purpose inquiries under the GATT NT rule, see, for example, Choi, Won Mog, "Overcome the 'Aim and Effect' Theory: Interpretation of the 'Like Product' in GATT Article III" (2002)8(1) *U.C. Davis journal of international law & policy* 107-131; Ehring, Lothar, "*De Facto* Discrimination in World Trade Law National and Most-Favored-Nation Treatment – or Equal Treatment?" (2002)36(5) *Journal of World Trade* 921-977.

Distortions and Welfare' (Theory) to economic theory relating to international trade and explains how this theory can guide the interpretation of NT provisions in relation to the role of regulatory purpose. The Theory is relevant to the interpretation of WTO rules including the NT rule because such an interpretation must be based on the object and purpose of these rules.[16] Both the preamble of the *Marrakesh Agreement*[17] and the preamble of the GATT specifically refer to the liberalization of trade barriers as serving overarching objectives related to standards of living, income, production and optimal use of the world's resources. It is therefore relevant that part of the significance of the Theory lies in its two propositions that trade liberalization might be welfare diminishing in the presence of domestic externalities or policy objectives, but that it might be welfare enhancing if the externalities or objectives are addressed separately through optimal policy instruments.[18] The Theory further teaches that an optimal policy instrument to remedy an externality is the one which strikes most directly at the source of the externality. It provides an economic ranking of different policy instruments that could be used to address any given domestic externalities. In his 1971 article, Professor Bhagwati consolidated the Theory to

[16] *Vienna Convention on the Law of Treaties* 1969, 23 May 1969, 1155 U.N.T.S. 331. Article 31(1) of the *Vienna Convention* provides:

"A treaty shall be interpreted in good faith in accordance with the ordinary meaning to be given to the terms of the treaty in their context and in the light of its object and purpose."

[17] See *Marrakesh Agreement Establishing the World Trade Organization*, opened for signature 15 April 1994, 1867 U.N.T.S. 154, 33 I.L.M 1144.

[18] The Theory is built up on a large number of publications. The pioneering work was attributed to Pigou and Meade. See Pigou, Arthur C., *The Economics of welfare* (London: Macmillan and Co., 4th ed., 1932); Meade, James E., *Trade and Welfare* (Oxford, London: Oxford University Press, 1955). Subsequent principal contributions include: Haberler, Gottfried, "Some Problems in the Pure Theory of International Trade" (1950)60 *Economic Journal* 223-240 (a formal analysis of whether free trade remains the best policy in the presence of various domestic divergences); Corden, Max W., "Tariffs, Subsidies and the Terms of Trade", (1957)24 *Economica* 235-242 (expositing geometrically that in a small country, two-commodity case, a direct subsidy to the industry as a means of protection is superior to a tariff); Hagen, Everett E., "An Economic Justification of Protectionism" (1958)72 *Quarterly Journal of Economics* 496-514 (establishing that in the presence of a wage-rate disparity, protection could improve national welfare. However, a subsidy per unit of labour equal to the wage differential is a superior policy); Johnson, Harry, "The Cost of Protection and the Scientific Tariff" (1960)68(4) *Journal of Political Economy* 327-345 (expounding the argument for using a tariff to achieve a number of non-economic objectives); Bhagwati, Jagdish N. and Ramaswami, V.K., "Domestic Distortions, Tariffs and the Theory of Optimum Subsidy" (1963)71(1) *Journal of Political Economy* 44-50 (submitting that, in the presence of a distortion, the first-best policy is a subsidy or tax specifically targeting the source of the distortion. Thus, a production subsidy or tax is the optimal policy to correct domestic distortion in production, just as using a tariff policy under monopoly power in trade. By the same token, a factor-use subsidy or tax is optimal in correcting distortions associated with wage-rate disparity); Johnson, Harry, "Optimal Trade Intervention in the Presence of Domestic Distortions" in Jagdish N. Bhagwati, *International Trade: Selected Readings* (Cambridge, Mass., London: MIT Press, 1981) 142-169 (arguing that trade intervention is not justified in the presence of domestic distortions, as protection would not secure the best welfare outcome. Instead, other forms of government interventions according to the nature of the distortions should be introduced. Johnson also noted that such propositions are also applicable to "the introduction of non-economic arguments for protection"); Bhagwati, Jagdish N., Ramaswami, V.K., and Srinivasan, T.N., "Domestic Distortions, Tariffs and the Theory of Optimum Subsidy: Some Further Results" (1969)77(6) *Journal of Political Economy* 1005-1010 (providing a more formal ranking of various policy instruments in dealing with different distortions. The authors also argued that a simultaneous levy of two or several policy instruments would be necessary in the presence of more than one distortion); Bhagwati, Jagdish N., and Srinivasan, T.N., "Optimal Intervention to Achieve Non-Economic Objectives" (1969)36(1) *Review of Economic Studies* 27-38 (proposing a ranking of various policy instruments in pursuit of four non-economic objectives. The authors concluded that a production subsidy or tax is the optimal policy to secure a specified production level; a factor-use subsidy policy is superior not only to a tariff policy but also to a domestic production tax-cum-subsidy policy if the objective is to secure the use of a particular factor; if the purpose is to restrain or promote domestic consumption, a consumption tax or subsidy is the optimal policy. A tariff becomes the first-best policy only when the purpose is to reduce the value of trade and move towards self-sufficiency); and Corden, Max W., *Trade Policy and Economic Welfare* (Oxford: Clarendon Press, 2nd ed., 1997) (analyzing whether the theory of distortion still holds after the removal of a number of standard assumptions and exploring the application of the theory to various specific cases). For a review of the historical development of the theory and its applications, see Bhagwati, Jagdish N., *Free Trade Today* (Princeton and Oxford: Princeton University Press, 2002).

formalize a 'Generalized Theory of Distortions and Welfare'.[19] One of the most remarkable propositions in Bhagwati's article is that the welfare ranking of various policy instruments in relation to the correction of domestic externalities is equally applicable to the attainment of domestic non-economic objectives. Thus, the Theory also provides an economic ranking of different policy instruments which could be used as a means to achieve given domestic policy objectives. In this regard, Bhagwati observes:

> the need to intervene directly in the particular market to which the noneconomic objective is addressed, just as the market failure distortions required that the policy intervention be addressed directly to the markets where the failure arose.[20]

In other words, the first-best instrument to pursue a declared policy objective is the one specifically targeting the objective. Therefore, for any chosen objective, there remains an optimal domestic policy instrument in terms of its economic efficiency that can be employed to achieve the objective.

At least three publications have considered economic analysis of the NT rule as being an important approach to facilitating a correct application and interpretation of the rule. First, Mattoo and Subramanian have proposed that the Theory should be employed in adjudicating the NT-legality of origin-neutral measures.[21] They have argued that a failure to use an optimal instrument in addressing a declared non-protectionist purpose may constitute an indicator of protectionist purpose.[22] Second, Horn has submitted that a marginally binding NT rule would be welfare-enhancing, whereas a strict interpretation of the rule tends to reduce national welfare.[23] A strict NT rule refers to an application of the rule in a way that condemns origin-neutral measures on the sole basis of discriminatory effects regardless of their regulatory purposes.[24] Therefore, the very reason for the possible welfare-diminishing effect of such a rigid application of the NT rule is that it "might seem to impose an unwarranted restriction on countries' sovereignty to regulate the domestic economy".[25] Accordingly, Horn has proposed that an assessment of regulatory purposes of origin-neutral measures would serve to prevent the NT rule from becoming welfare-diminishing. Third, Grossman, Horn and Mavroidis have observed that a determination of the NT-legality of a domestic measure should take into account the international efficiency of the measure, and that an estimation of such efficiency "*depends on the preferences* of" regulating Members.[26] They have submitted that an assessment of the genuine objectives of contested origin-neutral measures is necessary for the determination of their NT-consistency.[27] What is in common in the three publications is the proposition that from the perspective of welfare effects,

[19] Bhagwati, Jagdish N., "The Generalized Theory of Distortions and Welfare" in Jagdish N. Bhagwati *et al.* (eds.) *Trade balance of payments and growth: papers in International Economics in Honor of Charles P. Kindleberger* (Amsterdam London: North-Holland Publishing Co., 1971) 69-90.
[20] See Bhagwati, Jagdish N., Panagariya, A., and Srinivasan, T.N., *Lectures on International Trade* (Cambridge, Mass., London: MIT Press, 2nd ed., 1998) at 351. Also see above n 19, Bhagwati, at 77.
[21] See Mattoo, Aaditya and Subramanian, Arvind, "Regulatory Autonomy and Multilateral Disciplines: The Dilemma and a Possible Resolution" (1998)2(1) *Journal of International Economic Law* 303-322 at 317-318.
[22] See Mattoo and Subramanian, above n 21, at 318.
[23] See Horn, Henrik, "National Treatment in the GATT" (2006)96(1) *American Economic Review* 394-404 at 395.
[24] See Horn, above n 23, at 398.
[25] See Horn, above n 23, at 398.
[26] See Grossman, Gene M., Horn, Henrik and Mavroidis, Petros C., "Legal and Economic Principles of World Trade Law: National Treatment", The American Law Institute, 2012. Available at: http://www.econ-law.se/Papers/ALI%20-%20National%20Treatment%2028%20April%202012.pdf (visited 19 May 2015) at 34.
[27] See Grossman, Horn and Mavroidis, above n 26, at 133-134.

regulatory purposes should be considered in judging whether an origin-neutral measure infringes the NT rule. Through a careful study of the Theory, this article submits that the interpretative guidance drawn from the Theory agrees with that proposition.

