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Nationalism, Merit Goods and Multilateral Trade Reform

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Abstract

The paper extends the analysis of Pareto-improving multilateral trade reforms to the case where national policy preferences and individual preferences differ. The difference is modelled by assuming the existence of national merit goods, which is consistent also with modern theories of nationalism. The main result of the paper is that domestic policy concerns need not prevent the formation of multilateral tariff reforms (including multilateral tariff reductions) provided that international preference differentials are properly reflected in the agreements. The key to this result is that even with different national policy preferences the world shadow prices that should guide policy making are identical across countries. National trade policies should then reflect the difference between the individual country policy preferences from a "global" policy preference which is a properly weighted average of the national preferences. This result directly gives the result that a group of countries with similar national culture form a non-preferential trading club. Finally, some piecemeal multilateral trade policy reforms are characterized. It is shown that an equiproportionate reduction in tariffs in all countries with country-specific adjustment to tariffs the reflect national policy concerns can always be designed to be Pareto-improving.

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1 Introduction

The analysis of the multilateral trading system and multilateral trade reforms has recently utilized two types of frameworks. The first is the theory of piecemeal policy reforms initiated by Hatta (1977) and applied first to trade policy reforms by Turunen-Red and Woodland (1988, 1991). This has been extended further e.g. by Turunen-Red and Woodland (2000a,b, 2004) and Raimondos-Møller and Woodland (2006). The second strand draws on the research on the political economy of trade policies. Using national welfare functions that are consistent with various types of political economy considerations e.g. Bagwell and Staiger (1999, 2002, 2006) have characterized the role of GATT/WTO rules in allowing the world to achieve an efficient solution to trade policy problems. In this framework the objective function on which national policy making is based differs, in general, from social welfare functions that are based alone on individual welfares (like e.g. the utilitarian social welfare function)[1]. This contrasts with the theory of piecemeal multilateral policy reforms which are based on the assuming policy makers to maximize social welfare. The contrast is strongest when, as is often the case, the welfare analysis is based on the assumption of a representative individual. Thus, one strand of research separates the policy relevant national welfare function from the social welfare function, in the other strand the national and social welfare functions are identical.

In this paper the theory of piecemeal policy reform is extended to the case of a national welfare function that is separate from the social welfare function. A classic example leading to a differentiation between policymakers and citizens welfare functions are merit goods. As Atkinson and Stigliz (1980, p. 8) write: "This is different from the arguments concerning externalities and public goods, in that with merit wants, the "public" judgement differs from the private evaluation, rejecting a purely individualistic view of society."[2] The analysis here is based on the recent models of merit goods. These models are quite general and can capture also political economy arguments e.g. such as lobbying by interest groups. At the same time, merit goods have a definite role in the theory of public finance making it easier to connect them to the theory of piecemeal multilateral trade reform.

Merit goods can be a particularly natural way to model how national concerns or nationalism, in general, impacts on trade policy negotiations. Take the following lengthy quotation from Pascal Lamy, the EU trade commissioner at the time (2004) he made the remarks: "In a speech delivered in Brussels on 15 September, European Trade Commissioner Pascal Lamy presented a case for consideration of so-called 'collective preferences' (or 'collective choices') in trade relations. When communities make practical decisions based upon their social values – for ex-

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[1] There, of course, exist studies on the properties of the multilateral trading system where government objective is based on the standard notions of welfare, see ch. 2 in Bagwell and Staiger (2002).

[2] Kotakorpi (2006) shows that citizens' weakness of will modelled using hyperbolic discounting can lead to merit good type of an argument if policy makers or the policy making institutions do not suffer from the same weakness.

ample, a government could decide to ban the sale of certain drugs – the value that prompted the decision, in this case health, can be called the community's 'collective preference' . Thus, collective preferences can be thought of as social values that are implied in a community's practical decisions and concrete results that can be seen by those inside and outside the community. Lamy described trade as the "natural point of intersection for different systems of collective preferences", bringing two legitimate demands into potential conflict, namely the need to honour WTO commitments and the right to exercise legitimate social choices based upon collective preferences.

Lamy acknowledged that defining collective preferences could be ambiguous and open to dispute given that they were not always rational and evolved over time from cultural and religious values, political considerations, historical factors and the level of development. By way of example, he outlined certain European 'collective preferences', including multilateralism, environmental protection, food safety, cultural diversity, public provision of education and healthcare, precautions in the field of biotechnology, and welfare rights. He said that different collective preferences among countries are essentially complementary although experiences have shown that conflicts can arise. Differing attitudes to assessing and managing risks related to biotech products, which have surfaced in the ongoing WTO dispute between the US/Argentina/Canada and the EU ... were a "case in point" for highlighting differences in collective preferences, he added.

Trade presented a particular challenge in this area, he noted, since the underlying stakes are considerable (i.e. the exporting countries' trade interests may run counter to the importing country's collective preferences), and trade was the only area in which there was an effective and binding mechanism for settling disputes. Yet it might be difficult to say just who the community is that governments are giving voice to by representing their 'collective preferences' in international forums; many fear that special interest groups could use the term to justify protecting uncompetitive industries. "Liberals might see it as opening a Pandora's box of arbitrary barriers; the Southern countries as protectionism and euro-centrism in disguise; and environmentalists and human-rights activists might see it as representing an unacceptable status quo because it fails to put pressure on those who infringe social standards and destroy the environment," he acknowledged.

Lamy commended the WTO's Appellate Body for being a "faithful guardian" of collective preferences under the WTO system by balancing wider public concerns with WTO principles such as non-discrimination as well as with rules of international public law. However, he said that both WTO rules and case law are incomplete and leave room for interpretation. "That is one of the reasons Europe wanted WTO negotiations to include discussions on clarifying the relationship between the WTO and multilateral environmental agreements", he said.

Lamy argued that sustainability impact assessment could help to reveal trading partners' collective preferences. "This, in turn, would make it possible to anticipate any conflicts that might arise from greater openness, by revealing incompatibilities between collective preferences before greater openness made them apparent, and by examining possible solutions," he said. He also suggested the use of a special safeguard clause to clarify how collective preferences might be integrated into WTO rules, thereby ensuring that "trade integration will not pose a threat to legitimate collective

preferences". Such a clause would be subject to two conditions, namely a requirement to demonstrate that there really was a coherent underlying social demand to justify the measure, and that the measure complied with the basic principles of the trading system, such as non-discrimination proportionality, national treatment and transparency. The clause would also have to be accompanied by a compensation mechanism, which would serve to partially compensate the affected exporters, thereby placing the responsibility on communities to bear the external cost of measures that reflect their societal choices."[3]

Lamy's points of view correspond closely to Ernest Gellner's view of nationalism as an idea combining political unity with nationally homogenous culture (Gellner 1997, ch. 1)[4]. Gellner also observes that nationalism has had direct connection to trade policies, e.g. in Germany through Listian protection of infant industries (Gellner 1997, p. 35), exactly like Lamy sees the connection between what he calls 'collective preferences' and the multilateral trading system. In another speech given in India[5], Lamy said "Like India, we believe agriculture is somewhat different - intimately tied up with how we run our rural economy society, and landscape."

Nationalism is also important from the point of view of standard political economy arguments. Recently Mayda and Rodrik (2005) found, in a cross country study using data on individual attitudes, that non-economic determinants (like values) must be taken into account when one tries to explain cross-country variation in attitudes towards towards trade. In particular, nationalist sentiments are associated with protectionist views. These sentiments also seem to get reflected in trade flows: Disdier, Mayer and Tai (2006) report that bilateral trade flows in movies is very much influenced by cultural factors (e.g. similarity in religion). They also show that bilateral trade in movies, which they use as an indicator of cultural similarity, is a significant determinant of the overall bilateral trade flows. Felbermayr and Toubal (2006) use the results from the European Song Contest to measure cultural affinity between European countries and show that cultural affinity increases trade flows. These results echo the results from Rose (2000).

