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National Product Preferences and International Trade *

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Abstract:
We show that when two countries are the same size then the country with stronger preferences in favour of domestic varieties of differentiated goods produced under increasing returns (IRS) will be the net exporter of that good. It is also shown that strong preferences for domestic varieties reduce welfare in the other country and that unilateral trade barriers will necessarily improve welfare there. Moreover, the country with the weaker preferences for domestic varieties may benefit from trade restrictions even when this leads to a trade war. We also show that such preferences may explain low import penetration in IRS-goods. Finally, we discuss the policy implications of such preferences. It is argued that this model can be used to for example capture aspects of US-Japan trade in high-tech goods.

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1. Introduction

This paper deals with the effects of national preferences in favour of domestic varieties of products on the pattern of international trade, on welfare and on the effects of trade policies. In so doing, we utilise an imperfectly competitive model in the 'new economic geography' tradition. The simplest models of imperfect competition presume that firms have the same market shares abroad as at home (see e.g. Helpman & Krugman, 1985, chapters 7-8). Empirically, this is certainly not the case: firms have significantly higher market shares in their home markets (cf. Venables, 1987). Part of these differences can be attributed to trade costs, but the differences seem much too large to be explained only by such costs, which today are fairly modest. Clearly, consumers do in a large number of cases prefer domestic to foreign varieties of goods, and this fact seems at least as important as trade costs as an explanation of the observed differences in market shares.

More importantly, the degree to which consumers have such preferences can be expected to differ across countries. For example, casual empiricism as well as some (albeit limited) empirical work suggests that, in particular, Japanese consumers have unusually strong preferences in favour of domestic varieties. There is even some indirect evidence that these preferences may be an important cause of low import penetration in Japan. However, such biases are by no means peculiar to Japanese consumers: casual observation suggests for example that non-French wines, particularly those from Australasia, are very much under-represented on the shelves of French shops compared with, for example, the UK.

One can easily think that such national preferences could influence the pattern of net trade. Some more descriptive studies, in particular Porter (1990), have suggested that national preferences may significantly affect countries' patterns of specialisation and trade. It has also been argued that strong national preferences could affect welfare in other countries.

This paper therefore, in section 3, first asks whether the pattern of specialisation and net trade is affected by differences in the strength of national preferences across countries. We show that when two countries are of the same size and have the same total demand in all industries then the country with the stronger preferences in favour of domestic varieties of a differentiated IRS good will be the net exporter of that good. This result should be contrasted with those of Helpman and Krugman (1985, chapter 10.4), that large countries (other things being equal) will be net exporters of IRS-products and of Krugman (1980), that each country will be a net exporter in industries where it has a large demand.[1] ,[2]

Second, we ask in section 4 whether strong national preferences affect welfare in other countries. It is shown that these stronger preferences reduce welfare in the rest of the world. This should be compared to the traditional results that in this type of market-size models, the location of IRS-industries does matter for welfare (see Krugman, 1980).

[1] Weder (1995) combines differences in demand for products in different industries with differences in country size in a model with two IRS-industries. He shows that each country tends to be net exporters in the industry where they have a large demand and that larger countries tend to have higher wage rates.

Third, we examine in section 5 the effects of trade policies in a setting with national preferences. The introduction of unilateral trade barriers by the rest of the world will necessarily increase its welfare. Although the result that unilateral trade restrictions may improve welfare is well-known from monopolistically competitive models (see e.g. Venables, 1987), what is new in our analysis is that the country with the relatively weaker preferences for domestic varieties may even benefit from a trade war.

Finally, in section 6 we relate our theoretical results to the debate about the US-Japan trade relations. In this section, we also show theoretically that strong national preferences can explain low import penetration. Although the analysis in this paper can be of general interest in understanding the effects of preference bias for domestic products, it may be of particular interest for understanding Japan's foreign trade and especially its trade relations with the US in high-tech goods. It is often argued that Japan has a 'created' advantage in the production of such goods, and that this has adverse welfare effects on other countries. The behaviour of Japanese firms and the Japanese government, especially its foreign trade relations, are the subject of great, and it seems ever increasing, attention by politicians, other policy-makers and academics alike.[3]

This is of special importance in the United States, where this seems to be the dominant economic issue. Japan is, it is alleged, not behaving normally in its foreign trade

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[2] Note the difference between having preferences in favour of a specific good and having it for domestically produced varieties of goods.

[3] A large number of books and articles are published on this issue. See Lawrence (1987), (1991), (1993) for arguments in favour of a non-normal behaviour of Japan whereas Saxonhouse (1989), (1991), (1993) claims the opposite. For recent contributions on the issue, see also e.g. the papers in Krugman (1991) and Bergsten & Noland (1993).

relations. Since it is clear that tariffs in Japan are generally not higher than in other industrialised countries, the abnormality has been blamed on various other factors: substantial non-tariff barriers to trade and other government intervention, cartels and other private business behaviour, and peculiar preferences. It seems evident that while great weight has been given to ever more intricate aspects of government and business behaviour, very little attention has been given to the role of preferences.