The remainder of the article is organized as follows. Section 2 illustrates the Theory through a partial equilibrium model which has been widely used to illustrate the welfare effects of trade policies.[28] This is followed by an overview of the economic ranking of policy instruments in dealing with various domestic externalities or policy objectives. The section then briefly reviews two typical examples of the application of the Theory, including the arguments for the protection of infant industry and the protection of the environment. Finally, the section describes standard qualifications to the Theory. Section 3 discusses economic guidance drawn from the Theory on whether and how regulatory purposes of origin-neutral measures should be assessed under the NT rule. Section 4 concludes the article.

2. Theory of Distortions and Welfare

Standard international trade theories teach that free trade optimizes the allocation of resources, maximizes the welfare of consumers, and eventually brings nations net welfare gains, while trade restrictions lead to net national welfare loss.[29] However, as will be shown below, trade liberalization may be welfare-diminishing in the presence of domestic distortions or externalities unless the externalities are dealt with by proper instruments. Domestic distortions or externalities refer to the divergences between the private and social benefits or costs caused by activities of any economic agents (i.e. consumers or producers) which affect other economic agents, but are not taken into account in the market price.[30] There are two typical types of externalities. A negative externality would arise if the action of one economic entity inflicts costs on another economic entity (i.e. external costs/diseconomy), which are not taken into account by the first entity in deciding how to act. A positive externality would occur when the action of one economic entity brings benefits to another economic entity (i.e. external benefits/economy), which are not taken into account by the first entity in deciding how to act.[31] Both types of externalities can arise from production activities and consumption activities, which thus can be further broken up into four types of externalities: (1) negative consumption externalities, (2) positive consumption externalities, (3) negative production externalities, and (4) positive production externalities.

[28] A partial equilibrium analysis focuses on a part of an economy (i.e. the market of a single good/sector) while ignoring its interaction with the rest of the economy (i.e. other markets of the economy). It contrasts with a general equilibrium model which can be used to analyze more than one sector or all markets of an economy in totality.

[29] For an overview of the gains from trade theorem and the arguments against it, see Irwin, Douglas A., *Free Trade Under Fire* (Princeton and Oxford: Princeton University Press, 2002) ch.2. For an excellent literature survey, see Corden, Max W., "The Normative Theory of International Trade" ch.2 in Ronald W. Jones & Peter B. Kenen (eds.), *Handbook of International Economics: Volume 1 International Trade* (Amsterdam: North-Holland, 1984) 63-130. Also see Sykes, Alan O. "Comparative Advantage and the Normative Economics of International Trade Theory" (1998)1(1) *Journal of International Economic Law* 49-82.

[30] See Pindyck, Robert S. and Rubinfeld, Daniel L., *Microeconomics* (New Jersey: Pearson Education International, 6th ed., 2005) at 642. Distortions, in a broadest sense, refer to any market imperfections or failures in an economy including, for example, the presence of monopoly and oligopoly markets, the presence of externalities in production or consumption, etc. In this article, the term is used interchangeably with the term 'externalities'.

[31] See Pindyck and Rubinfeld, above n 30, at 641.

In illustrating the Theory, this section employs a partial equilibrium analysis to explain the welfare effects of the imposition of a subsidy/tax policy and a tariff policy in dealing with two types of externalities – a positive production externality and a negative consumption externality. The explanation, however, is relevant to the other types of externalities. The partial equilibrium analysis uses a standard demand and supply diagram to estimate changes in the welfare of a nation on the basis of changes in consumer and producer surplus.[32] Consumer surplus measures the welfare gains of individuals from the consumption of goods or services. It is represented by the difference between the price that a consumer is willing to pay for a good or service and the price that the consumer actually paid (i.e. the market price). Producer surplus measures the welfare gains of producers from selling a product at the market price in excess of the price at which they are willing to sell. For the purpose of the illustration, this section considers an importable product, say car, to a small country (say Country A) which is unable to affect the world price of cars.[33] Further, the section makes two assumptions, including (1) there are no other distortions or externalities in the economy of Country A, apart from the one in concern; and (2) there are no by-product costs of financing subsidies, collecting taxes, disbursing subsidies, or in income distribution[34]. These assumptions are to be removed later in the article.

2.1 The Welfare Effects of a Production Subsidy and an Import Tariff in Addressing a Positive Production Externality

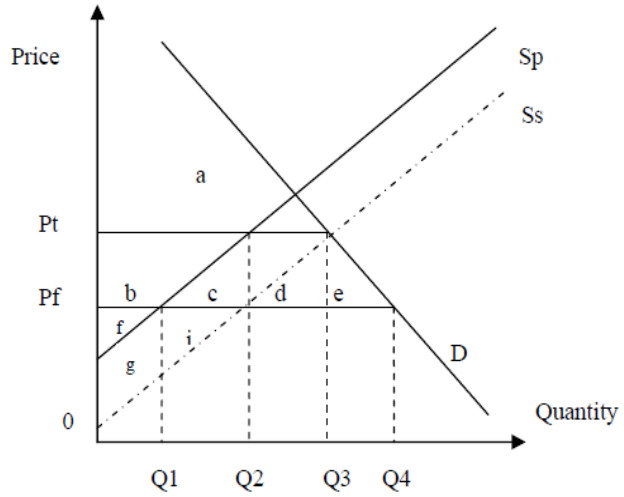
In the economy of Country A, a positive production externality would occur if the production of cars in Country A creates beneficial effects on other economic entities in the economy. This might occur if the car production generates a positive knowledge spillover associated with new technologies or inventions which can be applied to other industries of the economy. However, the knowledge spillover effects may not directly lead to the reduction of the costs of car production, and hence would not be taken into account by car producers in setting prices for sale and making decisions on the output of cars. Consequently, a divergence is created by the excess of the marginal private cost of producing an extra car over the marginal social cost of producing an extra car. In the presence of the divergence and under the free-trade policy, cars are underpriced and, consequently, the quantity of cars produced is below the socially desirable level. Some form of government interventions would be needed to raise the car price and bolster output. Either an import tariff on cars or a direct subsidy to car production equal to the positive externality could bridge the divergence; but the production subsidy which removes the externality at the source is economically superior to the tariff. Figure 1 below illustrates this situation.

[32] See Pindyck and Rubinfeld, above n 30, at 128, 300.

[33] Thus, the article focuses on domestic distortions or domestic policy goals and leaves out a big country case where a country has a significant share of imports (or exports) of cars so that it can affect the world price of cars by manipulating the volume of car imports (or exports). In such a case, the use of an optimal tariff (or an export tax) would yield welfare gains for the country. The optimal tariff argument for trade intervention is discussed in many textbooks on international economics. See, for example, Lindert, Peter H., *International Economics* (Illinois: Richard Irwin, 9th ed., 1991) ch.7. For a theorem submitting that the WTO functions to restrain Members from manipulating terms-of-trade, see Bagwell, Kyle and Staiger, Robert W., *The Economics of the World Trading System* (Cambridge, Mass., London: MIT Press, 2002). For critiques against the 'terms-of-trade manipulation' theorem on the grounds that the theorem lacks empirical basis and reflections from the WTO rules, see Ethier, Wilfred J., "The Theory of Trade Policy and Trade Agreements: A Critique" (2007)23(3) *European Journal of Political Economy* 605-623.

[34] These are the four standard assumptions made for the conventional analysis of the Theory. See Corden, above n 18, at 33. Section 2.6 below considers these assumptions.

Figure 1 The welfare effects of a production subsidy and an import tariff in the presence of a positive production externality in Country A's car marker



In Figure 1, the downsloping demand curve D indicates that the lower the price of cars, the more consumers are willing to buy. In contrast, the upsloping supply curves show that producers would produce more with the increase in the price of cars. Sp is the marginal private cost of production of cars and Ss represents the marginal social cost of production of cars. Due to the positive production externality, Sp is higher than Ss. In contrast, since there are no externalities at the consumption side, D represents both the marginal private and social benefits for various levels of consumption.

In the absence of any government intervention, the domestic price of cars is the free trade price at Pf. In the presence of the positive production externality and the divergence between Ss and Sp, it is the Sp function which determines the behaviour of domestic producers. At Pf, domestic producers would supply cars up to the point at which price (marginal revenue) equals marginal cost so the quantity supplied by domestic producers would be Q1. The volume of imports would be (Q4 – Q1). In reaching this equilibrium, car producers in Country A have not taken into account the additional social benefits of production of cars equivalent to the vertical distance between the Sp function and the Ss function, namely, the area represented by (c+i). Had the producers taken into account these social benefits, they would have produced up to Q2. Therefore, in the presence of the externality, the position of having free trade and no government intervention fails to capture the additional social benefits. In order to capture these benefits, Country A could promote the production of (Q2-Q1) more units of cars. To achieve that outcome, Country A could employ either a production subsidy or an import tariff.