Cultural and social issues come up also when one deals with standards. While it is the case that standards e.g. health standards can be used like trade policies to protect domestic interests (e.g. Fischer and Serra 2000) there exists regional trade agreements that call for harmonization of those measures in the member countries. In the latter case one can also think of common culture having an effect on the standard setting. One point made in this paper is that countries with similar views on merit goods should be allowed to form a kind of non-preferential trading area.

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[3]The quotation is found at the following address: http://www.ictsd.org/biores/04-09-23/story4.htm of the International Centre for Trade and Sustainable Development (ISTSD).

[4]Generally, the various definitions of nationalism proposed seem to emphasize the role of idea of a nation as separate from the individuals of which it consists of, as something unifying and styaing above the people. See the Nationalism project homepage, http://www.nationalismproject.org/what.htm.

[5]http://europa.eu.int/comm/archives/commission_1999_2004/lamy/speeches_articles/spla206_en.htm

The issues brought up in this paper are related also to the problem of issue linkage. In this literature (e.g. Ederington 2002) the issue is whether some other policy issues, even some purely domestic issues should be brought to negotiations simultaneously with trade policies. Here we focus is on the question whether multilateral trade policies can reflect domestic policy concerns and at the same time benefit all the parties. The other side of the coin of issue linkage is national sovereignty: National sovereignty roughly means that possibilities to conduct policies other than trade policies should not be reduced by a reduction of tariff barriers or trade policies should not matter for the conduct for these other type of policies[6]. Recently Bagwell and Staiger (2004) have shown that the basic GATT/WTO rules ensure national sovereignty in this sense. In this paper it is argued that multilateral trade agreements themselves can be adjusted to accommodate national needs without making multilateral tariff reform impossible.

The merit good argument for protection in agriculture is getting weaker as currently the pressure against developed country agricultural policies is getting heavier in the WTO. The same holds for cultural goods also even though it is not as visible as the agricultural dispute. An interesting question thus is whether merit goods are a hindrance to reaching consensus on multilateral trade policy reform. In general, as such merit goods should not be a hindrance to reforms: without co-ordination countries can have (in a Nash equilibrium) too high tariffs to protect domestic cultural goods and a multilateral tariff reduction may bebefit all of them. One of the aims in this paper is to analyze to what extent and under which conditions a general tariff reduction is mutually beneficial when merit goods are an important part of policy making.

The basic model of merit goods and optimum commodity taxation was built by Besley (1988). Recently, Schroyen (2005) has shown that the Besley formulation has several undesirable features. It e.g. implies that private consumption of a merit good should be taxed if the elasticity of substitution between it and other commodities is low. This paper uses the general formulation of the merit good by Blomqvist and Micheletto (2006), which contains the model proposed by Schroyen (2005) as a special case. The model is placed in a general equilibrium framework of international trade and tariffs first analyzed in Turunen-Red and Woodland (1988, 1991) and later applied by e.g. Keen and Wildasin (2004), Raimondos-Møller and Woodland (2006) and Turunen-Red and Woodland (2004)[7].

In the international trade literature, merit good type of arguments have been treated under the theory of optimal policies in the presence non-economic objectives (Bhagwati and Srinivasan 1969, Bhagwati, Panagariya and Srinivasan 1998 contains a textbook presentation). In this theory non-economic objectives are presented as additional constraints to the optimization problem facing the policy makers whose objective is to maximize private utility. The constraints

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[6]These other type of policies should not have any direct international effects (like pollution cross the national boundaries).

[7]Kotakorpi (2006) analyzes international commodity tax competition in the presence of merit goods in a two country model.

can take e.g. the form of a self-sufficiency constraint restricting the imports of some goods. The merit good models are more general models in that the constraints are implicit in the policy makers objective function.

2 Merit goods and divergence between private and government utilities

Let there be N goods. Assume that good 1 is the numeraire good (i.e. the world market price of that good is set equal to unity). Let the consumer utility function (with all the standard properties) be

$$u = u\left(x_1, ..., x_n, ..., x_N\right) \equiv u\left(x\right) \tag{1}$$

where $x_n =$ (private) consumption of good n. With merit goods the government utility function differs from the private utility function. It is given as

$$u^g = u^g\left(x\right) \tag{2}$$

where u^g is a concave function of private consumption of the goods. Thus, the marginal government utility of a good can be either positive or negative. This is a very general formulation of the policy objective function, and in a way generalizes the objective function used by Bagwell and Staiger (e.g. 1999, 2006). (2) is called the national welfare function from now on.

One should also note that even though the government preferences are defined over the consumption basket of private citizens, it can take into account political concerns over domestic production. Assume that all goods are Armington substitutes, i.e. otherwise identical goods but produced in different countries are imperfect substitutes. If the government is concerned with national production of some good, government preference for domestic consumers consuming the domestically produced good gives it an incentive to tax imports of foreign substitutes to it. This supports domestic production of the good.

To derive a connection between the national and private utilities, recall first that consumer choices are contained in the expenditure function giving the minimum expenditure required to reach the given level of welfare:

$$E\left(p, u\right) \tag{3}$$

Since
$$x_n\left(p, u\right) = E_{p_n}\left(p, u\right)$$
where $E_{p_n}\left(p, u\right) \equiv \frac{\partial E}{\partial p_n}\left(p, u\right)$ national welfare can be written as

$$u^g = u^g\left(\frac{\partial E}{\partial p_1}\left(p, u\right), ..., \frac{\partial E}{\partial p_N}\left(p, u\right)\right) \equiv u^g\left(p, u\right) \tag{4}$$

For private utility function, first notice that

$$u \equiv u\left(\frac{\partial E}{\partial p_1}\left(p, u\right), ..., \frac{\partial E}{\partial p_N}\left(p, u\right)\right)$$

This leads to
$$1 = u_1 E_{p_1 u} + ... + u_n E_{p_n u} \equiv u_x^\intercal E_{pu}$$

and

$$0 = u_x^\intercal E_{pp} dp$$

where u_x = column vector of private marginal utilities with $\intercal$ denoting the transpose, E_{pp} = the Slutsky matrix, and $E_{pu} = (E_{p_1 u}, ..., E_{p_N u})^\intercal$.[8]

From (4) one gets $du^g = (u_x^g)^\intercal E_{pu} du + (u_x^g)^\intercal E_{pp} dp$, which can be rewritten as

$$du^g = [1 + (u_x^g)^\intercal E_{pu} - u_x^\intercal E_{pu}] du + [(u_x^g)^\intercal E_{pp} - u_x^\intercal E_{pp}] dp = \quad (5)$$
$$[1 + (u_x^g - u_x)^\intercal E_{pu}] du + (u_x^g - u_x)^\intercal E_{pp} dp \equiv (1 + \Delta^\intercal E_{pu}) du + \Delta^\intercal E_{pp} dp$$

where $\Delta \equiv u_x^g - u_x$. From (5) one sees that the relationship between changes in private utility and national welfare, at given prices, is determined by the term $1 + \Delta^\intercal E_{pu}$. We assume that national welfare, at given prices, always increases if private utility increases, and vice versa:

A1: $1 + \Delta^\intercal E_{pu} > 0$.

This certainly holds if the differences between private and national marginal utilities, Δ, is "small" enough. More generally A1 holds if commodities with high income elasticity of demand do not reduce government welfare.[9] Also, if some inferior goods, goods with $E_{p_i u} < 0$, are demerit goods, goods for which increased consumption reduces national welfare $u_{x_i}^g < 0$ but which have positive private marginal utility $u_{x_i} > 0$, A1 also tends to hold. Among these type of goods one can include low quality alcohol.