2. T*h*e Model and t*h*e Trade Pattern

The Helpman and Krugman (1985, chapter 10) and Venables (1987) models (hereafter the HKV models) assume a two-country world in which each country uses only one factor (labour) in both an IRS sector producing a horizontally-differentiated good under increasing returns to scale and a second sector producing a homogeneous good under constant returns to scale (CRS).[4]

More specifically, in the IRS-industry, the average cost function is equal to:

(1) $\mathbf{A}C_{xj} = \eta w + \mu w / x_j$

where ηw is the constant marginal cost and μw fixed cost; x_i output per firm. From the demand functions, we can derive marginal revenue (equal across markets) as $\mathbf{p}_j\left[1-(1/\sigma)\right] = \mathbf{p}_j\varepsilon$. Profit-maximisation requires that marginal revenue equals marginal cost and for equilibrium with monopolistic competition, price must equal

[4] So, we follow the tradition from new models of trade and location. For recent contributions see e.g. Krugman and Venables (1995) and Venables (1996). For recent surveys, see Greenaway and Torstensson (1997) or Puga and Ottaviano (1997).

average cost. Using these conditions, we can derive equilibrium output per firm as (cf. Krugman, 1980, p. 952).

$$(2) x_j = \varepsilon\eta / (\mu(1-\varepsilon))$$

Equation (2) shows that output per firm will be equalised across countries.

All varieties of the IRS-product enter symmetrically into a Dixit-Stiglitz preference function which is nested within a Cobb-Douglas function defined over the homogeneous good and the composite of the IRS varieties. The two countries have common technologies (cost functions), and differ only in their market size, with market size indexed by the size of their labour endowments. Units are chosen so that country **A** has one unit of labour, whereas labour endowment of country B is equal to L units, and free trade in the CRS good ensures that the wage rate is the same in both countries.

Both countries prefer domestic to foreign varieties, these preferences being represented by the utility functions $U_{\mathbf{A}}$ and U_B respectively:

$$(3)\ U_{\mathbf{A}} = \left[\sum_{\mathbf{i}=1}^{\mathbf{n}_A} \delta^{\beta} x_{\mathbf{iA}}^{\beta} + \sum_{j=1}^{\mathbf{n}_B} x_{j\mathbf{A}}^{\beta} \right]^{\gamma/\beta} Y_{\mathbf{A}}^{1-\gamma}; \delta \geq 1; 0 < \beta < 1$$

$$(4)\ U_B = \left[\sum_{\mathbf{i}=1}^{\mathbf{n}_A} x_{\mathbf{i}B}^{\beta} + \sum_{j=1}^{\mathbf{n}_B} \lambda^{\beta} x_{jB}^{\beta} \right]^{\gamma/\beta} Y_B^{1-\gamma}; \lambda \geq 1; 0 < \beta < 1$$

where variety **i** (j) is produced in country **A** (B), $x_{\mathbf{k}C}$ is the consumption of variety **k** ($\mathbf{k} = \mathbf{i}, j$) in country C ($C = \mathbf{A}, B$), and Y_C is the consumption of the homogeneous good in country C. For further use, we introduce the country-specific parameters δ and λ, although in this section of the paper we shall follow the HKV models in assuming that $\delta = \lambda$. For subsequent use, we introduce barriers to trade by defining $1/\tau$ ($\tau \geq 1$) as the fraction of IRS-goods that arrives in country **A**, whereas $1/\varsigma$ ($\varsigma \geq 1$) arrives to the importers in country B. These trade barriers can be affected but not totally removed by policy measures.[5]

Assuming, without loss of generality, that the common wage rate = 1, the utility functions in (3) and (4) imply the following factory-gate aggregate demands for producers of the differentiated good in **A** and B respectively:

$$(5)\quad D_A = \mathbf{n}_A x \frac{\delta^{\sigma-1}\mathbf{p}_A^{-\sigma}\gamma\mathbf{n}_A}{\mathbf{n}_A\delta^{\sigma-1}\mathbf{p}_A^{1-\sigma} + \mathbf{n}_B\tau^{1-\sigma}\mathbf{p}_B^{1-\sigma}} + \frac{\varsigma^{1-\sigma}\mathbf{p}_A^{-\sigma}\gamma L\mathbf{n}_A}{\mathbf{n}_A\varsigma^{1-\sigma}\mathbf{p}_A^{1-\sigma} + \mathbf{n}_B\lambda^{\sigma-1}\mathbf{p}_B^{1-\sigma}}$$