To bolster the output to Q2, the production subsidy can be set at (Pt-Pf) per unit of production at the cost of the government. The total amount of the subsidy is (b+c). With the subsidy, domestic car producers are receiving Pt for each car produced and at that price, are willing to produce (Q2-Q1) extra cars at costs in excess of the world price Pf. These additional costs would lead to national welfare loss represented by (c) because, without the subsidy, domestic producers would have purchased the extra quantities of cars from foreign suppliers at the lower free-trade

price. However, these costs are more than offset by the additional social benefits (i.e. the sum of (c+i)) brought by the supply of the extra cars (Q2 – Q1), that follows from implementing the subsidy. Thus, the net social benefit that the subsidy yields is the area represented by (i).

Alternatively, the government of Country A can impose an import tariff equivalent to the subsidy (i.e. a specific tariff at (Pt-Pf) for each import) to inflate the price of cars to Pt. At that price, domestic production would expand to Q2. The imposition of the tariff could also generate the social benefits (c+i) as a result of the extra production of cars. However, it is well-known that the tariff incurs net national welfare loss (or deadweight loss) in both the production side (i.e. the area represented by (c)) and the consumption side (i.e. the area represented by (e)). [35] Hence, the effect of the tariff on the national welfare of Country A is ambiguous; that is, Country A may gain or lose depending on whether the net social benefit (i) is larger or smaller than the consumer loss (e) resulting from the tariff.

A tentative conclusion from the illustration above is that, in the presence of a positive production externality, while a production subsidy equal to the size of the externality brings net social benefits to Country A, an import tariff equivalent to the subsidy may produce a national welfare gain or cause a national welfare loss. Therefore, the subsidy is economically superior to the tariff as a means of tackling the externality. Another way to say this is that if the domestic objective is to bolster the production of cars, then a direct subsidy to car production can achieve the objective more efficiently than a tariff. The reason that the subsidy is preferable to the tariff is because it acts on the source of the distortion or addresses the domestic objective more precisely than the tariff does. The tariff, at the same time of offsetting the divergence, imposes a by-product cost on consumption.

As an additional way of explaining the above conclusion, Table 1 below sets out all of the changes in economic surplus. Having recognized the presence of the divergence between the private supply curve and the social supply curve, it is necessary to measure the economic surplus based on the social supply function rather than the private supply function.

Table 1: The application of a production subsidy and an import tariff to tackle a positive production externality

[35] From the production side, the net welfare loss is attributed to the fact that the production decisions are distorted as a result of the protection afforded to the producers by the tariff. In the absence of the tariff, they would not produce the amount of cars which they could have purchased at a lower price from foreign suppliers. From the consumption side, the welfare loss to consumers is attributed to the fact that the tariff raises the consumers' price and hence causes their consumptions to fall. For an introduction of the welfare effects of trade policies, see Lindert, above n 33, ch 6.

In the presence of the positive production externality			
	Without the production subsidy	With the production subsidy	Welfare changes
Producer surplus	+f+g	f+g+b+i+c	b+c+i
Consumer surplus	a+b+c+d+e	a+b+c+d+e	0
Government expense	0	-b-c	-b-c
Aggregate Economic Surplus	a+b+c+d+e+f+g	a+b+c+d+e+f+g+i	**+i**
	Without the import tariff	With the import tariff	Welfare changes
Producer surplus	+f+g	f+g+b+i+c	b+c+i
Consumer surplus	a+b+c+d+e	+a	-b-c-d-e
Government gain	0	+d	+d
Aggregate Economic Surplus	a+b+c+d+e+f+g	a+b+c+d+f+g+i	**-e+i**

2.2 The Welfare Effects of a Consumption Tax and an Import Tariff in Addressing a Negative Consumption Externality

In the economy of Country A, the consumption of cars can give rise to negative externalities. One typical example is environmental pollution caused by car consumption. As consumers normally fail to give consideration to the social costs associated with the pollution in making consumption decisions, the marginal private benefit of consuming an extra car exceeds the marginal social benefit of consuming an extra car. Cars are therefore underpriced and over-consumed, which offer a justification for government interventions. Either an importing tariff or a domestic tax on consumption can be utilized to cure the externality and achieve the objective of restraining the consumption of cars. The more directly-attacking instrument – the consumption tax – can be proved more efficient than the tariff. Figure 2 below illustrates this situation.

Figure 2 The welfare effects of a consumption tax and an import tariff in the presence of a negative consumption externality in Country A's car market

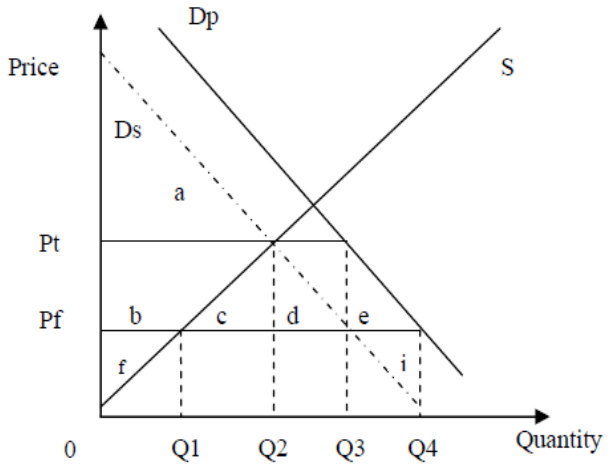


Figure 2 demonstrates that a negative consumption externality exists in the car industry of Country A. Dp, the marginal private benefit for various levels of consumption of cars, is beyond Ds, the marginal social benefit of consuming cars. As there are no externalities at the production side of the car industry, the supply curve S indicates both the marginal social and private costs of production of cars.

Without any government intervention, the domestic price of cars is at the free trade price Pf. In the presence of the negative consumption externality and the divergence between Ds and Dp, it is the Dp function which determines the behaviour of domestic consumers. At Pf, consumers would purchase cars up to the point at which price equals marginal private benefit (i.e. the benefit consumers would gain from buying an additional car), so the quantity of cars demanded is Q4. Domestic producers would supply Q1 units of cars and the volume of imports is (Q4-Q1). In reaching this equilibrium, consumers in Country A have not paid account to the additional social costs of consumption of cars equivalent to the vertical distance between the Dp function and the Ds function, namely, the area represented by (e+i). Had the consumers taken into account these social costs, they would have confined their consumption to Q3 units of cars. Therefore, in the presence of the externality, a free-trade policy without government interventions would fail to remove the additional social costs, and as a result, would be unlikely to maximize the national welfare of Country A. In order to remove the additional social costs, some form of government intervention needs to be introduced to cut down the consumption by (Q4-Q3) units of cars. To achieve this, Country A could employ either a consumption tax or an import tariff.

A domestic tax at the rate of (Pt-Pf) on consumption of each car would reduce the car consumption to Q3. This tax could effectively raise the price of cars for consumers to Pt while leaving the production costs of cars unaffected. As a consequence, consumers would buy fewer cars at the tax inclusive price, suffering from a welfare loss equal to (e). However, there is no welfare change to car producers as they are still selling Q1 units of cars at the price Pf. Furthermore, the imposition of the tax remedies the social harm (i.e. the area represented by (e+i)) resulted from the excessive consumption by offsetting the existing divergence between the marginal private benefit of consumption and the marginal social benefit of consumption. Accordingly, the tax brings a net welfare gain for Country A as represented by (i).

If an import tariff equivalent to the consumption tax (i.e. a specific tariff at (Pt-Pf) for each import) is applied as an alternative to achieve the objective of curtailing consumption, the social costs (e+i) associated with the overconsumption could also be eliminated. At the tariff inclusive price Pt, consumption would decrease to Q3 units of cars. As a consequence of the shrink in consumption, consumers lose part of their welfare (e). In the meantime, with the protection of the tariff, domestic producers would produce (Q2-Q1) extra units of cars, inflicting a deadweight loss (c). Thus, the net welfare effect of the tariff for Country A depends upon the difference between the net social costs reduced (i) and the deadweight loss incurred (c). Like in the previous scenario, the result is an ambiguous one which can be negative or positive. However, even though a positive outcome is achieved, the net national welfare gain (i-c) generated by the imposition of the tariff falls short of the maximum welfare gain obtainable (i) by applying the consumption tax.

As an additional way of explaining the above conclusion, Table 2 below sets out all of the changes in economic surplus. Having recognized the presence of the divergence between the private demand curve and the social demand curve, it is necessary to measure the economic surplus based on the social demand function rather than the private demand function.