Denote next $G \equiv (1 + \Delta^\intercal E_{pu})^{-1}$. Then (5) implies that

$$du = G du^g - G \Delta^\intercal E_{pp} dp \quad (6)$$

The world consists of M countries, denoted by the superscript $m = 1, ..., M$. Let p^w be the (column) vector of world market prices. We choose the "world market" good 1 to be the numeraire and set its price equal to unity. The world market prices of all the other goods relative to good 1 are denoted by q^w, thus $p^{w\intercal} = (1, q^{w\intercal})$. We consider only trade policy reforms. Let accordingly t^m = tariffs (or export taxes or export or import subsidies) imposed by country m.

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[8]The following notation is followed: f_x denotes the (vector of) partial derivative(s) of function f with respect to variable x, f_{xy} the (matrix of) second order derivative(s).

[9]Since demand for good i is

$$x_i = E_{p_i}(p, v(p, I))$$

where $v(p, I)$ = the indirect utility function and I = consumer income, we get

$$\frac{\partial x_i}{\partial I} = E_{p_i u} v_I = \frac{E_{p_i u}}{E_u}$$

and

$$\frac{\partial x_i}{\partial I} = \frac{E_{p_i u} I}{E_u E_{p_i}}$$

Then, country m c.i.f. prices are $p^m = p + t^m$. These are the prices facing both consumers and producers. With these (6) becomes, for each country,

$$du^m = G^m du^{gm} - G^m \Delta^{m\intercal} E_{pp}^m dp^m \tag{7}$$

This has to be incorporated in the model of equilibrium in the world markets.

3 World trade equilibrium with merit goods

Consumer decisions in a country are summarized by th expenditure function $E^m(p^m, u^m)$. Similarly, assuming markets to be competitive, the production decisions in each country can be summarized by the revenue or GDP-function

$$G^m(p^m) \tag{8}$$

with all the well-known properties (Dixit and Norman 1980, Woodland 1982). With the help of the expenditure and GDP functions the external transactions of a country are collected by the net revenue function S^m:

$$S^m(p^m, u^m) \equiv G^m(p^m) - E^m(p^m, u^m) \tag{9}$$

Obviously $S_{p^m}^m$ = net exports from country m.

The equilibrium in the world economy is then a solution (assumed to exist) to the following equations:

$$\sum_m S_{p_n^m}^m = 0, n = 1, ..., N \tag{10}$$

$$p^{w\top} S^m = \tau_m, m = 1, ..., M \tag{11}$$

$$\sum_m \tau^m = 0 \tag{12}$$

(10) is the equilibrium condition for the world good markets: the sum of net supplies of each commodity coming from individual countries must equal 0. As usual, not all of the goods market equilibrium conditions are independent. By Walras' Law one of the equilibrium conditions is redundant, and can be dropped out, and let it be the equilibrium condition for good 1.

We study international trade reforms which include also international income transfers, as is the tradition in the literature. For the study of nationalism and merit goods this may not be totally unrealistic. E.g. the still prevailing EU sugar policy implies, in effect, a lump sum transfer to some countries (the ACP countries) adversely affected by the policy. EU allows from these countries imports subject to a quota that has been binding all the time. The ACP sugar exporters are paid the same price as EU sugar farmers receive. With the quota binding this is equivalent to handing out a lump sum transfer to ACP producers. After the WTO declared the current EU practice conflicting with the WTO rules, EU has announced a policy where it would allow all non-EU sugar producers to import to EU (subject still to a quota) and would pay a subsidy to ACP

sugar farmers to improve their productivity or to switch producing something else.

(11) imposes the aggregate budget constraint for each country (the country can make net transfers to other countries only by having higher income than its expenditure), including the transfers. A country's trade must be balanced at the world market prices if it does not make or receive any income transfer from other countries. It must have trade surplus if it is making a net transfer ($\tau^m > 0$) and trade deficit, if it receives a net transfer[10].

Finally, (12) states that, in the world as a whole, it is impossible to make net transfers. The three sets of equilibrium conditions determine individual welfare levels, the world market prices q^w, and implied domestic prices p^m, and the transfer of one of the countries as a function of national trade policies and transfers from othe countries. With (5), the national welfare levels can then be also expressed as function of world trade policies.

To study the implications of (small) tariff reforms, the system of equations (10)-(12), with (7) substituted in, is differentiated. The result is the equation

$$A_1 du^G + A_2 dq + A_3 dt + A_4 d\tau = 0 \tag{13}$$

where

$$A_1 = \begin{bmatrix} S^1_{q^1 u^1} G^1 & . & . & . & S^M_{q^M u^M} G^M \\ p^{w\intercal} S^1_{q^1 u^1} G^1 & 0 & . & . & 0 \\ 0 & . & . & . & 0 \\ . & . & . & . & . \\ 0 & . & . & . & 0 \\ 0 & . & . & . & p^{w\intercal} S^M_{q^M u^M} G^M \\ 0 & . & . & . & 0 \end{bmatrix} \tag{14}$$

$$A_2 = \begin{bmatrix} \sum_m \left(S^m_{q^m q^m} - S^m_{q^m u} G^m \Delta^{m\intercal} E^m_{p^m q^m} \right) \\ S^{1\intercal}_{q^1} + p^{w\intercal} \left(S^1_{p^m q^m} - S^1_{p^1 u^1} G^1 \Delta^{1\intercal} E^1_{p^1 q^1} \right) \\ . \\ . \\ S^{M\intercal}_{q^M} + p^{w\intercal} \left(S^1_{p^M q^M} - S^M_{p^M u^M} G^M \Delta^{M\intercal} E^M_{p^M q^M} \right) \\ 0 \end{bmatrix} \tag{15}$$

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[10]Turunen-Red and Woodland (2000a,b) show that one can, under quite general conditions, reach the the welfare improvements as with multilateral tariff and transfer scheme with a multilateral tariff reform alone. Naturally, the two tariff reforms are not identical.

$$
A_3 = \begin{bmatrix}
S^1_{q^1 p^1} - S^1_{q^1 u^1} G^1 \Delta^{1\intercal} E^1_{p^1 p^1} & . & . & . & S^M_{q^M p^M} - S^M_{q^M u} G^M \Delta^{M\intercal} E^M_{p^M p^M} \\
p^{w\intercal}\left(S^1_{p^1 p^1} - S^1_{p^1 u^1} G^1 \Delta^{1\intercal} E^1_{p^1 p^1}\right) & 0 & . & . & 0 \\
0 & & . & 0 & . & 0 \\
. & & & . & . & . & . \\
. & & & . & . & . & 0 \\
0 & & & . & . & 0 & p^{w\intercal}\left(S^M_{p^M p^M} - S^M_{p^M u^M} G^M \Delta^{M\intercal} E^M_{p^M p^M}\right) \\
0 & & & 0 & 0 & 0 & 0
\end{bmatrix}
\tag{16}
$$

and

$$
A_4 = \begin{bmatrix} 0 \\ -I_{M \times M} \\ \iota^\intercal_M \end{bmatrix}
\tag{17}
$$

Here $I_{M \times M}$ = identity matrix with dimension M, and ι_M = M-vector of ones.

4 The potential for policy reform with merit goods

There are two issues that will be studied. One is the search for conditions under which a Pareto-improving trade policy reform exists, and the second is to characterise, if possible, the types of policy reforms that produces the Pareto-improvement. The answer to the first problem can be obtained through the Motzkin's theorem (Mangasarian 1969). Since we are searching for a solution to (13) that satisfies $du^G > 0$, in the present context the theorem reads as follows:

M: There exists a strict Pareto-improving multilateral policy reform if and only if there does not exist a vector $\lambda \in \mathbb{R}^{N-1+K+1}$ for which $\lambda^\intercal A_1 < 0$, $\lambda^\intercal [A_2, A_3, A_4] = 0$.