$$(6)\quad D_B = \frac{\tau^{1-\sigma}\mathbf{p}_B^{-\sigma}\gamma\mathbf{n}_B}{\mathbf{n}_A\delta^{\sigma-1}\mathbf{p}_A^{1-\sigma} + \mathbf{n}_B\tau^{1-\sigma}\mathbf{p}_B^{1-\sigma}} + \frac{\lambda^{\sigma-1}\mathbf{p}_B^{-\sigma}\gamma L\mathbf{n}_B}{\mathbf{n}_A\varsigma^{1-\sigma}\mathbf{p}_A^{1-\sigma} + \mathbf{n}_B\lambda^{\sigma-1}\mathbf{p}_B^{1-\sigma}}$$

where in each case the first term represents demand from domestic consumers and the second term demand from foreign consumers (inclusive of trade barriers), $\sigma = 1/(1-\beta) > 1$ is the elasticity of substitution between any pair of domestic (foreign) varieties, and $\mathbf{P}_C$ is the price of a variety from country C.

[5] The trade costs should be thought of as the sum of man-made (e.g. technical standards) and transportation costs. Of course, tariffs are also important in some trade flows, but they are analytically less convenient. Since the results qualitatively are the same with tariffs as with resource-using trade barriers, we have chosen to work with the latter.

Defining $\chi_{\mathbf{A}} = \delta^{\sigma-1}$, $\chi_B = \lambda^{\sigma-1}$, $\pi_{\mathbf{A}} = \tau^{1-\sigma}$ and $\pi_B = \varsigma^{1-\sigma}$, and noting that we have the same output for each IRS firm in both countries, and that we may choose units so that all prices = 1, (5) and (6) imply

$$(7)\quad \frac{\chi_{\mathbf{A}}}{\mathbf{n}_{\mathbf{A}}\chi_{\mathbf{A}} + \mathbf{n}_B\pi_{\mathbf{A}}} + \frac{\pi_B L}{\mathbf{n}_{\mathbf{A}}\pi_B + \mathbf{n}_B\chi_B} = x^*$$

$$(8)\quad \frac{\pi_{\mathbf{A}}}{\mathbf{n}_{\mathbf{A}}\chi_{\mathbf{A}} + \mathbf{n}_B\pi_{\mathbf{A}}} + \frac{\chi_B L}{\mathbf{n}_{\mathbf{A}}\pi_B + \mathbf{n}_B\chi_B} = x^* \text{ where } x^* = D_{\mathbf{A}}/\lambda = D_B/\gamma.$$

We may now solve (7) and (8) to obtain the equilibrium number of firms in the two countries,

$$(9)\quad \mathbf{n}_{\mathbf{A}} = \frac{1}{x^*}\left(\frac{\chi_B}{\chi_B - \pi_B} - \frac{\pi_{\mathbf{A}} L}{\chi_{\mathbf{A}} - \pi_{\mathbf{A}}}\right)$$

$$(10)\quad \mathbf{n}_B = \frac{1}{x^*}\left(-\frac{\pi_B}{\chi_B - \pi_B} + \frac{\chi_{\mathbf{A}} L}{\chi_{\mathbf{A}} - \pi_{\mathbf{A}}}\right)$$

Remembering that there are constant expenditure shares, the net trade pattern is determined as:

$$(11)\quad \mathbf{n}_{\mathbf{A}} - \frac{\mathbf{n}_B}{L} = \left(\frac{1+L}{Lx^*}\right)\left(\frac{\pi_B}{\chi_B - \pi_B} - \frac{\pi_{\mathbf{A}} L}{\chi_{\mathbf{A}} - \pi_{\mathbf{A}}}\right)$$

Thus, country size, preference barriers and conventional barriers to trade interact in determining the trade pattern. Large countries, countries with strong national

preferences for domestic varieties and countries with high trade barriers will, other things being equal, tend to be net exporters in the IRS-industry.

Intuition is given by solving equation (11) for the critical value of L at which country B has no net trade, given a specified difference in trade barriers. This value is given by :

$$(12)\ L = \frac{\pi_B(\chi_{\mathbf{A}} - \pi_{\mathbf{A}})}{\pi_{\mathbf{A}}(\chi_B - \pi_B)} = \left(\frac{\chi_{\mathbf{A}}}{\pi_{\mathbf{A}}} - 1\right) \Big/ \left(\frac{\chi_B}{\pi_B} - 1\right)$$

It can be seen that if country **A** has strong preferences for domestic varieties or conventional barriers to trade then country B's size has to be larger than one. Assuming that there are equal conventional trade barriers, the critical condition reduces to:

$$L = (\chi_{\mathbf{A}} - 1)/(\chi_B - 1)$$

Thus, only if country B is sufficiently larger can it counteract the strong preferences for domestic varieties in country A and be a net exporter of IRS-products.