Table 2: The application of a consumption tax and an import tariff to tackle a negative consumption externality

In the presence of the negative consumption externality			
	Without the consumption tax	With the consumption tax	Welfare changes
Consumer surplus	a+b+c+d-i	a	-b-c-d+i
Producer surplus	+f	+f	0
Government gain	0	b+c+d	b+c+d
Aggregate Economic Surplus	a+b+c+d+f-i	a+b+c+d+f	**+i**
	Without the import tariff	With the import tariff	Welfare changes
Consumer surplus	a+b+c+d-i	a	-b-c-d+i
Producer surplus	+f	+f+b	+b
Government gain	0	+d	+d
Aggregate Economic Surplus	a+b+c+d+f-i	a+b+d+f	**-c+i**

2.3 Summary

To sum up, the economic analysis above shows that in the presence of domestic externalities or policy objectives, free trade would remain to be welfare-enhancing provided that the externalities or objectives are addressed with optimal policy instruments. The rule of thumb drawn from the Theory is that domestic externalities or policy objectives can most efficiently be addressed by domestic policy instruments targeting specifically at the source of the problems. This rule is normally referred to as the 'specificity rule' or 'targeting rule'.

This rule stands valid even though the first assumption made at the beginning of this section is removed; that is, would the co-existence of two or more than two externalities (or domestic objectives) make an import tariff the optimal policy? In such situations, the Theory would suggest that the use of two or several domestic policy instruments attacking directly at the source of each externality (or addressing each objective specifically) would be preferable to the use of an import tariff. For example, the presence of a positive production externality/an objective to bolster production and a negative consumption externality/an objective to restrain consumption would require the imposition of a production subsidy to address the former and a consumption tax to tackle the latter. Having said that, this rule would however be subject to a number of qualifications mentioned in the second assumption above, which will be considered in section 2.6.

2.4 The Economic Ranking of Policy Instruments – An Overview

The Theory does not merely compare the welfare effects between a particular type of domestic instrument and a particular type of trade instrument in addressing a domestic externality or a domestic policy objective. It can be applied to the ranking of a range of policy instruments on the basis of the general principle that the closer an instrument attacks to the point of the problem, the more economically efficient it tends to be.

In Bhagwati's generalization of the theory, the rankings are set out as follows[36]:

- in the presence of a domestic production/output-related externality or a policy objective to bolster or curtail production/output, the 1st best policy is a production subsidy or tax; the 2nd best policy is either a tax or subsidy on factor-use or a tariff. A tax or subsidy on consumption tends to make things worse as it adds a loss at the consumption side on the top of the existing distortion associated with the production activities;
- in the presence of a domestic consumption externality or a policy objective to encourage or discourage consumption, the 1st best policy is a consumption subsidy or tax; the 2nd best policy is a tariff. The 3rd best policy is a production or factor-use tax or subsidy which however may or may not help depending on the size of the tax or subsidy;[37]
- in the presence of distortions in factor market or a policy objective to ensure optimal production feasibility and to alter the factor-use in a sector, the 1st best policy is a direct tax or subsidy on the use of the factor; the 2nd best policy involves a production tax or subsidy on the final product; the 3rd best policy is a tariff. A consumption tax or subsidy would further reduce national welfare as it introduces a consumption distortion without removing the existing one in the factor market. [38]

2.5 Examples of the Application of the Theory

The Theory can be applied to the selection of policy instruments in dealing with any domestic externalities or any given policy objectives.

2.5.1 Infant Industry Argument for Protection

One typical example concerns the choice of policy prescriptions in pursuit of the protection of infant industry. The infant industry argument for trade intervention is one of the longest-lasting arguments for protection.[39] At the heart of the argument is a proposition that a short-term

[36] See Bhagwati, above n 19, at 80-81.

[37] See Bhagwati, Ramaswami, and Srinivasan, above n 18, "Domestic Distortions, Tariffs and the Theory of Optimum Subsidy: Some Further Results", at 1009 & FN7. (suggesting that an infinitesimal tax or subsidy on production or factor-use may not affect consumption whereas it may help if it is large enough)

[38] Traditional studies on the use of the best policy instrument to remove factor market distortions concentrate on wage disparities which may result in externalities in the use of labour. The externalities can engender two consequences. First, artificially high wage levels in one sector, such as those secured by social legislations, would result in inefficient allocation of labour among industries (i.e. by drawing labour from other more efficient sectors to the high-wage but less efficient sector), and, as a consequence, restrict the production feasibilities of the economy. Second, the wage-rate disparities would also cause a divergence between the private and social costs of production – a production externality resulting from the distortion in the labour market. The Theory suggests that only a subsidy or tax (i.e. equal to the wage differentials) applied directly to the use of labour could adequately address the externalities and restore the economy to its optimal condition. A production subsidy or tax can merely eliminate the distortion on the production side and thus leaves the suboptimal production combinations uncured. A tariff can also remedy the production distortion but at the same time, it entails a consumption distortion and cannot lift the restriction on production feasibilities. See Haberler, above n 18, "Some Problems in the Pure Theory of International Trade"; Hagen, "An Economic Justification of Protectionism"; Bhagwati and Ramaswami, "Domestic Distortions, Tariffs and the Theory of Optimum Subsidy", at 47-50; Johnson, "Optimal Trade Intervention in the Presence of Domestic Distortions", at 159-162; Corden, *Trade Policy and Economic Welfare*, at 16-17. For a simpler explanation, see Sykes, Alan O., "Protectionism as a "Safeguard": A Positive Analysis of the GATT "Escape Clause" with Normative Speculations" (1991)58(1) *The University of Chicago Law Review* 255-305 at 265-269.

[39] See Corden, above n 18, *Trade Policy and Economic Welfare*, at 139-161. The pioneering contributions to the infant industry argument date back to the time of Alexander Hamilton and John Stuart Mill. See Hamilton, Alexander, "Report on Manufacturers", in Samuel McKee (eds.) *Papers on Public Credit, Commerce and Finance by Alexander Hamilton* (New York: Columbia University Press, 1934) (Alexander Hamilton is the first US Treasury Secretary. The original Report was

protection for an infant industry through an import tariff could help enhance its production efficiency and competitiveness in the long term. The benefits generated from the protection not only go to the protected industry but also other industries through positive spillover effects. The argument also points out the difficulties that an infant industry may encounter in obtaining sufficient funds for its initial investment, asserting that the tariff could resolve such difficulties.

One of the strongest arguments against the use of an import tariff to afford protection to an infant industry is advanced on the basis of the Theory.[40] In all cases, as the Theory would suggest, the tariff is not the first-best policy instrument as it misses the locus of the problems that an infant industry may encounter. Rather, other policy instruments could be employed to achieve a more efficient outcome than the tariff can do. For example, to tackle any positive production externality (which might arise from the failure of an infant industry to consider the social benefits of its production), the optimal policy instrument is to directly subsidize production in the industry rather than impose the tariff. With respect to the distortions in the capital market, the problem lies in the inefficient capital market which underestimates the long-term benefits of financing the infant industry to the economy and hence unduly restrains funds from being (adequately) injected into the industry. To remedy these distortions, the first-best policy is to improve the capital market directly rather than impose the tariff. An import tariff would be unlikely to cure the inefficiencies in the capital market.[41] In short, although the infant industry argument has persisted over time, it does not provide justifications for trade protection (i.e. by an import tariff). Since the problems that an infant industry may encounter are domestic in nature, domestic policy instruments attacking these problems as closely as possible tend to be the optimal solutions. The tariff not only carries its own costs but also is proved to be of limited effectiveness in resolving these problems.

2.5.2 Environmental Objectives for Protection

Another famous example relates to the choice of policy means for the protection of the environment. Issues relating to the protection of the environment have received ever-increasing public attention over the past several decades. Too often heard is the proposition that trade interventions should be instituted to protect the environment as international trade carries the original sin for the deteriorating environmental conditions. This proposition is illusory as trade is rarely the root cause of environmental problems; hence trade policies hardly offer the best solutions to the problems.[42] Generally speaking, environmental problems can arise from domestic

issued on December 5, 1871. In this report, Hamilton advocated the use of temporary tariffs to establish the competitiveness of infant American industries.) Mill, John S., *Principles of Political Economy*, in John M. Robson (eds.) *Collected Works of John Stuart Mill, Vol. III* (Toronto: University of Toronto Press, 1965). For a brief explanation of the infant industry argument, see Lindert, above n 33, at 142-145; Sykes, above n 38, at 263-265.

[40] There are also other arguments against trade intervention in the hope of protecting an infant industry, such as the difficulty in identifying such an industry and in deciding the timeframe necessary for protection in the first place, the temporary nature of the protection through a trade measure, and the risk of maintaining an existing trade measure beyond the infancy period.

[41] McKinnon, R.I., "On Misunderstanding the Capital Constraint in LDCs: the Consequence for Trade Policy" in Jagdish N. Bhagwati *et al.* (eds.) *Trade balance of payments and growth: papers in International Economics in Honor of Charles P. Kindleberger* (Amsterdam, London: North-Holland Publishing Co, 1971) 506-523.