For further analysis, it is convenient tp partition the vector λ as $\lambda^\intercal = (\lambda_1^\intercal, \lambda_2^\intercal, \lambda_3)$, where $\lambda_1^\intercal$ is a $1 \times (N-1)$ vector and $\lambda_2^\intercal$ a $1 \times K$ vector. Define next the generalized substitution matrix $\widetilde{S}^m_{qq} \equiv S^m_{q^m q^m} - S^m_{q^m u} G^m \Delta^{m\intercal} E^m_{p^m q^m}$ and the generalized world substitution matrix $\widetilde{S}_{qq} \equiv \sum_m \left(S^m_{q^m q^m} - S^m_{q^m u} G^m \Delta^{m\intercal} E^m_{p^m q^m}\right)$.

To be able to get ahead the following assumption is made:

A2: The matrices $\widetilde{S}^m_{pp}$, $m = 1, ..., M$, and $\widetilde{S}_{pp}$ have all rank $N - 1$.

Usually the same assumption is made of $S^m_{p^m p^m}$ and $\sum_m S^m_{p^m p^m}$. Obviously, for small enough differences Δ^m between national and individual welfares these assumptions imply A2. Indeed, the following stronger global result holds for $\widetilde{S}^m_{qq}$: If $S^m_{q^m q^m}$ has rank N-1 then $\widetilde{S}^m_{qq}$ has rank N-1 also if $\Delta^{m\intercal} E^m_{p^m q^m} S^m_{q^m q^m} S^m_{q^m u} G^m \neq 1$ (Abadir and Magnus 2006, p. 87, Exercise 4.28). It should also be noted that $\widetilde{S}^m_{qq}$ and $\widetilde{S}_{qq}$, unlike $S^m_{q^m q^m}$ and consequently also $\sum_m S^m_{q^m q^m}$, cannot be assumed

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to be positive definite (they are not even symmetric) which complicates the analysis. The economics of A2 is straightforward: one just assumes that also national preferences allow enough substitutability in net exports.

The conditions for the existence of a Pareto-improving multilateral policy reform to exist can now be restated as: A Pareto-improving reform exists if there does not exist $\lambda^\intercal = (\lambda_1^\intercal, \lambda_2^\intercal, \lambda_3)$ such that

$$\forall m : \lambda_1^\intercal S_{q^m u^m}^m + \lambda_3 p^{w\intercal} S_{p^m u^m}^m < 0 \tag{18}$$

$$\lambda_1^\intercal \widetilde{S}_{qq} + \lambda_3 p^{w\intercal} \left[\sum_m \left(S_{p^m q^m}^m - S_{p^m u^m}^m G^m \Delta^{m\intercal} E_{p^m q^m}^m \right) \right] = 0 \tag{19}$$

$$\forall m : \lambda_1^\intercal \left[S_{q^m p^m}^m - S_{q^m u^m}^m G^m \Delta^{m\intercal} E_{p^m p^m}^m \right] + \lambda_3 p^{w\intercal} \left[S_{p^m p^m}^m - S_{p^m u^m}^m G^m \Delta^{m\intercal} E_{p^m p^m}^m \right] = 0 \tag{20}$$

In (18) assumption A1 has been used. By defining $\widetilde{S}_{pq} \equiv \sum_m \left(S_{p^m q^m}^m - S_{p^m u^m}^m G^m \Delta^{m\intercal} E_{p^m q^m}^m \right)$, $\widetilde{S}_{p^m p^m}^m \equiv S_{p^m p^m}^m - S_{p^m u^m}^m G^m \Delta^{m\intercal} E_{p^m p^m}^m$, and $\widetilde{S}_{q^m p^m}^m \equiv S_{q^m p^m}^m - S_{q^m u^m}^m G^m \Delta^{m\intercal} E_{p^m p^m}^m$ one can solve from (19)

$$\lambda_1^\intercal = \widetilde{S}_{pq} \widetilde{S}_{qq}^{-1}$$

and (20) becomes

$$\lambda_3 p^{w\intercal} \left[\widetilde{S}_{p^m p^m}^m - \widetilde{S}_{pq} \widetilde{S}_{qq}^{-1} \widetilde{S}_{q^m p^m}^m \right] = 0 \tag{21}$$

which can be rewritten as

$$\lambda_3 \widehat{p}^{w\intercal} \widetilde{S}_{p^m p^m}^m = 0 \tag{22}$$

where $\widehat{p}^{w\intercal} \equiv p^{w\intercal} - \left(0, p^{w\intercal} \widetilde{S}_{pq} \widetilde{S}_{qq}^{-1} \right)$. Now (18) can be expressed as

$$\lambda_3 \left(\beta^1, ..., \beta^M \right) < 0 \tag{23}$$

where $\beta^m \equiv \widehat{p}^{w\intercal} S_{p^m u^m}^m$. $\widehat{p}^{w\intercal}$ is the shadow price for projects. It takes into account the impact of the project on world market prices (this is exactly the term $\widetilde{S}_{pq} \widetilde{S}_{qq}^{-1}$). The crucial point is that now we look at the projects through their impact on national welfare, not on private utility. As usual, the interpretation of $\widehat{p}^{w\intercal}$ as the shadow price requires that the Hatta-normality condition holds:

A3 $\beta^m < 0$ for all m.

When A3 holds then a project whose value is evaluated at the shadow prices, increases national welfare if the value of the project is positive, and reduces it if the project value is negative. Since $S_{p^m u^m}^m = -E_{p^m u^m}^m$ and $p^m E_{p^m u^m}^m > 0$, A3 is a natural condition, and is also assumed to hold here. It can be called the Generalized[2] Hatta Normality Condition[11]. A further interpretation of the shadow prices will be given below.

Finally, to simplify some of the formulas below, the marginal utility of money is normalized to unity in each country:

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[11] Turunen-Red and Woodland (1991) call A3 with $G^m = 0$ the Generalized Hatta Normality Condition.

A4 $-S^m_{u^m} = E^m_{u^m} = 1$.

Equations (22) and (22) give immediately the following results.

First (22) and (23) imply that

Lemma 1 *There does not exist a Pareto-improving multilateral trade reform if and only if there exists λ_3 such that (22) and (23) hold.*

This gives the following corollary

Corollary 2 *With A3 a Pareto-improving multilateral trade reform exists if and only if there exists a country m such that $\widehat{p}^{w\intercal} \widetilde{S}^m_{p^m p^m} \neq 0$.*

Proof. Clearly, if $\widehat{p}^{w\intercal} \widetilde{S}^m_{p^m p^m} \neq 0$, (22) holds only if $\lambda_3 = 0$. But then (23) cannot hold by A3. Also, if $\widehat{p}^{w\intercal} \widetilde{S}^m_{p^m p^m} = 0$, (22) and (23) hold e.g. by choosing $\lambda_3 = 1$ (again by A3), and no multilateral Pareto-improving reform exists. ∎

These results generalize Theorem 1 and Corollary 1.1. from Turunen-Red and Woodland (1991).