3. Welfare Effects

We now consider the welfare effects. From the utility function (3)-(4), and from the demand functions in (5)-(6), indirect utility functions for the two countries can be derived as (see Flam & Helpman, 1987, p. 90, cf. also Venables, 1987, p. 702):

$$\log U_1 = C + \log \mathbf{E}_1 + \gamma / (1-\sigma) \log\left[\mathbf{n}_1 + \rho \mathbf{n}_2 \right]$$

$$\log U_2 = C + \log \mathbf{E}_2 + \gamma / (1-\sigma) \log\left[\rho \mathbf{n}_1 + \mathbf{n}_2 \right]$$

where C is a constant and $\mathbf{E}_j = w_j = 1$ is the constant income of the representative individual. Therefore, welfare can only change if the price index (within the brackets) is changed. Inspection of the price index suggests that the effects of trade liberalisation need not be ambiguous. Trade liberalisation that reduces consumer prices will increase welfare, other things being equal. However, trade liberalisation will also have an indirect effect through reallocation of production. Since in this model, the total number of firms are constant in the world, welfare increases (other things being equal) by a reallocation of firms to the home country.

By inserting the equilibrium number of firms derived in (7) and (8) into the price indices, we obtain:[6]

$$(13)\quad \mathbf{P_A} = \frac{\left(\chi_{\mathbf{A}}\chi_B - \pi_{\mathbf{A}}\pi_B\right)}{x^*\left(\chi_B - \pi_B\right)}$$

$$(14)\quad \mathbf{P}_B = \frac{L\left(\chi_{\mathbf{A}}\chi_B - \pi_{\mathbf{A}}\pi_B\right)}{x^*\left(\chi_{\mathbf{A}} - \pi_{\mathbf{A}}\right)}$$

Let us, for simplicity, concentrate on welfare effects in country B. First, we are interested in the question of how strong preferences in favour of domestic varieties in

[6] The analysis assumes that both countries have positive production in the IRS-industry.

country B affects welfare in A.. By taking the partial derivative of (14) with respect to $\chi_{\mathbf{A}}$ we obtain:

$$(15)\ \frac{\partial \mathbf{P}_B}{\partial \chi_{\mathbf{A}}} = \frac{\pi_{\mathbf{A}} L(\pi_B - \chi_B)}{x^* (\chi_{\mathbf{A}} - \pi_{\mathbf{A}})^2} < 0$$

Thus welfare is lower than it would have been in the absence of the protection afforded to the other country's producers by the bias in preferences of their domestic consumers.[7] By instead taking the partial derivative of (14) with respect to π_B, we see that country A can counteract the effect of strong preferences for domestic varieties in the other country by increasing conventional barriers.

$$(27)\ \frac{\partial \mathbf{P}_B}{\partial \pi_B} = \frac{\pi_{\mathbf{A}} L}{x^* (\pi_{\mathbf{A}} - \chi_{\mathbf{A}})} < 0$$

Furthermore, it can be shown that welfare in the US is lower when trade barriers, in isolation, are increased in Japan. It is not, however, likely that introduction of trade barriers in **A** will remain unanswered by the government of country B. We can think of many sorts of trade wars. Often, we consider a Nash-equilibrium where each country maximises its utility function, taking the other country's action as given. By inspection of (13) and (14), we observe that since unilateral increases in trade barriers are always positive so that a Nash trade war will eventually lead to prohibitive trade

[7] It is of course impossible to make a comparison between the welfare levels in the small country under these two scenarios.

barriers. By experimenting with (13) and (14), it is easily realised that such a war will lead to welfare losses for both countries.

However, it may be argued that such an outcome is too extreme and that a Nash-war does not correspond to the empirical reality in a world with complex and interrelated trade relations and in the presence of international trade negotiations. It is difficult to operationalise more complex trade wars. But, let us consider a fairly primitive, but empirically probably realistic, sort of trade war where trade barriers are always the same in the two countries (an instaneous 'tit-for-tat'). Such a strategy is probably quite common in bilateral trade relations.

Let us first consider the price index in B under the condition that both countries have the same strength of national preferences. Then, $\chi_{\mathbf{A}} = \chi_B = \chi$ and $\pi_{\mathbf{A}} = \pi_B = \pi$. Expression (14) then simplifies to:

$$(17)\quad \mathbf{P}_B = \frac{L(\chi + \pi)}{x^*}$$

Since $\partial \mathbf{P}_B / \partial \pi > 0$ and $\mathbf{d}\pi/\mathbf{d}\tau < 0$, it is clearly the case that country B loses from a tariff war. Symmetry ensures that country **A** would also lose. Thus, unilateral trade barriers will increase welfare, but if retaliation occurs, both countries will in this case lose from such a trade war. It is easily realised why the larger country loses from raising mutual trade barriers: since net trade pattern is now entirely determined by differences in market size, raising trade barriers leads to a reallocation of

manufacturing production to the smaller. Thus, the larger country faces higher import prices and it has to import more of its total manufacturing consumption so welfare is unambigously lower. Although the smaller country now needs to import less of its manufacturing consumption, the effect of higher import prices for what it has to import is nevertheless the stronger one and its welfare is also unambigously reduced.