[42] Two edited books exploring the issues relating to trade and environment have arrived at the same conclusion. See Anderson, Kym and Blackhurst, Richard (eds.), *The Greening of World Trade Issues* (New York: Harvester Wheatsheaf, 1992) p.20; Low, Patrick (eds.), *International Trade and Environment*, World Bank Discussion Paper 159 (Washington, DC: The World Bank, 1992) p.13. Furthermore, studies conducted under the auspices of competent international institutions such as the OECD and the WTO have also produced the same proposition. See, for example, OECD, "Trade and Environment: A Progress Report", OCDE/GD(92)97 (Paris: Organization for Economic Co-operation and Development, 1992) (suggesting internalizing environmental costs and attacking environmental problems directly); Nordstrom, Hakan, and Vaughan, Scott,

environmental externalities and international environmental externalities. The former concerns relevant negative externalities within a country (i.e. domestic pollution) while the latter pertains to the spillover of domestic externalities to other countries (i.e. trans-boundary pollution) or the damage to global commons (i.e. the ozone layer). The main conclusion derived from the Theory is that domestic policy instruments acting on the externalities directly are optimal in the former case, while international cooperation with an aim to creating incentives to internalize the international externalities offers a better solution than unilateral trade intervention in the latter case.[43]

At the domestic level, the environment-related externalities are essentially negative externalities arising from the production and consumption of goods. To deal with the externalities, governments should impose a tax on production and a tax on consumption of cars simultaneously. The taxes would help reduce production and consumption to socially desirable and environmentally benign levels. In comparison, a trade measure such as an import tariff cannot yield an outcome as efficient and effective as what the taxes can produce. For example, where Country A imports cars, the imposition of a tariff on cars can lead to contraction of consumption and hence abate pollutions on the consumption side. The tariff would however expand the output of cars in Country A and consequently exacerbate pollutions from production. In cases where Country A exports cars, a trade measure on exports (i.e. an export tax) would increase domestic pollution as the application of the measure may reduce car prices, thereby stimulating the domestic consumption of cars.[44] In short, the application of the internal taxes directly to the sources of the pollution (i.e. production and consumption) is superior to imposing trade restrictions on either imports or exports. Moreover, even in cases where the tax measures are somehow infeasible, a group of other domestic measures, superior to trade measures, could also be used by governments.[45] Direct regulation setting out the upper limits of pollution (i.e. an emissions standard) or the ceilings of production/consumption of polluting goods is a typical one. Other alternatives may include the allocation of transferable emissions permits[46], or probably less efficiently, the provision of subsidies to placate producers in the polluting industry to curtail production[47]. All these measures bear transaction and administrative costs, which make the ranking of them reasonably difficult. In reality, however, it is often that governments use these policies interchangeably or employ two or more of them simultaneously to tackle an environmental problem. A common feature of all these domestic measures is that they are

"Trade and Environment", Special Studies 4 (Geneva: World Trade Organization, 1999) (suggesting that the root causes of environmental problems are domestic market failures and that the environmental costs be internalized). Also see Bhagwati, Jagdish N. and Srinivasan, T.N., "Trade and the Environment: Does Environmental Diversity Detract from the Case for Free Trade" in Jagdish Bhagwati & Robert E. Hudec (eds.), *Fair Trade and Harmonization: Prerequisites for Free Trade, Vol 1: Economic Analysis* (Cambridge, Mass., London: MIT Press, 1996) 159-223 at 166-167.

[43] See above n 42. Also see Corden, above n 18, *Trade Policy and Economic Welfare*, at 229-230, 237-238.

[44] For a comprehensive analysis of this issue, see Anderson, Kym, "The Standard Welfare Economics of Policies Affecting Trade and the Environment" in Kym Anderson & Richard Blackhurst (eds.), *The Greening of World Trade Issues* (New York: Harvester Wheatsheaf, 1992) 25-48. Also see Corden, above n 18, *Trade Policy and Economic Welfare*, at 223-227.

[45] See Pindyck and Rubinfeld, above n 30, at 645-662. Also see Corden, above n 18, *Trade Policy and Economic Welfare*, at 227-230. For an attempt to rank various domestic policy options, see Low, Patrick, and Safadi, Raed, "Trade Policy and Pollution" in Patrick Low (eds.), *International Trade and Environment*, World Bank Discussion Paper 159 (Washington, DC: The World Bank, 1992) 29-52.

[46] A system specifies the permitted level of emissions without identifying who should be allowed to generate the emissions. Firms producing the same emissions can buy and sell the permits on the market.

[47] A potential adverse effect of the subsidy would be that it may motivate more producers to enter into the polluting industry. See Low and Safadi, above n 45, at 33.

designed to address the problems more closely than trade measures and therefore tend to achieve a desirable environmental outcome in a more efficient manner than the trade measures can do.[48]

Local pollution caused by car production and consumption may adversely affect other countries or global commons, causing international negative externalities. Nonetheless, these externalities in most cases primarily originate from domestic environment-harmful activities. Thus, the underlying principle extracted from the Theory remains applicable; that is, local governments should internalize these externalities through efficient domestic measures.[49] However, it is not unusual that international environmental externalities are not properly internalized within the national borders due to insufficient government response to the problems. The lack of internalization of these problems necessitates collective actions from all interested countries – which may be both victims and culprits of environmental harms – with an aim to formulating international environmental schemes to prod local governments to take proper actions.[50] Failing to address global environmental problems in a collaborative manner may lead to suboptimal solutions as each country may be unlikely to take into account the interests of others in deciding whether and how to deal with the problems.[51] What is worse is the likelihood that a country imposes trade sanctions unilaterally in order to influence the behaviour of other countries in the absence of international cooperation. Scholars are divided on the issue of whether unilateral measures should be allowed to deal with global environmental problems. Some have submitted that, for the purpose of creating incentives to promote internalization of environmental externalities, international cooperation would achieve environmental objectives more efficiently than bullying tactics.[52] Proponents in favour of the use of unilateral environmental measures have pointed out the practical difficulties in promoting international cooperation in dealing with environmental matters and have argued that trade sanctions can act either to punish any signatories to an international environmental agreement for failing to honour their obligations

[48] An even more efficient measure would be to assign the property rights, which could advance private bargains over how externalities should be dealt with. Private bargains among parties affected by environmental externalities tend to yield more efficient outcome than government interventions no matter how the property rights are specified. A major problem of this approach to addressing environmental externalities, however, concerns high transaction costs of private bargains (i.e. if a great number of affected parties are involved or the property rights are not clearly defined). See Coase, Ronald, "The Problem of Social Cost" (1960)3 *Journal of Law and Economics* 1-44.

[49] See Rauscher, Michael, *International Trade, Factor Movements and the Environment* (Oxford, New York: Clarendon Press 1997) 272-312 (observing that the first-best solution to international environmental externalities is for each country to use Pigouvian environmental policies to internalize the externalities); See also Whalley, John, "Comments" in Richard N. Cooper, *Environment and Resource Policies for the World Economy* (Washington, D.C.: The Brookings Institution, 1994) 81-84 at 81; Bhagwati and Srinivasan, above n 42, at 166-167.

[50] See Whalley, above n 49, at 82-83; Corden, above n 18, *Trade Policy and Economic Welfare*, at 237-238; Low and Safadi, above n 45, at 30. For discussions on the issues relating to international cooperation on global environmental problems, see Cooper, R.N., *Environment and Resource Policies for the World Economy* (Washington, D.C.: The Brookings Institution, 1994); Blackhurst, Richard, and Subramanian, Arvind, "Promoting Multilateral Cooperation on the Environment" in Kym Anderson & Richard Blackhurst (eds.), *The Greening of World Trade Issues* (New York: Harvester Wheatsheaf, 1992) 247-268; Safadi, Raed, and Low, Patrick, "International Policy Coordination and Environment Quality" in Patrick Low (eds.), *International Trade and Environment*, World Bank Discussion Paper 159 (Washington, DC: The World Bank, 1992) 289-307.

[51] See Low and Safadi, above n 45, 34-35. Also see Deardorff, Alan V., "International Conflict and Coordination in Environmental Policies" in Jagdeep S. Bhandari & Alan O. Sykes (eds.) *Economic Dimensions in International Law: Comparative and Empirical Perspectives* (Cambridge, New York: Cambridge University Press, 1997) 248-274. (Deardorff considered various effects of national environmental policies in several specific cases, establishing that international coordination would achieve a better welfare outcome both nationally and globally than acting individually in most cases. One case where international coordination may be not necessary is where domestic environmental externalities do not spillover to other countries.)

[52] See Low and Safadi, above n 45. Also see Corden, above n 18, *Trade Policy and Economic Welfare*, at 239-240.

under the agreement or to threaten non-participants to take part in the agreement.[53] Others, while acknowledging the necessity of unilateral measures, have stressed that these measures must be imposed in accordance with relevant multilateral environmental framework.[54] The article is not intended to engage in the debate on this issue. This entire paragraph on international environmental externalities merely seeks to exposit the applicability of the Theory to the selection of policy instruments in the pursuit of environmental objectives. It underlines that in the presence of international environmental externalities, the first-best policy is for each country or for all countries to act cooperatively so as to internalize the externalities through efficient domestic policy instruments which target closely on the environmental problems.