A further characterization of the conditions for the existence of a mutually beneficial trade reform is made difficult by the fact that, in contrast with the case of no merit goods, now $p^{m\intercal} \widetilde{S}^m_{p^m p^m} \neq 0$, in general. Intuitively, however, one would think that, given (5) and (7), that this type of a homogeneity assumption holds for a vector that is corrects the national market price levels for the divergence between private and national welfares. This holds, as one can show

Proposition 3 *Assume A2. Then, for each country there exists b^m, unique up to a factor of proportionality, such that*

$$(p^m + b^m)^\intercal \, \widetilde{S}^m_{p^m p^m} = 0 \tag{24}$$

Proof. To show this, notice that the equation $(p^m + b^m)^\intercal \, \widetilde{S}^m_{p^m p^m} = 0$ can be rewritten, using the definition of $\widetilde{S}^m_{p^m p^m}$, as

$$b^{m\intercal} \left(S^m_{p^m p^m} - S^m_{p^m u^m} G^m \Delta^{m\intercal} E^m_{p^m p^m} \right) = p^{m\intercal} S^m_{p^m u^m} G^m \Delta^{m\intercal} E^m_{p^m p^m}$$

which is equivalent to

$$\left(S^m_{p^m p^m} - E^m_{p^m p^m} \Delta^m G^m S^{m\intercal}_{p^m u^m} \right) b^m = E^m_{p^m p^m} \Delta^m G^m S^{m\intercal}_{p^m u^m} p^m \tag{25}$$

Given that the rank of $S^m_{p^m p^m} - E^m_{p^m p^m} \Delta^m G^m S^{m\intercal}_{p^m u^m}$ is N-1, there is always the possibility that this system of equations is inconsistent. But since now clearly $p^{m\intercal} \left(S^m_{p^m p^m} - E^m_{p^m p^m} \Delta^m G^m S^{m\intercal}_{p^m u^m} \right) = 0 = p^{m\intercal} E^m_{p^m p^m} \Delta^m G^m S^{m\intercal}_{p^m u^m} p^m$, the system is consistent and can be solved. To get to the solution, note first that the RHS of (25) equals (by just directly writing out the matrix product)

$$\widetilde{E}^m = -G^m \begin{bmatrix} \sum_{i=1}^N E^m_{p^m_1 p^m_i} \Delta^m_i \\ \sum_{i=1}^N E^m_{p^m_2 p^m_i} \Delta^m_i \\ . \\ . \\ \sum_{i=1}^N E^m_{p^m_N p^m_i} \Delta^m_i \end{bmatrix} \equiv -G^m \begin{bmatrix} \sum_{i=1}^N E^m_{p^m_1 p^m_i} \Delta^m_i \\ E^m_2 \end{bmatrix}$$

where A4 and the fact that $E_u = p^\intercal E_{pu}$ has been used.

This finally gives the solution $b^{m\intercal} \equiv \left(b_1^m, b_{n-1}^{m\intercal} \right)$ as

$$b_{N-1}^m = \left(\widetilde{S}_{qq}^m \right)^{-1} \left(-G^m E_2^m - \widetilde{S}_{q^m p_1^m}^m b_1^m \right) \qquad (26)$$

which, for the normalization $b_1^m = 0$, reduces to

$$b_{N-1}^m = - \left(\widetilde{S}_{qq}^m \right)^{-1} G^m E_2^m \qquad (27)$$

∎

Proposition 3 can be used to characterize in somewhat more detail the conditions for the existence of mutually beneficial multilateral trade reforms. The following is a generalization of the existing results:

Proposition 4 *Assume there are two countries, l and m, such that $p^l + b^l$ and $p^m + b^m$ are not proportional to each other. Assume also that A2 holds. Then there exists a Pareto-improving trade policy reform.*

Proof. By A2, all solutions x to $x^\intercal \widetilde{S}_{p^n p^n}^n = 0$ are equal to $p^n + b^n$ up to a factor of proportionality. Since $p^l + b^l$ and $p^m + b^m$ are not proportional to each other, at least one of them cannot be proportional to $\widehat{p}^w$. But then for that country conditions in Corollary 2 hold. ∎

In a similar fashion it is obvious that

Proposition 5 *If $p^m + b^m$ are proportional to $\widehat{p}^w$ for all m, then no Pareto-improving multilateral trade policy reform exists.*

The last proposition implies that completely free trade is not Pareto-optimal: If (take the factor of proportionality to be unity) $p^l + b^l = p^m + b^m$ then p^l - p^m = b^m - b^l. Thus, if b^m - $b^l \neq 0$, the price levels cannot be equal (up to a factor of proportionality), and free trade cannot be a Pareto-optimal situation.

Clearly also, in general, the Most Favored Nation (MFN) clause, or the requirement that countries should treat all its trading partners in a similar manner, e.g. by not imposing higher import tariffs on imports from some countries than on imports from some other countries, is consistent with the Pareto-optimality. But the tariffs countries impose do not have to be identical. Hence, here Pareto-optimality does not require that trade policies are uniform or that a world with harmonized tariffs would be optimal.[12]

The previous propositions also lend support for the theory of "natural trading areas" (Nordström 1995 provides a theory for them, Panagariya 2002 criticizes the notion). For countries m and l with b^m - $b^l = 0$, in the Pareto-optimal

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[12]My wording in this paragraph has been somewhat loose. The requirement for Pareto-optimality implies that countries with similar b's have identical domestic prices. This means that if, for some particular good, the other country is exporting it and then other importing, the other country should be using an export subsidy/export tax and the other an import tariff/import subsidy.

situation the goods prices are equal to each other. Consider the case in which the the trading nations are partitioned in groups in such a way that countries which have the same b belong to the same group. To the extent that countries with similar b's are located next to each other, this gives a role for regional trading blocs in supporting the efficient multilateral equilibrium. E.g. the largest share of expenditures from EU budget goes as a support to agriculture. To the extent this reflects national preferences in EU member countries and not lobbying by agricultural interest groups it can be efficient.

The optimal trading areas identified here are close but not identical to non-preferential trading blocs discussed by Raimondos-Møller and Woodland (2006). Here also the trading blocs are non-preferential in the sense that also the trading partners impose trade taxes/subsidies on each other to equalize the consumer and producer prices within the bloc[13]. But in contrast to Raimondos-Møller - Woodland clubs, the establishment of the groups implied by the previous proposition involves, in general, income transfers between all trading nations, not only between the group members.

It is straighforward to show, using A2 and the previous Proposition that one can within the framework here also construct Pareto-optimal similar non-preferential trading clubs than in Raimondos-Møller - Woodland (see their Proposition 1): Take the initial situation and consider a group of countries with "similar"[14] government preferences. These countries can then, through within group transfers, find a common price vector that keeps the net trade of the club with the rest of the world constant. This keeps the welfare in rest of the world unchanged but helps the bloc countries to get to the contract curve. With proper transfers welfare of all club members increases.

Here the non-preferentail trading clubs emerge in a multilateral context with multilateral income transfers. In the Raimondos-Møller - Woodland case all countries can become members of some club and increase their welfare, and thus the trading nations can be partitioned into separate trading clubs. This partitioning is arbitrary. In the framework here the trading clubs arise endogenously and improve the welfare all the countries. Also, the welfare of all countries would be higher than in the Raimondos-Møller - Woodland clubs that can arise in the present framework.Thus, Raimondos-Møller - Woodland clubs are going alone trading clubs while the clubs here are genuine multilateral clubs.

To interpret the existing trading blocs from the point of view of the clubs just outlined is certainly too far-fetched. At the same time, there are elements e.g. in EU trade policies vis a vis non-member countries that could be interpeted from this point of view. EU has negotiated several trading agreements with many developing countries (like Lome and Cotonou agreements) that involve a transfer to income to these countries. Similarly, EU sugar policies have contained an out-

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[13] If all goods are Armington substitutes then it is possible e.g. that tariffs on goods imported from group members are lower than on goods imported from non-members.

[14] This is somewhat loose again. Strictly speaking we are looking for countries for which with common domestic price vectors also the b's are identical. The minimum requirement for similarity is that for the chosen joint commodity price vector within a club the member b' are equal.

of-bloc income transfer element (see section 3). Currently aid-for-trade is a hot topic in both aid agencies and multilateral trade negotiations.