However, this needs no longer be the case when the countries differ in their strength of national preferences. In the case where the trade barriers are always equal in the two countries, the price index for country B is equal to:

$$(28)\quad \mathbf{P}_B = \frac{L\left(\chi_{\mathbf{A}}\chi_B - \pi^2\right)}{x^*\left(\chi_{\mathbf{A}} - \pi\right)}$$

By taking the partial derivative of (28) with respect to π, we obtain:

$$(29)\quad \frac{\partial \mathbf{P}_B}{\partial \pi} = \frac{L\left(\chi_{\mathbf{A}}\left(\chi_B - 2\pi\right) + \pi^2\right)}{x^*\left(\chi_{\mathbf{A}} - \pi\right)^2}$$

We observe that the country with the less strong preferences in favour of domestic varieties may in fact gain from a trade war. To see more clearly what determines the welfare effects of trade impediments, let us set the partial derivative in (34) to zero. It can be seen that there will be no welfare changes when:

$$(30)\quad \chi_B = \frac{\pi\left(2\chi_{\mathbf{A}} - \pi\right)}{\chi_{\mathbf{A}}}$$

The higher is π (i.e. the lower are initial trade barriers), the more likely is this trade war to increase welfare in country A. More importantly, this country is more likely to benefit from a trade war the lower is the strength of its consumers' preferences for domestic varieties relative to that of Japanese consumers. The reason is that since country B's producers of manufacturing already have natural protection through their consumer preferences, they are likely to lose from additional policy-induced protection, since, in the absence of a trade war, there would already be a large number of firms in the other country.

In country B, on the other hand, in the absence of a trade war, consumers would be faced with a large number of foreign products, which yield less utility and/or for which they pay a higher price. Thus, it may gain from a trade war. If trade barriers initially are low, the likelihood of improving welfare in the country B is higher because in such cases a smaller increase in import prices may lead to foreign firms leaving the market and being replaced by domestic firms, without there being considerably higher prices of imports.

The intuition behind these results may be demonstrated further by considering the effects of the introduction of a protectionist policy by B. By protecting its own home market, B makes its own manufacturingfirms more profitable, while firms in country **A** make losses. Since we have assumed free entry and exit, we will, to restore equilibrium, need firms from country B to enter and firms from **A** to leave the market. Since both countries prefer domestic to foreign varieties of manufacturing and since in

this framework the total number of firms is constant ($= (1+ L)/ x^*$), this change in the number of firms will improve welfare in B and reduce it in country **A**.

4. Applications: *US-J*apan Trade in Hig*h* Tec*h*

We have shown that strong national preferences can affect the net trade pattern as well as welfare. Since national preferences seem important empirically, our results could therefore be important empirically in many trade relations. It could, however, be especially important in US-Japan trade in high-tech goods. In common with many other economists, we are somewhat sceptical about the argument that there is a 'Japanese problem'. The first part of the argument, that Japan, has an (increasing) advantage in the production and export of high-tech products, may be somewhat less controversial. Still, the fact that Japan has a comparative advantage in high-tech products may certainly not be incompatible with existing supply-side trade theory. It is clear that Japan has a fairly abundant relative endowment of skilled labour and that it, after the US, has the largest domestic market. It is certainly the case that high-tech industries are characterised by important scale economies, especially as a consequence of the substantial cost of developing new products.

Yet, the Japanese apparent advantages in high-tech industries may very well need some additional explanations. Take, for example, the highly developed EU countries that, despite their large common market and abundant endowments of highly skilled labour, do not have revealed comparative advantages in the production of high-tech goods. Moreover, compared to the US, Japanese revealed comparative advantage in

high-tech goods has apparently increased without any obvious basis in an increasing comparative cost difference. For example, the often-mentioned supposition that productivity in Japan is increasing much more rapidly than in the US seems to be closer to a myth than to reality (see Dollar & Wolff, 1993). Furthermore, it does not seem that the endowment of skilled labour is growing much more quickly in Japan than in the US. Thus, there seems to be something of importance that needs to be explained and that cannot necessarily be explained by existing trade models.