2.6 Qualifications to the Theory

The application of the Theory in practice may be subject to a number of qualifications. While considering the by-product costs associated with a tariff, the article has maintained the assumption that there exist no such costs of any kind that might be incurred in the application of a first-best policy instrument (i.e. domestic subsidy or tax) to directly address a domestic externality or a domestic policy objective. Should this assumption be removed, does the subsidy or tax remain to be the optimal policy? This section deals with this question.

According to Corden[55], there are four principal by-product costs that the imposition of a subsidy or a tax may entail, including:

(1) the distortion costs associated with raising revenue to finance a subsidy;
(2) the costs associated with collecting taxes;
(3) the costs associated with disbursing a subsidy; and
(4) the income distribution distortion costs associated with taxing and subsidizing.

The costs in item (1) concern the by-product distortions associated with taxation which may affect production and consumption. Corden has suggested that a subsidy remains the first-best instrument as the by-product costs incurred in the course of revenue-raising can be reasonably

[53] See Chang, Howard F., "Carrots, Sticks and International Externalities" (1997)17(3) *International Review of Law and Economics* 309-324; Weiss, Edith B., "Strengthening National Compliance with Trade Law: Insights from Environment" in Marco Bronckers & Reinhard Quick (eds.), *New Directions in International Economic Law: Essays in Honour of John H. Jackson* (The Hague, London, Boston: Kluwer Law International, 2000) 457-471 at 461. (observing that "… sanctions may have value as a 'weapon of last resort' and as a latent threat to make other methods of achieving compliance more effective"). However, some have also argued that despite the increasing complexities in reaching multilateral environment agreements, multilateral cooperation remains a preferred approach to environmental protection. See Desombre, Elizabeth R., "The Evolution of International Environmental Cooperation" (2004-05)1(1-2) *Journal of International Law & International Relations* 75-119.

[54] See Howse, Robert, and Trebilcock, Michael J., "The Free Trade-Fair Trade Debate: Trade, Labour, and the Environment" in Jagdeep S. Bhandari & Alan O. Sykes (eds.) *Economic Dimensions in International Law: Comparative and Empirical Perspectives* (Cambridge, New York: Cambridge University Press, 1997) 186-234. For discussions on the role of trade measures in specific international environmental agreements, see Blackhurst and Subramanian, above n 50, at 262; Enders, Alice and Porges, Amelia, "Successful Conventions and Conventional Success: Saving the Ozone Layer" in Kym Anderson & Richard Blackhurst (eds.), *The Greening of World Trade Issues* (New York: Harvester Wheatsheaf, 1992) 130-144; OECD, "Experience with the Use of Trade Measures In the Montreal Protocol on Substances that Deplete the Ozone Layer", COM/ENV/TD(97)107, (Paris: Organisation for Economic Co-operation and Development, 1997). A more recent publication has suggested that further negotiations successive to the Kyoto Convention on a multilateral framework on climate change should legitimize and discipline the use of trade measures, "rather than leaving it up to individual states without guidelines". See Frankel, Jeffrey, "Environmental Effects of International Trade", HKS Faculty Research Working Paper Series, RWP09-006 (John F. Kennedy School of Government, Harvard University, January 2009).

[55] This section is heavily based on Corden's work – "The Four Assumptions of the Theory of Domestic Divergences" in Corden, above n 18, at 33-44.

minimized.[56] In comparison, a tariff places a restraint on the channels of the finance by requiring the revenue to be collected solely from taxing the domestic consumers of a particular product.[57] This would be very unlikely to be the minimum-cost tax package in practice. Thus, the existence of the by-product costs would unlikely render the subsidy an inferior instrument to the tariff.

In addition to the by-product distortion costs, revenue-raising would also generate collection costs associated with tax administration by governments and compliance with tax regimes by private entities (i.e. taxpayers).[58] Corden has observed that the existence of the collection costs may affect the application of the Theory, but only in extreme cases which may be of marginal practical importance.[59] One scenario is that the collection costs of domestic taxes are considerably lower than those of taxing imports or exports in general. In this scenario, a subsidy financed by domestic taxes would be the first-best instrument. An opposite scenario involves very high collection costs of domestic taxes concomitant with negligible collection costs of trade taxes. In such scenario, a subsidy financed by trade taxes across the board would be the optimal instrument, while an importing tariff imposed on a particular import (i.e. cars) would still be a suboptimal instrument for curing domestic externalities. Only in cases where the collection costs of domestic taxes and of all other trade taxes are both considerably higher than the collection costs of this particular tariff on cars would the usual ranking of instruments not hold.[60] This case however cannot be a common one in practice. Furthermore, if one takes into account the by-product costs on consumption associated with the tariff, it would become even harder for the tariff to be more economically efficient than the subsidy. Thus, the collection costs alone would be unlikely to undermine the optimality of the subsidy.

The costs in item (4) pertain to by-product distortions associated with income distribution which may arise from taxing some people while subsidizing others.[61] In other words, if the income distribution at stake is at a socially desirable level before the imposition of a subsidy or a tax aiming at correcting an existing domestic externality, then this corrective tax or subsidy would give rise to a by-product distortion in the income distribution. However, this income distribution distortion would be unlikely to render the corrective subsidy or tax inferior to a tariff. Accordingly to Corden, the distortion can and should be cured directly by imposing an income tax or subsidy.[62] Moreover, the imposition of a tariff would likely result in higher by-product distortions in income distribution than the corrective subsidy or tax may cause.[63] Thus, the subsidy remains to be superior to the tariff.

The only case where the applicability of the Theory may be affected concerns the costs in item (3) – the disbursement costs of a subsidy. While the subsidy disbursement costs would be reasonably low in developed countries where advanced taxation systems are generally in place, the disbursement of subsidy can be formidably high in developing or least-developed countries, especially in their underdeveloped industries.[64] Imagine that Country A used to protect its infant car industry through a tariff and had never subsidized it directly. The imposition of the tariff bears

[56] See Corden, above n 18, at 34.
[57] See Corden, above n 18, at 35.
[58] See Corden, above n 18, at 35.
[59] See Corden, above n 18, at 36.
[60] See Corden, above n 18, at 36.
[61] See Corden, above n 18, at 39.
[62] See Corden, above n 18, at 40.
[63] See Corden, above n 18, at 41.
[64] See Corden, above n 18, at 37-39.

no disbursement costs as it automatically transfers wealth from consumers to car producers. Replacing the tariff with a direct subsidization system can involve high disbursement costs which the government of Country A may hardly be able to afford. Even though the costs are affordable, they may be so high that the Theory suggesting direct subsidization no longer stands valid; and the tariff which incurs no disbursement costs may become a better solution to an existing externality. Towards this end, empirical evidence related to the magnitudes of the disbursement costs carries great importance in judging whether or not the subsidy remains to be preferable to the tariff.[65]

In summary, the general applicability of the 'specificity rule' emanating from the Theory may be qualified if the by-product costs associated with the application of an optimal subsidy or tax are taken into consideration. However, the qualifying effects of the by-product costs should not be overstated. In most of the cases, the superiority of a direct subsidy or tax over a trade measure remains; hence, the 'specificity rule' stands valid. Even in the single case where the qualifying effects tend to be significant, the significance of the rule is not immediately diminished as robust empirical evidence is indispensible to justify the case.

3. Implications for the Role of Regulatory Purpose under the GATT NT Rule

The foregoing studies of the Theory offer a number of economic observations in relation to the role of regulatory purpose under the GATT NT rule.

1st Observation: *the WTO adjudicating bodies should take into account any non-protectionist policy objective of an origin-neutral measure in determining whether the measure is consistent with the NT rule.*

The Theory suggests that in cases where domestic externalities or domestic policy objectives are present, liberalizing trade may have the effect of either enhancing welfare or diminishing it. However, the effect of trade liberalization would remain welfare-enhancing if the externalities or the objectives are addressed through first-best policy instruments. Thus, in order to ensure that the NT rule operates in a way consistent with the overall objectives of the multilateral trading system relating to standards of living, income, production and optimal use of the world's resources, the rule should be interpreted so as to leave room for WTO members to deal with *any* externalities or objectives. Given the limited scope of GATT Article XX, the interpretation and application of the NT rule should allow consideration of various policy justifications for internal measures. While origin-specific measures may rarely serve bona fide policy objectives other than protectionism, the consideration of purpose is essential to the determination of the NT-legality of origin-neutral measures. This observation agrees with the common proposition of the three publications mentioned at the beginning of this article. In particular, it coincides with Horn's observation that a strict application of the NT rule without examining regulatory purposes of origin-neutral measures might be welfare-diminishing.

[65] See Corden, above n 18, at 39.