Finally, Proposition 3 helps in interpreting the shadow prices, and this again helps in reaching a deeper interpretation of the implications of Pareto-optimality. Recall that the shadow price is

$$\widehat{p}^{w\intercal} = p^{w\intercal} - \left(0, \sum_m p^{w\intercal} \widetilde{S}^m_{p^m q^m} \widetilde{S}^{-1}_{qq}\right) \tag{28}$$

Assume now, without loss of generality, that $t^m_1 = 0$ for all countries. Also, without loss of generality, one can set $b^m_1 = 0$ for all countries. Then (28) can be rewritten as

$$\widehat{p}^{w\intercal} = p^{w\intercal} - \left(0, \sum_m \left[G^m b^{m\intercal}_{N-1} \widetilde{S}^{m\intercal}_{q^m q^m} - t^{m\intercal}_{N-1} \widetilde{S}^m_{q^m q^m}\right] \widetilde{S}^{-1}_{qq}\right) \tag{29}$$

Here b^m_{N-1} and t^m_{N-1} denote the $(N-1) \times 1$ vectors obtained from b^m and t^m by setting the first element equal to 0. From (29) one sees right away that with completely free multilateral trade the world shadow prices do not, in general, equal the world market price. This is because the shadow prices now reflect the national preferences, not the individual preferences. The shadow prices must correct for this difference. World market prices are proper shadow prices in an interesting special case. If $\sum_m G^m b^{m\intercal}_{N-1} \widetilde{S}^{m\intercal}_{q^m q^m} = 0$ then with tariffs removed the shadow price coincides with the world market price. This requires in a sense that national values are in conflict with each other: with opposite values the world on average does not put any value apart from private value on the consumption of goods.

(29) also reveals that the proper shadow prices include a term that is a weighted sum of individual country national preferences, $\sum_m \left[G^m b^{m\intercal}_{N-1} \widetilde{S}^{m\intercal}_{q^m q^m}\right] \widetilde{S}^{-1}_{qq}$. The shadow prices thus pool together the national biases to an international weighted average of these biases, a sort of world government bias. Since in the state where no Pareto improving reforms exist $p^m = \widehat{p}^w - b^m$, national trade policies should be based on national deviations from the world average bias. Pascal Lamy, in the quotation above, interprets the WTO Dispute Settlement system, in particular the Appellate Body, as guarding properly the national collective preferences. (29) shows that the issue are the relative values, values of a nation relative to the "global values".

5 Reforms

Having characterized the conditions under which a Pareto-improving trade policy reform exists one must try to find concrete reforms that help to achieve the improvement. Much of the discussion in literature has focused on rules that apply uniformly to all countries. E.g. a radial reform requires all countries to reduce tariffs at the same proportional rate. But in practice the multilateral

negotiations have led to reforms that allow tariff reduction speed to differ across countries. Negotiations determine the bound tariffs that set the upper bound for actual tariffs. Similarly one of the main issues in negotiations has been the Special and Differential treatment of developing countries. In this section we show that Pareto-improving tariff reforms can be consistent with such special national treatment.

One can easily generalize Theorem 2 and Corollary 2.1. by Turunen-Red and Woodland (1991) as follows:

Lemma 6 *A welfare improving reform* along a, *i.e.* $dt = ad\alpha$, $d\alpha \neq 0$, *exists if and only if there does not exist a scalar μ such that*

$$\mu \left[\beta^1, ..., \beta^M \right] < 0, \mu\gamma = 0$$

where $\gamma \equiv \sum_m \widehat{p}^{\intercal} \widetilde{S}_{pp}^m a^m$.

and

Lemma 7 *A welfare improving reform* in the direction a, *i.e.* $dt = ad\alpha$, $d\alpha > 0$, *exists if and only if there does not exist a scalar μ such that*

$$\mu \left[\beta^1, ..., \beta^M, \gamma \right] < 0$$

An obvious consequence of the last lemma is that

Corollary 8 *If $\gamma \neq 0$, then a welfare improving reform along a exists.*

Corollary 9 *If $\gamma > 0$, then a welfare improving reform in the direction of a exists.*

To be more concrete, consider the following reform:

$$dt^m = \left(-\varepsilon^m t^m + \delta^m b^m \right) d\alpha \tag{30}$$

This is a reform that combines the traditional radial reform where tariff changes are conditioned on existing tariff levels with a reform that takes into account to existing national or polittical preferences. Consider first the case with $\varepsilon^m = 0$ for all m. The, from (25) one can directly calculate, by setting $b_1^m = 0$ that

$$b^m = \left[\begin{array}{c} 0 \\ \left(\widetilde{S}_{qq}^m \right)^{-1} \left[-G^m E_{qp}^m \Delta^m E_{pu}^{m\intercal} \right] \end{array} \right] p^m \tag{31}$$

With this one can show

Lemma 10

$$\widehat{p}^{\intercal} \widetilde{S}_{pp}^m b^m = \tag{32}$$

$$-G^m \left[\widetilde{S}_{1q}^m \left(\widetilde{S}_{qq}^m \right)^{-1} - \widetilde{S}_{1q} \left(\widetilde{S}_{qq} \right)^{-1} \right] E_{qp}^m \Delta^m E_u^m$$

Proof. First, from the definition of the shadow price

$$\widehat{p}^{\mathsf{T}} = (1, q^{\mathsf{T}}) - \left(0, (1, q^{\mathsf{T}}) \, \widetilde{S}_{pq} \left(\widetilde{S}_{qq}\right)^{-1}\right) =$$

$$(1, q^{\mathsf{T}}) - \left(0, \widetilde{S}_{1q} \left(\widetilde{S}_{qq}\right)^{-1} + q^{\mathsf{T}}\right) = \left(1, -\widetilde{S}_{1q} \left(\widetilde{S}_{qq}\right)^{-1}\right)$$

This leads to

$$\widehat{p}^{\mathsf{T}} \widetilde{S}_{pp}^{m} =$$

$$\left[\widetilde{S}_{11}^{m} - \widetilde{S}_{1q} \left(\widetilde{S}_{qq}\right)^{-1} \widetilde{S}_{q1}^{m}, \widetilde{S}_{1q}^{m} - \widetilde{S}_{1q} \left(\widetilde{S}_{qq}\right)^{-1} \widetilde{S}_{qq}^{m}\right]$$

Using (31) one finds

$$\widehat{p}^{\mathsf{T}} \widetilde{S}_{pp}^{m} b^{m} = \tag{33}$$

$$-G^{m} \left[\widetilde{S}_{1q}^{m} \left(\widetilde{S}_{qq}^{m}\right)^{-1} - \widetilde{S}_{1q} \left(\widetilde{S}_{qq}\right)^{-1}\right] E_{qp}^{m} \Delta^{m} E_{pu}^{m\mathsf{T}} p^{m} =$$

$$-G^{m} \left[\widetilde{S}_{1q}^{m} \left(\widetilde{S}_{qq}^{m}\right)^{-1} - \widetilde{S}_{1q} \left(\widetilde{S}_{qq}\right)^{-1}\right] E_{qp}^{m} \Delta^{m} E_{u}^{m}$$

as claimed. ■

Since now $a^{m} = \delta^{m} b^{m}$ the following trade reform is a Pareto-improving trade reform (using A4):

Proposition 11 *The reform with* $\delta^{m} = 0$ *if* $\left[\widetilde{S}_{1q}^{m} \left(\widetilde{S}_{qq}^{m}\right)^{-1} - \widetilde{S}_{1q} \left(\widetilde{S}_{qq}\right)^{-1}\right] E_{qp}^{m} \Delta^{m} =$

$0, \delta^{m} = \eta \left(-G^{m} \left[\widetilde{S}_{1q}^{m} \left(\widetilde{S}_{qq}^{m}\right)^{-1} - \widetilde{S}_{1q} \left(\widetilde{S}_{qq}\right)^{-1}\right] E_{qp}^{m} \Delta^{m}\right)^{-1}$ *if* $-G^{m} \left[\widetilde{S}_{1q}^{m} \left(\widetilde{S}_{qq}^{m}\right)^{-1} - \widetilde{S}_{1q} \left(\widetilde{S}_{qq}\right)^{-1}\right] E_{qp}^{m} \Delta^{m}$ $\neq 0, \eta > 0,$ *is a Pareto-improving reform in the direction of a.*