A related issue is these low import penetration of the Japanese market in manufactures. Import penetration of the Japanese market for high-tech goods was only 7.9 per cent in 1980 (OECD, 1986). Moreover, it had hardly increased since 1970. For the other large developed countries, however, import penetration is much higher, and increased considerably between 1970 and 1980. For example, the share was 42.5 % for Germany and 44.2 % for U.K. in 1980. The import penetration was 14.3 % for the U.S.

The increased import penetration shares for other countries than Japan does not in general reflect changes in the pattern of production or in world market shares; on the contrary, these were quite stable between 1970 and 1980. Instead, the increased import penetration appears to reflect mutual penetration of domestic markets and increased intra-industry trade, a development that has not occurred in Japan.

Lawrence (1987), using a gravity-type model, concludes that Japan is clearly under-importing in manufactures. This could, in principle, either be due to protection or to what Lawrence defines as 'peculiar preferences', where there is a preference bias in favour of domestic varieties of manufactured goods. Since price elasticities are not

abnormally high, this suggests that quotas are not necessarily to blame. Since Japanese tariffs are not markedly higher than tariffs in similar countries, one could conclude that 'peculiar preferences' may indeed provide an explanation for the low import penetration of the Japanese market.

In this section, we will show theoretically that strong national preferences can cause low import penetration. Now, we are not interested in differences in traditional trade barriers or in differences in country, but we simply want to examine whether the preference structure on its own can explain the low market share for manufacturing firms in Japan. Thus, we assume that $L = 1$ and $\pi_{\mathbf{A}} = \pi_B = \pi$. It can then be shown that the share of imports in manufacturing, $\mathbf{I}$, is equal to:

$$\mathbf{I} = \frac{\chi_{\mathbf{A}}(\chi_B - \pi) + \pi(\pi - \chi_{\mathbf{A}})}{(\chi_{\mathbf{A}} - \pi)(\chi_{\mathbf{A}}\chi_B - \pi^2)} \tag{31}$$

Taking the partial derivative of (31) with respect to $\chi_{\mathbf{A}}$ and evaluating it at the point where the preferences for domestic varieties are equally strong in both countries ($\chi_{\mathbf{A}} = \chi_B = \chi$),we obtain

$$\frac{\partial \mathbf{I}}{\partial \chi_{\mathbf{A}}} = -\frac{\pi(\chi^2 + \pi^2)}{(\chi + \pi)(\chi - \pi)^2} \tag{32}$$

Thus, it is clearly seen that import penetration decreases with the strength of preferences for domestic products.

5. *D***iscussion**

We have shown that a country such as the US *m***a***y* benefit from the introduction and increase of trade barriers. Is such a policy action justifiable? We cannot ignore that it is a ”beggar-thy-neighbour” policy with potential risks for a threat to international trade agreements. The practical answer to the question must therefore rest to a large degree on the (presumed) origins of the preference for the national variety in the small country. The traditional stance in (inter-industry) trade theory is to take national preferences as given, and not to apportion 'blame' to one country because its preferences are different from those of its trading partner. Indeed, in the context of the standard models there is no basis for deciding which of the two countries is 'unusual'. Economists have been content to observe that differences in national preferences could serve as a basis for trade (as when production conditions were identical in the two countries) or could even reverse trade compared with the standard supply-side predictions.[8]

The central conclusions of such analyses were that gains could be made from free trade in such situations, and that restricting trade would, in general, reduce those gains. There was understandably little interest in enquiring about the sources or the effects of such differences in national preferences, national welfare, or the volume and direction of trade. Trade theorists were essentially uninterested in the role played by tastes.

With the advent of intra-industry trade models, however, there has been a focus on the explicit modelling of preferences and their role in determining the direction and

[8] For such studies, see e.g. Markusen (1986), Hunter & Markusen (1988), Hunter (1991), and Torstensson (1993).

volume of trade.[9] Such explicit modelling of preferences may provide us with a basis for identifying 'normal' and 'abnormal' preferences. If that preference is 'innate', at least in so far as it is not a 'creation' of past actions by the government or other institutions in the small country, then retaliation would not, in our opinion, necessarily be justified. Indeed, the marketing of many products places heavy reliance on their country (region) of origin.

It may however be the case that the preference for the domestic variety has been deliberately created by the government or by some pressure group. For example, in many countries there are periodic efforts to encourage domestic consumers to buy domestic products (as with the 'Buy British' campaigns of the 1970s and 1980s, which were at least encouraged by the British government). In so far as these are generalised campaigns, targeted at imports of all goods from all sources, it is arguable that they constitute a protectionist measure, and may thus warrant retaliation (although it is to be hoped that action through the WTO will be the first resource of governments).