Further, this observation accords with the commonly-endorsed view that the WTO does not require its Members to sacrifice their "pursuit of any economic or social policy goal" for the pursuit of free trade.[66] The WTO tribunals have also reiterated this view in a number of cases.[67] Significantly in *Australia - Salmon*, the Appellate Body highlighted the distinction between policy objectives and policy instruments, stating that what the WTO rules seek to regulate are the instruments, not the objectives:

> The determination of the appropriate level of protection … is a prerogative of the Member concerned and not of a panel or of the Appellate Body … The "appropriate level of protection" established by a Member and the "SPS measure" have to be clearly distinguished. [footnote omitted] 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.[68]

The statement suggests that WTO Members' freedom to pursue bona fide policy objectives are not circumscribed by the WTO rules. The target of WTO discipline is the instruments employed to achieve the objectives, not the objectives *per se*. In this connection, the underlying function of the GATT/WTO rules could be considered as being to discipline the choice of policy instruments by dissuading the use of welfare-diminishing, trade-restrictive and distorting policy instruments.[69] As Professor Petersmann observes:

> GATT law ranks the various trade policy instruments according to their respective welfare costs in almost the same way as economic theory suggests: the less a policy instrument tends to distort trade, the less legal restraint GATT law places on its use...[70]

Certainly, the imposition of policy instruments that genuinely pursue domestic policy objectives can have side-effects on trade. In this aspect, the WTO encourages the use of measures with the least detrimental effects on economy and trade without asking Members to give up their objectives. That is, the WTO's function of disciplining use of policy instruments should not amount to an undesirable impediment to Members' pursuit of their chosen policy objectives.

The function of the NT rule is arguably consistent with the overall function of the WTO. The NT rule serves as the least burdensome way to tackle protectionist exploitation of the

[66] See Petersmann, Ernst-Ulrish, *Constitutional Functions and Constitutional Problems of International Economic Law* (Fribourg, Switzerland: Westview Press, 1991) at 230; Roessler, Frieder, "The Scope, Limits and Function of the GATT Legal System" (1985)8(3) *World Economy* 287-298 at 294; Sykes, above n 2, at 6-7, 23; Horn, Elsa and Mavroidis, Petros, "Still Hazy After All These Years: The Interpretation of National Treatment in the GATT/WTO" (2004)15(1) *European Journal of International Law* 39-69 at 57.

[67] See, for example, Panel Report, *United States - Standards for Reformulated and Conventional Gasoline*, WT/DS2/R, adopted 20 May 1996, para. 7.1; Appellate Body Report, WT/DS2/AB/R, adopted 20 May 1996, p. 30; Appellate Body Report, *Brazil - Measures Affecting Imports of Retreaded Tyres*, WT/DS332/AB/R, adopted 17 December 2007, para. 140.

[68] Appellate Body Report, *Australia - Measures Affecting Importation of Salmon*, WT/DS18/AB/R, adopted 6 November 1998, paras. 199-200.

[69] See Tumlir, Jan, "International Economic Order: Rules, Co-operation and Sovereignty" in Peter Oppenheimer (eds.) *Issues in International Economics* (Stocksfield, Northumberland, England: Oriel Press Ltd., 1980) 1-15 at 5; Petersmann, Ernst-Ulrish, "Trade Policy as A Constitutional Problem" (1986)41(II/III) *Aussenwirtschaft* 405-439 at 419 (observing that "[the] basic purpose [of the GATT] is to discourage the use of economically and politically harmful trade policy instruments."). For a comprehensive analysis of literature on an array of proposed rationale for the formation of the WTO, see WTO, *World Trade Report: Six decades of multilateral trade cooperation: What have we learnt?* (WTO, Geneva, 2007) 50-98.

[70] See Petersmann, Ernst-Ulrich, "National Constitutions and International Economic Law" in Meinhard Hilf & Ernst-Ulrich Petersmann (eds.) *National Constitutions and International Economic Law* (Deventer, Boston: Kluwer Law and Taxation Publishers, 1993) 3-52 at 47-48. Also see Roessler, Frieder, "The Constitutional Function of the Multilateral Trade Order" in Meinhard Hilf & Ernst-Ulrich Petersmann (eds.), *National Constitutions and International Economic Law* (Deventer, The Netherlands: Kluwer, 1993) 53-62. (comparing the economic, legal and political rankings of various trade instruments)

incompleteness of trade agreements. The theory of the incompleteness of trade agreements concerns the impossibility of GATT *Contracting Parties* (now WTO Members) to envisage and forge a comprehensive list of domestic measures during the formulation of the GATT and the other WTO agreements.[71] Since governments are likely to succumb to the pressure of import-competing producers to favour protectionist policies, the incompleteness of the WTO agreements may put the achievements of trade negotiations at risk. As trade measures are strictly regulated and customs duties progressively and substantially reduced, governments are likely to resort to domestic measures as perfect substitutes for trade measures in discouraging imports, becoming an alternative source of protection.[72] The incorporation of a NT clause into a trade agreement such as the GATT has its merits. First, it does not incur unaffordable costs associated with negotiating all domestic measures individually.[73] Second, it erects obstacles to protectionism by inhibiting discriminatory internal measures.[74] Third, compared with other methods of disciplining each domestic measure directly, the NT rule tends to impose the least restraint upon domestic pursuit of bona fide policy objectives.[75] Accordingly, as a feasible solution to the incomplete contracting problem, the NT rule can be thought of as preventing Members from using discriminatory internal measures for protectionist purposes, while at the same time allowing adequate freedom for governments to address non-protectionist domestic objectives through internal measures. In other words, the NT rule aims to discipline internal discriminatory measures serving protectionist purposes and does not intend for Members give up their pursuit of domestic policy objectives unrelated to protectionism.

In short, the observation drawn from the Theory that regulatory purpose should be considered in determining the NT-legality of origin-neutral measures is perfectly aligned with the overall function of the WTO and the function of the NT rule which is not to restrict the capacity of WTO members to pursue non-protectionist policy objectives but to discipline the choice of policy instruments to achieve the objectives.

2nd Observation: *In pursuit of any domestic policy objective, the more specifically a policy instrument addresses the objective, the more economically efficient it tends to be. This ranking of policy instruments provides an economic guidance on how to discipline origin-neutral measures which are found to impose disparate impacts on imports vis-a-vis domestic goods. That is, in order to make a contested origin-neutral measure more efficient in dealing with a given policy objective, the WTO tribunals should identify any discriminatory elements of the measure that have contributed to the disparate impact but do not serve the objective and order these elements to be removed from the measure.*

As mentioned in the 'Introduction' of this article, Mattoo and Subramanian have proposed that the economic efficiency of an origin-neutral measure should be taken into account in ascertaining

[71] See Copeland, Brian R., "Strategic Interaction among Nations: Negotiable and Non-negotiable Trade Barriers" (1990)23(1) *Canadian Journal of Economics* 84-108 at 86; Horn, Henrik, Maggi, Giovanni and Staiger, Robert W., "Trade Agreements as Endogenously Incomplete Contracts" (2010)100(1) *American Economic Review* 394-419 at 395 and the references cited in FN2; Grossman, Horn and Mavroidis, above n 26, at 32-33.
[72] See Copeland, above n 71, at 86; Grossman, Horn and Mavroidis, above n 26, at 32. See also Ederington, Josh, "International Coordination of Trade and Domestic Policies" (2001)91(5) *American Economic Review* 1580-1593 at 1580.
[73] See Horn, Maggi and Staiger, above n 71, at 396; Grossman, Horn and Mavroidis, above n 26, at 35.
[74] See Grossman, Horn and Mavroidis, above n 26, at 35.
[75] See Trebilcock, Michael J., and Howse, Robert, *The Regulation of International Trade* (New York: Routledge, 3rd ed., 2005) at 84; Grossman, Horn and Mavroidis, above n 26, at 35.

whether the measure serves non-protectionist policy objectives under the NT regime (i.e. an "economic efficiency" test).[76] They have argued that the application of the "economic efficiency" test imposes constraints on domestic protectionist use of welfare-diminishing instruments.[77] This test would therefore be beneficial to the national welfare of regulating Members. They have also argued that the test is necessary to counterbalance the "enhanced freedom" resulting from opening the door for the assessment of all policy reasons (in addition to those explicitly listed in Article XX) of origin-neutral measures under the NT rule.[78]

This proposal of a formal "economic efficiency" test has received little support from WTO scholars and WTO tribunals. As far as the NT rule is concerned, what mostly restrains the influence of the proposal is probably the view that members can apply sub-optimal or even the most economically inefficient measure as long as it does not discriminate against imports.[79] In this regard, the GATT panel in *Japan - Alcoholic Beverages I* has observed that a regulating Member can bring its NT-inconsistent tax measure into consistency by either decreasing relevant tax rates on imports or increasing the tax rates on domestic goods.[80] This observation suggests that the obligation of WTO Members under the NT rule is merely to not discriminate. They are not required to change any chosen domestic policy instruments subject to NT claims to the most efficient instrument. To the author's knowledge, in practice the WTO tribunals have not engaged in a formal assessment of the welfare effects of contested measures for the purpose of judging their consistency with various GATT rules.

Both of the aforementioned arguments for and against a formal application of an "economic efficiency" test in the assessment of the NT-legality of an origin-neutral measure are plausible. Mattoo and Subramanian's proposition of a formal "economic efficiency" test finds support from the underlying function of the WTO and the NT rule which, as argued above, is to encourage the use of more economically efficient instruments in pursuit of bona fide policy objectives. This regulation of the choice of policy instruments, in turn, serves the overarching objectives of the WTO relating to standards of living, income, production and optimal use of the world's resources. In contrast, the argument against the incorporation of the test into the application of the NT rule also sounds rational if one considers the lack of textual basis for a formal "economic efficiency" test. Since the NT rule merely requires non-discriminatory treatment between domestic and imported goods, it would be unnecessary for the WTO adjudicators to formally assess the economic efficiency of challenged measures in determining whether or not they constitute discrimination.