With this reform $\gamma \equiv \sum_{m} \widehat{p}^{\mathsf{T}} \widetilde{S}_{pp}^{m} a^{m} = \sum_{m} \widehat{p}^{\mathsf{T}} \widetilde{S}_{pp}^{m} \delta^{m} b^{m} > 0$ and the conditions for a reform benefitting all countries are satisfied. In this reform import barriers in some countries are raised, in some countries lowered to make the reform work. A uniform reform with $\delta^{m} = \delta$ for all countries works only if $\sum_{m} -G^{m} \left[\widetilde{S}_{1q}^{m} \left(\widetilde{S}_{qq}^{m}\right)^{-1} - \widetilde{S}_{1q} \left(\widetilde{S}_{qq}\right)^{-1}\right] E_{qp}^{m} \Delta^{m} \neq 0$, while the reform with country specific trade policy change works in all countries for sure. If we restrict reforms in the direction of $b \equiv \left[b^{1\mathsf{T}}, ..., b^{M\mathsf{T}}\right]^{\mathsf{T}}$, then the requirement for successful reform is more stringent, i.e. $\sum_{m} -G^{m} \left[\widetilde{S}_{1q}^{m} \left(\widetilde{S}_{qq}^{m}\right)^{-1} - \widetilde{S}_{1q} \left(\widetilde{S}_{qq}\right)^{-1}\right] E_{qp}^{m} \Delta^{m} >$ 0 with $\delta > 0$. Hence, a multilateral reform with country specific tariff adjustments tied to their national preferences can succed under more general conditions that are required for a uniform multilateral tariff adjustment to succeed. Note, however, that the informational requirements to design the appropriate reform in either setting are the same. The parameter η in the proposition can be

interpreted as a weight given in multilateral negotiations to the national goals. Its role will become clear below.

The intuition for the result is clear: No Pareto-improvements are possible if in all countries national prices corrected for the national preferences are equalized with the world shadow prices. If they are not $\widetilde{S}_{1q}^m \left(\widetilde{S}_{qq}^m \right)^{-1} - \widetilde{S}_{1q} \left(\widetilde{S}_{qq} \right)^{-1}$ is a measure for the difference that will disappear when the reform proceeds.

The reform of Proposition 11 can be interpreted also as a sum of unilateral tariff reforms of the type studied in Turunen-Red and Woodland (1991)[15]. Clearly, a reform specified in the proposition and undertaken by only one country will be Pareto-improving if $-G^m \left[\widetilde{S}_{1q}^m \left(\widetilde{S}_{qq}^m \right)^{-1} - \widetilde{S}_{1q} \left(\widetilde{S}_{qq} \right)^{-1} \right] E_{qp}^m \Delta^m \neq 0$ in that country.

Consider next the reform tied to existing tariff levels and set $\delta^m = 0$ for all m. Since $t^m = p^m$ - p^w, $\widehat{p}^\intercal \widetilde{S}_{pp}^m \tau^m = -\widehat{p}^\intercal \widetilde{S}_{pp}^m p^w$, using the definition of $\widetilde{S}_{pp}^m$. Then

$$\widehat{p}^\intercal \widetilde{S}_{pp}^m p^w = \tag{34}$$
$$\widetilde{S}_{11}^m - \widetilde{S}_{1q} \widetilde{S}_{qq}^{-1} \widetilde{S}_{q1}^m + \left(\widetilde{S}_{1q}^m - \widetilde{S}_{1q}^m \widetilde{S}_{qq}^{-1} \widetilde{S}_{qq}^m \right) q$$

As in Proposition 11 we get

Proposition 12 *A multilateral tariff reform with country specific tariff adjustment is a Pareto-improvement, if $\varepsilon^m = 0$ when $\widetilde{S}_{11}^m - \widetilde{S}_{1q} \widetilde{S}_{qq}^{-1} \widetilde{S}_{q1}^m + \left(\widetilde{S}_{1q}^m - \widetilde{S}_{1q}^m \widetilde{S}_{qq}^{-1} \widetilde{S}_{qq}^m \right) q = 0$, $\varepsilon^m > 0$ when $\widetilde{S}_{11}^m - \widetilde{S}_{1q} \widetilde{S}_{qq}^{-1} \widetilde{S}_{q1}^m + \left(\widetilde{S}_{1q}^m - \widetilde{S}_{1q}^m \widetilde{S}_{qq}^{-1} \widetilde{S}_{qq}^m \right) q > 0$ and $\varepsilon^m < 0$ if $\widetilde{S}_{11}^m - \widetilde{S}_{1q} \widetilde{S}_{qq}^{-1} \widetilde{S}_{q1}^m + \left(\widetilde{S}_{1q}^m - \widetilde{S}_{1q}^m \widetilde{S}_{qq}^{-1} \widetilde{S}_{qq}^m \right) q < 0$.*

Proposition 12 provides one rationale for e.g. the Special and differential treatment: as differences in tariff adjustments are shown to be potentially beneficial for all countries. Also, it shows that, in general, a multilateral trade agreement need not call for tariff reductions from all countries. Even a stronger claim can be made: country specific tariff adjustments can be designed to produce Pareto-improvement under conditions when the uniform tariff reduction requirement does not.

A multilateral agreement calling for an equiproportionate reduction of tariff rates, $\varepsilon^m = \varepsilon > 0$, in all countries succeeds if

$$\sum_m \widehat{p}^\intercal \widetilde{S}_{pp}^m p^w = \tag{35}$$
$$\widetilde{S}_{11} - \widetilde{S}_{1q} \widetilde{S}_{qq}^{-1} \widetilde{S}_{q1} > 0$$

Without merit goods the condition $\widetilde{S}_{11} - \widetilde{S}_{1q} \widetilde{S}_{qq}^{-1} \widetilde{S}_{q1} > 0$ holds for sure and uniform tariff reductions are welfare improving for all countries. With merit

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[15]The reform is unilateral only in the sense that tariffs are changed in one country only. The reform is multilateral as there may be a need for multilateral income transfers.

goods the sign of $\widetilde{S}_{11} - \widetilde{S}_{1q}\widetilde{S}_{qq}^{-1}\widetilde{S}_{q1}$ is unclear. This means that, in general, a multilateral tariff reform calling for a general reduction in tariffs is not a Pareto-improvement in the presence of merit goods. In fact, it may be possible that there is a need for a general tariff increase. An interesting aspect is that the likelihood for a general reduction of tariffs to be Pareto-improving is larger if simultaneously country specific deviations due to merit goods are allowed. With the reform specified in Proposition 11 a multilateral reform with an equiproportionate reduction in tariffs, $\varepsilon^m = \varepsilon > 0$, succeeds if

$$\varepsilon \left(\widetilde{S}_{11} - \widetilde{S}_{1q}\widetilde{S}_{qq}^{-1}\widetilde{S}_{q1} \right) + \sum_m \widehat{p}^\intercal \widetilde{S}_{pp}^m \delta^m b^m > 0 \tag{36}$$

This can hold even if $\widetilde{S}_{11} - \widetilde{S}_{1q}\widetilde{S}_{qq}^{-1}\widetilde{S}_{q1} < 0$. In this sense, flexibility in multilateral tariff negotiations can help in finding a tariff reduction formula that benefits all. In fact, by choosing η in Proposition 11 large enough one can make sure

that the inequality (36) holds. Thus, by choosing the proper weight for the nationally specific part accounting for the divergence between private and national preferences in the reform formula, a necessarily Pareto-improving multilateral reform can be designed. Some aspects of actual multilateral trade reforms seem to corrspond to this idea. Thus, e.g. the parctice of negotiating about bound tariffs, not about actual tariffs can be interpreted as being negotiations about nationally specific part of the tariff adjustment. This can be done even when the general level of bound tariffs is reduced. Thus

Proposition 13 *A multilateral reform incorporating an equiproportionate reduction in tariffs in all countries but allowing a country-specific adjustment to tariffs the reflect national policy concerns can always be designed to be Pareto-improving.*

Why doses this work, what sense is there in reducing all tariffs (subsidies) uniformly but allow then individual countries to raise them? The basic reason is that without trade agreement tariffs may be at an inefficient level. In general, the Nash-equilibrium tariffs are not Pareto-optimal, as shown e.g. in Bagwell and Staiger (2002). This intuition carries over from the standard models to the model with country specific merit goods. When all countries reduce the general level of protection the protection a country wants to give to some sectors can be delivered by lower tariffs.