However we are now in a grey area, since it will be difficult in practice to draw the line between 'legitimate' marketing of single or ranges of generic products (e.g. advertisements in the US or elsewhere encouraging American residents to buy Californian oranges or wine) and more general (e.g. 'Buy American') campaigns. There must be even greater ambiguity over whether a national campaign to boycott imports originating from a specific country, perhaps as a reaction to its production practices, is an interference with trade that warrants a policy response by the targeted country,

[9] There are of course exceptions to such neutral assumptions regarding tastes, as with Venables (1987).

particularly when the government of the 'transgressing' country is not actively involved in the campaign

It may also be the case that such preferences have become 'ingrained' as a consequence of unfamiliarity with imported varieties as a result of past import-restricting policies. Where those policies have since been abandoned then it seems both unjust to respond to their current effects by instituting equivalent action, as well as being unwise to risk provoking their reinstatement. A better option might be to institute a marketing campaign, perhaps partly financed by the government of the 'offending' country, designed to overcome this lack of knowledge. It should also be noted that since a trade-war clearly is a beggar thy-neighbour policy, there is always a possibility for increased welfare in both countries through Japan offering transfers to the US in response to the US not introducing trade restrictions. Moreover, the effects of such 'natural' barriers would, in practice, be difficult to disentangle from 'unnatural' trade barriers. This may be of some importance, since if, for instance, the Japanese government estimates that the relative importance of 'natural' barriers is high, whereas the US government estimates it to be low, action by the US may provoke retaliation by Japan, justified on the grounds that the US policy is an over-reaction.

6. *C*oncluding *R*e*m*arks

We think that our analysis has captured a phenomenon that may be of quite some empirical importance. Consumers seem to prefer domestic to foreign varieties but the degree to which they do so also differs across countries. Economists that have based

their reasoning on more anectdotal evidence have suggested that such differences may affect the pattern of production and trade as well as having important welfare effects.

We have shown that this may very well be true. Using a standard imperfectly competitive model of trade, we have shown that countries where consumers have unusually strong preferences for domestic varieties will tend to specialise in production and export in industries where increasing returns to scale is important. Moreover, by offering a natural protection to its producers of imperfectly competitive, these countries tend to benefit domestic at the expense of foreign welfare.

Empirically, Lundbäck and Torstensson (1997) have found that national preferences indeed do affect the pattern of net trade. In a sample of 17 OECD-countries, all the countries have a net export that is positively and significantly related to the degree of national preferences. In fact, this effect is not only statistically but also economically significant.

What then can the country without strong national preferences do to counteract the natural protection in the other country? Unilateral raising import barriers will benefit national welfare. More importantly, even if this creates a trade war, welfare mayn increase in the country without strong national preferences. However, we still close this paper with some warnings about taking the results presented in this paper too far. First, there are certainly other causes of trade such as conventional comparative advantages and scale economies and trade restrictions may clearly hamper a better utilisation of comparative advantage and scale economies. Second, there are important political-economy arguments against allowing for introducing new arguments for trade

protection on behalf of those lobbying for such protection. Finally, we should note the problems posed when there may be both 'natural' and policy barriers to trade. Although our results allow the **t*h*eoretical** possibility of disentangling the effects of policy measures from preferences for domestic varieties, to do so would require **e*m*pirical** knowledge of all parameter values.

*R*eferences

Bergsten, C.F. and Noland, M., 1993, ***R*econcilable *D*ifferences***?*, (Institute for International Economics, Washington DC).

Flam, H. and Helpman, E., 1987, "Industrial Policy Under Monopolistic Competition", ***J*ournal of International Econo*m*ics** *22,*: 79-102.

Greenaway, D. and Torstensson, J., 1997, "Back to the Future: Taking Stock on Intra-Industry Trade", **Welt*w*irtsc*h*aftlic*h*es Arc*h*i*v* 1*33*,** 249-269.

Helpman, E., and Krugman, P.R., 1985, **Market *S*tructure and Foreign Trade: Increasing *R*eturns**, **I*m*perfect *Co*m*p*etition and t*h*e International Econo*my*** (MIT Press, Cambridge, Mass.)

Hunter, L.C. (1991), "The Contribution of Non-Homothetic Preferences to Trade", ***J*ournal of International Econo*m*ics** *30*, 345-358.

Hunter, L.C. and Markusen, J.R., (1988), "Per Capita-Income as a Determinant of Trade", in Feenstra, R.C. (ed.), **E*m*pirical Met*h*ods for International Trade**, MIT Press, Cambridge, Mass.

Krugman, P.R., 1980, "Scale Economies, Product Differentiation, and the Pattern of Trade", **A*m*erican Econo*m*ic *R*ev*i*e*w*** *70*, 959-959.

Krugman, P.R., (ed), 1991, **Trade *w*it*h* *J*apan** (Chicago University Press, Chicago).