Despite the foregoing debate on the applicability of the "economic efficiency" test in the context of the NT rule, it is submitted that the guidance drawn from the Theory for the disciplining of an origin-neutral measure having disparate impact on imports is that the WTO

[76] See Mattoo and Subramanian, above n 21, at 317-318.
[77] See Mattoo and Subramanian, above n 21, at 320-321.
[78] See Mattoo and Subramanian, above n 21, at 319-320.
[79] See, for example, Mavroidis, Petros C., "Come Together? Producer Welfare, Consumer Welfare, and WTO Rules" in Ernst-Ulrich Petersmann (eds.) *Reforming the World Trading System: Legitimacy, Efficiency, and Democratic Governance* (Oxford, New York: Oxford University Press, 2005) 277-289 at 286.
[80] GATT Panel Report, *Japan - Customs Duties, Taxes and Labeling Practices on Imported Wines and Alcoholic Beverages*, L/6216 - 34S/83, adopted on 10 November 1987, para. 5.13. However, it is important to realize that one cannot tell which of the two instruments is more efficient without knowing what preference is attached to decreasing the volume of consumption. This insight, advanced by Brett Williams, coincides with the Grossman, Horn and Mavroidis' observation that determinations of the efficiency of a measure require information about the preference of a regulating Member. See Grossman, Horn and Mavroidis, above n 26, at 34, 40.

tribunals should aim at compelling the removal of any discriminatory elements of the measure that are unnecessary for the attainment of a chosen policy objective. This approach can be expected to make the measure less trade-restrictive and more economically efficient. The measure can become less trade-restrictive because the equality of competitive relationship between imported and domestic goods will be restored after the removal of the unnecessary discriminatory elements. The measure can become more economically efficient because it will target the given policy objective more specifically after the elimination of the discriminatory elements unnecessary for the fulfillment of the objective. Thus, even though the NT clause does not provide textual basis for the incorporation of the "economic efficiency" test, it can be reasonably anticipated that in disciplining any challenged origin-neutral measures by removing their unnecessary discriminatory elements, the WTO tribunals would be able to encourage the use of more economically efficient measures. Accordingly, the "economic efficiency" test may be implicitly applied by virtue of a test of whether discriminatory elements of an origin-neutral measure are necessary for the pursuit of a non-protectionist policy objective so as to determine whether or not the elements should be removed.

3rd Observation: *in disciplining the use of a contested origin-neutral measure to pursue a claimed non-protectionist policy objective, consideration must be given to the effectiveness of the measure and of any suggested alternative measure(s) to the attainment of the objective.*

By drawing on the 1st Observation above, in determining whether to regulate a challenged origin-neutral measure by mandating the use of an alternative measure which could be less-discriminatory or non-discriminatory, the WTO tribunals should evaluate whether the alternative measure would be capable of achieving the objective as effectively as the challenged measure. To require the use of a less effective measure would render the externality or policy objective at issue inadequately addressed, thereby tending to have adverse effect on the economic welfare of a regulating Member. Therefore, the tribunals should not require resort to less or non-discriminatory alternative means if they would not be able to attain the same objective to the same extent. Furthermore, if the tribunals were to mandate use of alternative measures that could not achieve the same objective, then that would amount to telling a Member what objectives are permissible. This would be contrary to the underlying function of the WTO and the NT rule which is to discipline the choice of policy instruments rather than the choice of policy objectives.

4th Observation: *in determining whether a contested origin-neutral measure should be replaced with a less or non-discriminatory alternative measure, the WTO tribunals should consider the by-product costs that would arise from the use of the alternative measure.*

In pursuit of any domestic policy objective, a first-best policy instrument may be infeasible due to the by-product costs associated with the application of the instrument. Thus, in determining whether an origin-neutral measure, which imposes disproportionate impacts on imports, should be made less discriminatory or completely non-discriminatory, the WTO adjudicating bodies should examine whether the less or non-discriminatory alternative means are *reasonably available* in the sense that their imposition should not give rise to unreasonable costs which would render the alternative means no longer a more efficient instrument to achieve the chosen objective.

5th Observation: *in assessing policy justifications for an origin-neutral measure under the NT rule, the WTO tribunals should undertake a two-step analysis to determine (1) whether a purported non-protectionist objective is the genuine pursuit of the measure, and (2) whether any allegedly discriminatory element of the measure is necessary for the attainment of the objective, and if not, whether less or non-discriminatory alternative means are reasonably available for achieving the same objective as effectively as the contested measure.*

In the light of the above, the Theory provides a more general implication with respect to how the WTO dispute settlement mechanism can contribute to striking a balance between trade liberalization and local autonomy under the multilateral trading regime. The Theory suggests that in determining whether a GATT-inconsistent measure can be justified by a claimed non-protectionist policy objective, the WTO tribunals should take a two-step test by, firstly, identifying the genuine objective, and secondly, assessing the appropriateness of the measure according to its economic efficiency in the pursuit of the objective. By undertaking the two steps of assessment, the tribunals can safeguard the value of trade liberalization without impairing Members' capacity to achieve any bona fide policy objectives.

Under the NT regime, it can be argued that the same two steps of analysis should be applied to accommodate the pursuits of trade and non-trade interests. Thus, in determining whether an origin-neutral measure with disparate impacts on imports can be justified by a declared non-protectionist purpose, the tribunals should, firstly, assess the genuine objective of the measure and, secondly, examine whether the measure can be reasonably made less or non-discriminatory without reducing its effectiveness to achieve the objective. Using this approach, the tribunals can, on the one hand, endorse the legitimate pursuits of a regulating member, and, on the other hand, safeguard trade liberalization by removing any unnecessary discrimination resulting from contested origin-neutral measures. Accordingly, the approach would allow the tribunals to effectively discipline members' choice of policy instruments without restricting their freedom to pursue non-protectionist policy objectives.

4. Conclusion

The tension between trade liberalization and domestic autonomy has become one of the most complex and controversial issues in the application and interpretation of the NT rule. At the core of the issue lies the question of whether regulatory purpose should be considered in the determination of the NT-legality of origin-neutral measures. While the WTO tribunals have attempted to leave the question open so as to maintain certain flexibility for consideration of regulatory purpose under the NT rule in a series of cases, lately in *EC – Seal Products* the Appellate Body appears to have significantly reduced the flexibility. This reduced flexibility represents a deviation from the underlying function of the WTO and of the NT rule which is to discipline WTO Members' choice of policy instruments and is not to restrict Members' capacity to pursue non-protectionist policy objectives. It is also incompatible with the overarching objective of the WTO relating to standards of living, income, production, and optimal use of the world's resources which is closely connected with the enhancement of welfare.

Standard economic theory of international trade suggests that if a nation does not address an existing domestic externality, then the effect of trade liberalization will be to either enhance welfare or diminish it. However, the Theory adds an important element to the economic theory of international trade by proposing that if a domestic externality is addressed using a policy instrument more specific than a trade barrier, then the essential proposition of the economic theory of international trade – that is, that reducing trade barriers is welfare-enhancing – holds true. Accordingly, a significant insight drawn from the Theory is that for the NT rule to play its correct role in the overall framework of rules aimed at enhancing welfare through reductions in trade barriers, it is important that the rule is interpreted in such a way as to allow Members to deal with domestic externalities or policy objectives. This requires that a determination of the NT-legality of origin-neutral measures should involve an assessment of whether or not the measures genuinely serve a chosen non-protectionist objective.

Further, the Theory suggests that, in assessing the appropriateness of a chosen policy instrument in pursuit of a domestic non-protectionist policy objective, one should, firstly, identify the objective, and, secondly, evaluate the appropriateness of the instrument according to its economic efficiency in the light of the objective. The closer the instrument targets the objective, the more efficient it tends to be. In cases where an efficient instrument is available, using a less-efficient instrument to address the objective tends to be inappropriate. Although the question of whether the NT clause provides a textual basis for a formal assessment of the efficiency of an origin-neutral measure in determining the reasonableness of the measure is open for debate, the WTO tribunals can encourage the use of efficient instruments through an assessment of whether the measure contains discriminatory elements that do not serve a chosen policy objective. In other words, if the tribunals take steps to urge the removal of unnecessary discriminatory elements, then their decisions would have the effect of making origin-neutral measures address objectives more closely and would lead to more economically efficient measures. The Theory also suggests that in considering more efficient alternative measures, the tribunals should ensure that the application of an alternative measure does not give rise to unreasonable costs and is capable of achieving a chosen objective as effectively as the original measure. It is submitted that using the approach suggested by the Theory, the WTO tribunals can effectively discipline a contested origin-neutral instrument without undesirably interfering with a non-protectionist policy goal that Members may have chosen to pursue.