6   Conclusions

The main result of the paper is that domestic policy concerns or nationalism in general, modelled here by distinguishing between national and consumer preferences through merit goods, need not prevent the formation of multilateral tariff reforms (including multilateral tariff reductions) provided that international preference differentials are properly reflected in the agreements. The key

to this result is that even with different national policy preferences the world shadow prices that should guide policy making are identical across countries. National trade policies should then reflect the difference between the individual country policy preferences from a "global" policy preference which is a properly weighted average of the national preferences. This result directly gives the result that a group of countries with similar national culture form a non-preferential trading club. Finally, the piecemeal multilateral trade policy reform was characterized. It was shown that an equiproportionate reduction in tariffs in all countries with country-specific adjustment to tariffs the reflect national policy concerns can always be designed to be Pareto-improving.

The multilateral reforms usually analyzed in the piecemeal reform literature do not correspond to the reforms actually negotiated. The reforms analyzed in this paper may come a little bit closer to the actual reforms. E.g. the practice of negotiation over tariff bindings and reductions in bound tariffs but not over applied tariffs is consistent with the Pareto-improving reforms implied by the theory presented. here. But the point is more general: There is a need to study also within the piecemeal policy reform theory the implications of reforms that come out of the actual negotiations and the relationship between rules that the theory supplies and the actual rules.

In the citation given in the introductory section to this paper, Pascal Lamy suggested that the WTO Appellate Body is a body that protects the genuine national policy preferences and guarantees that they are not used only as a disguise to protectionist policies. It would be interesting to model the work of the body to see under which conditions the claim is true.

We have studied here only multilateral tariff reforms. The theory of optimal policies in the presence of non-economic objectives (see the introduction) has taught that for small open economies at least trade policies are optimal only when the non-economic objective directly concerns trade (like self-sufficiency). In the settings where reforms of any type can affect terms of trade it is not obvious that, form a single country point of view, the optimal Nash policies in general rule out the use of trade policies as a part of optimal policy package. An interesting extension of the present framework would be to consider peacemeal policy reforms that allow other types of policies to be used than just trade policies. An important issue is whether a multilateral policy reform that pushes the world towards free trade with simultaneosly national consumption/production taxes/subsidies being adjusted to achieve the social optimum exists. One can conjecture that such a reform exists as even without adjustments of national policy instruments the government shadow prices should be equalized, as shown in this paper. This type of an analysis would give a new angle to the problem of issue linkage. But at any rate, merit good arguments often involve trade, e.g. protection of national culture often is an argument for restricting the imports of some foreign goods or services.

Merit goods may not be the only reason why national policy preferences differ from individual consumer preferences. Political economy concerns are certainly another factor. The point made here is that by explicitly modelling the difference one can get some mileage in the analysis of policy reforms. Political economy

concerns also point to another obvious extension of the analysis conducted in the paper: An interesting question is whether one can find multilateral reforms that improve both national and individual welfare in all countries.

7   References

Abadir K.M and J. Magnus (2006) Matrix Algebra, Cambridge University Press.

Atkinson A. and J. Stiglitz (1980) Lecture on Public Economics, McGraw-Hill.

Bagwell K. and R. Staiger (1999) An Economic Theory of GATT, American Economic Review.

Bagwell K. and R. Staiger (2002) The Economics of the World Trading System, MIT Press.

Bagwell K. and R. Staiger (2004) National Sovereignty in an Interdependent World, NBER Working Paper No. 10249.

Bagwell K. and R. Staiger (2006) Will International Rules on Subsidies Disrupt the World Trading System?, American Economic Review.

Besley T. (1988) A simple model for merit good arguments, Journal of Public Economics, vol. 35, 371-383.

Blomquist S. and L. Micheletto (2006) Optimal redistributive taxation when government's and agents' preferences differ, Journal of Public Economics, vol. 90, 1215-1233.

Bhagwati J. and T.N. Srinivasan (1969) Optimal Intervention to Achieve Non-Economic Objectives, Review of Economic Studies, vol. 36, No. 1, 27-38.

Bhagwati J., A. Panagariya, and T.N. Srinivasan (1998) Lectures in International Trade, 2nd edition, MIT Press.

Dixit A. and V. Norman (1980) Theory of International Trade, Cambridge University Press.

Disdier A., T. Mayer, and S. Tai (2006) Bilateral Trade of Cultural Goods, http://www.etsg.org/ETSG2006/ETSG2006Programme.htm.

Ederington J. (2002) Trade and domestic policy linkage in international agreements, International Economic Review, vol. 43, No. 4, 1347-1367.

Felbermayr G. and F. Toubal (2006) Cultural Proximity and Trade, paper presented at the European Trade Study Group Annual Conference 2006, http://www.etsg.org/ETSG2006/ETSG2006Programme.htm.

Fischer R. and P. Serra (2000) Standards and protection, Journal of International Economics, vol. 52, No. 2, 377-400.

Gellner E. (1997) Nationalism, Phoenix Paperbacks.

Hatta T. (1977) A Theory of Piecemeal Policy Recommendations, Review of Economic Studies, vol. 44, 1-12.

Keen M. and D. Wildasin (2004) Pareto-Efficient International Taxation, American Economic Review, vol. 94, No. 1, 259-275.

Kotakorpi K. (2006) Paternalism and tax competition, paper presented at the Ninth Annual Nordic International Trade Seminar (NOITS), http://www.noits.org.

Mangasarian O. (1969) Non-linear Programming, McGraw-Hill.

Mayda A. and D. Rodrik (2005) Why are some people (and countries) more protectionist than others?, European Economic Review, vol. 49, 1393-1430.

Nordström H. (1995) Customs unions, regional trading blocs, and welfare, in Baldwin R., P. Haaparanta, and J. Kiander (eds): Expanding Membership of the European Union, Cambridge University Press.

Panagariya A. (2000) Preferential Trade Liberalization: The Traditional Theory and New Developments, Journal of Economic Literature, vol. 38, 287-331.

Raimondos-Møller P. and A. Woodland (2006) Non-preferential trading clubs, Journal of International Economics, vol. 68, 79-91.

Rose A. (2000) One Money, One Market: Estimating the Effect of Common Currencies on Trade, Economic Policy, No. 30, 9-45.

Schroyen F. (2005) An alternative way to model merit good arguments, Journal of Public Economics, vol. 89, 957-966.

Turunen-Red A. and A. Woodland (1988) On the multilateral transfer problem: Existence of Pareto-improving international transfers, Journal of International Economics, vol. 25, No. 3-4, 249-269.

Turunen-Red A. and A. Woodland (1991) Strict Pareto-Improving Multilateral Reforms of Tariffs, Econometrica, vol. 59, No. 4, 1127-1152.

Turunen-Red A. and A. Woodland (2000a) Multilateral policy reforms and quantity restrictions on trade, Journal of International Economics, vol. 52, No. 1, 153-168.

Turunen-Red A. and A. Woodland (2000b) The Redistribution of Efficiency Gains: Redistribution or Tariffs, paper presented at Econometric Society World Congress 2000, Seattle.

Turunen-Red A. and A. Woodland (2004) Multilateral reforms of trade and environmental policy, Review of International Economics, vol. 12, No. 3, 591-608.

Woodland A. (1982) International Trade and Allocation of Resources, North-Holland.