Krugman, P.R. and Venables, A., 1990, "Integration and the Competitiveness of Peripheral Industry", in Bliss, C. and de Macedo, J.B. (eds), ***U*nit*y* *w*it*h* *D*iv*ersit*y* in t*h*e European Econo*my*** (Cambridge University Press, Cambridge).

Krugman, Paul and Venables, Anthony J. (1995) "Globalization and the Inequality of Nations". ***Q*uarterl*y* *J*ournal of Econo*m*ics**, vol. 110, pp. 857-880.

Lawrence, R.Z, 1987, "Does Japan Import Too Little: Closed Markets or Minds, ***B*rooking Papers on Econo*m*ic Acti*v*it*y*,** 517-554.

Lawrence, R.Z. 1991, "Efficient or Exclusionist? The Import Behavior of Japanese Corporate Groups", ***B*rookings Papers on Econo*m*ic Acti*v*it*y*,** 311-341.

Lawrence, R.Z. 1993, "Japan's Different Trade Regime: An Analysis with Particular Reference to ***K*eiretsu**", ***T*h*e* *J*ournal of Econo*m*ic Perspecti*v*es** *7,* 3-20.

Lundbäck, E and Torstensson, J., 1997, "Demand, comparative advantage and economic geography in international trade: Evidence from the OECD", CEPR Discussion Paper, forthcoming.

Markusen, J.R., 1986, "Explaining the Volume of Trade: An Eclectic Approach", **A*m*erican Econo*m*ic *R*ev*i*e*w* 7*6*,** 102-1011.

OECD, 1986, ***O*ECD *S*cience and Tec*h*nolog*y* Indicators**, Paris.

Ottaviano, G.I.P. and Puga, D., 1997, "Agglomeration in A Global Economy: A Survey", **World Econo*my,*** forthcoming.

Saxonhouse, G.R, 1993, What Does Japanese Trade Structure Tell Us About Japanese Trade Policy, **T*h*e *J*ournal of Econo*m*ic Perspecti*v*es** *7*, 21-44.
Torstensson, J. (1993), "The Heckscher-Ohlin-Vanek Theorem with Quasi-Homothetic Preferences", **Econo*m*ics *L*etters***,* **41**, pp. 157-60.
Venables, A.J., 1987, ”Trade and Trade Policy with Differentiated Products: A Chamberlinian-Ricardian Model”, **Econo*m*ic *J*ournal** *97*, 700-717.

Appendix (not necessarily to be published)

From the utility function in (1) and by choosing units so that wages and all prices are set to one, we arrive at aggregate demand functions for IRS-products produced in country A as (see Helpman & Krugman, 1985, Venables, 1987):

(A1-A2) $D_A = \mathbf{n}_a x = \left[\ \delta^{1-\sigma}\gamma\ \right]/\left[\ \mathbf{n}_a\delta^{1-\sigma} + \mathbf{n}_b\tau^{1-\sigma}\ \right] + \left[\ \varsigma^{1-\sigma}\gamma\ \right]/\left[\mathbf{n}_a\varsigma^{1-\sigma} + \mathbf{n}_b\lambda^{1-\sigma}\ \right]$

where the first term represents domestic demand, and the second term foreign demand:

Similarly, aggregate demand for varieties produced in country B equals:

$D_B = \mathbf{n}_b x = \left[\ \tau^{1-\sigma}\gamma\right]/\left[\ \mathbf{n}_a\delta^{1-\sigma} + \mathbf{n}_b\tau^{1-\sigma}\ \right] + \left[\lambda^{1-\sigma}\gamma\ \right]/\left[\mathbf{n}_a\varsigma^{1-\sigma} + \mathbf{n}_b\lambda^{1-\sigma}\ \right]$

where the first term represents demand from consumers in A and the second term represents demand from consumers in country B.

Consider the demand equations (A1)-(A2) and let us divide both sides of the two equations with $\mathbf{n}_a$ and $\mathbf{n}_2$, respectively. Since we define $\delta^{1-\sigma} = \chi_a, \lambda^{1-\sigma} = \chi_b, \varsigma^{1-\sigma} = \pi_b, \tau^{1-\sigma} = \pi_a$ and $x^* = x/\gamma$, (A1)-(A2) can be used to arrive at:

(A3)-(A4)

$$\chi_a/(\mathbf{n}_a\chi_a + \mathbf{n}_b\pi_a) + \pi_b/(\mathbf{n}_a\pi_b + \mathbf{n}_b\chi_b) = x^*$$
$$\pi_a/(\mathbf{n}_a\chi_a + \mathbf{n}_b\pi_a) + \chi_b/(\mathbf{n}_a\pi_b + \mathbf{n}_b\chi_b) = x^*$$

Then, we can solve equations (A3)-(A4) for the equilibrium number of varieties in (2)-(3).