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Consumer Nationalism and Multilateral Trade Cooperation*

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Abstract

We investigate the implications of consumer nationalism for multilateral trade cooperation. We develop a two-country, two-firm model, in which the firms produce horizontally differentiated products and act as Bertrand competitors. Assuming that there is asymmetry in consumer nationalism between countries, we show that the country with the (relatively more) nationalist consumers can sustain more liberal trade policies than its trade partner in a repeated-game setting. Moreover, its most cooperative equilibrium tariff is actually decreasing in the level of its consumers' nationalism, provided that countries are not too patient. On the other hand, asymmetric consumer nationalism across countries produces an anti-cooperation effect on the incentives of the country with the non-nationalist consumers.

Keywords: Consumer nationalism; consumer ethnocentrism; multilateral cooperation.
JEL classification: F12; F13; F52.

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1 Introduction

The world has been experiencing a revival of economic nationalism in recent years. The most prominent manifestations of this trend are the election of Donald J. Trump as the 45th President of the United States on the platform of "Make America Great Again" as well as the outcome of the Brexit referendum. This new wave of economic nationalism—intertwined with populism—poses a serious threat to the liberal international order that has dominated the world after World War II, key elements of which are economic openness and multilateral institutions (Ikenberry, 2018). In fact, the elevated trade tensions between the United States and its major trade partners in the Trump era clearly attest how grave this threat is. In this paper, we focus on the consumer side and assess theoretically the implications of consumer nationalism for multilateral trade cooperation.

Consumer nationalism or consumer ethnocentrism—with the latter term being extensively used in the international business literature—refers to the phenomenon of consumer bias against foreign products and in favor of domestic ones. According to the seminal work by Shimp and Sharma (1987, page 280), for ethnocentric consumers, "purchasing imported products is wrong because, in their minds, it hurts the domestic economy, causes loss of jobs, and is plainly unpatriotic,"[1] whereas for non-ethnocentric consumers, "foreign products are objects to be evaluated on their own merits without consideration for where they are made." A large number of empirical studies have demonstrated that consumer ethnocentrism has a significant impact on consumers' buying intentions and purchase behavior toward domestic and imported products (see, for example, Shimp and Sharma, 1987; Herche, 1992; Nielsen and Spence, 1997; Watson and Wright, 2000; Shoham and Makovec Brenčič, 2003; Nguyen et al., 2008). It is therefore natural to ask what the implications of consumer nationalism are for the world trading system and, in particular, for multilateral tariff cooperation. To the best of our knowledge, this question has not been addressed so far in the literature. This is the objective of this paper, which explores the ramifications of consumer nationalism for multilateral trade cooperation in the context of self-enforcing cooperative agreements.

[1]Similarly, Sharma et al. (1995, page 27) argue that for highly ethnocentric consumers, "[n]ot buying foreign imports is good, appropriate, desirable, and patriotic; buying them is bad, inappropriate, undesirable, and irresponsible."

We develop a two-country, two-firm model, in which the firms produce horizontally differentiated products and engage in Bertrand price competition. We model consumer nationalism as a demand shifter. More specifically, stronger nationalist consumer preferences translate in our framework into an outward shift of the demand for the domestic product along with an inward shift of the demand for the import product. Moreover, we assume that there is asymmetry in consumer nationalism between the two trade partners, which is in line with the empirical findings in the literature on cross-country differences in consumer ethnocentrism (see, for instance, Good and Huddleston, 1995; Pereira et al., 2002; Han, 2017; Han and Won, 2018). The governments and firms interact in an infinitely repeated two-stage game: in the first stage, the governments select their import tariffs, while in the second stage, the firms choose their prices in both markets. We finally assume—as is standard in the literature on trade agreements—that countries are limited to self-enforcing multilateral agreements, i.e., agreements balancing for each country its short-term gains from defection from the agreed-upon trade policies against its long-term welfare losses due to the trade war its unilateral defection would ignite.

Three main results emerge from our analysis. First, the non-cooperative Nash tariff of a given country is decreasing in the degree of domestic consumer nationalism. The dominant force driving this result is the fact that consumer nationalism reduces the demand for imports, thereby having a dampening effect on a country's tariff-revenue gain from marginally raising its import tariff. Second, the country with the (relatively more) nationalist consumers is able to maintain more liberal trade policies than its trade partner in our repeated-game setting. In fact, for a sufficiently low discount factor, the most cooperative equilibrium tariff of the former is *decreasing* in the level of its consumers' nationalism; by contrast, as far as the country with the non-nationalist consumers is concerned, its most cooperative equilibrium tariff is always increasing in the degree of nationalism characterizing its trade partner's consumers. This is our third main finding. Intuitively, consumer nationalism in a given country has a negative impact on its potential one-time gains from deviation from the cooperative course as well as on both trade partners' per-period benefit from cooperation. In other words, asymmetric consumer nationalism across countries produces an anti-cooperation effect on the incentives of the country with the non-nationalist consumers, while in the case of the country with the

nationalist ones, there are two offsetting forces at work. However, for a sufficiently small discount factor, its pro-cooperation effect on the latter country's incentives—i.e., its negative impact on the country's one-time gains from cheating—unambiguously dominates.

It is important to stress here that our results extend to the more general case in which there is a home bias in consumption or, equivalently for our purposes, there are border effects on trade flows (see, for example, McCallum, 1995; Trefler, 1995; Chen, 2004; Brülhart and Trionfetti, 2009; Mika, 2017). Of course, a home bias in demand can arise for reasons very different from consumer ethnocentrism—for instance, due to the natural advantage of domestic industries vis-à-vis foreign producers in the provision of after-sales service (see page 5 in Blonigen and Wilson, 1999). However, all our results carry through in the case of asymmetric consumption home bias across countries—independently of its source—provided that the bias in question entails an outward shift of the demand for domestically produced goods accompanied by an inward shift of the demand for imports.

Few papers in the economics and political science literature look at the interplay between nationalism/patriotism and international trade or trade policy. In a theoretical contribution, Eriksson (2011) focuses on agriculture, and explores the ramifications of patriotic consumer preferences for agricultural policy—in the form of an import tariff or a production subsidy—in the context of a small open economy and using the median-voter approach. In an empirical study instead, Michaels and Zhi (2010) examine the deterioration of relations between the United States and France during 2002–2003 over the use of military force against Iraq, and estimate the impact of this deterioration on their bilateral trade. Other papers look at the reverse question, i.e., how international trade affects countries' level of nationalism. For example, Lan and Li (2015) provide robust evidence that both at the regional level within China and at the country level across 15 different countries, the level of nationalism is decreasing in the degree of economic openness. On the other hand, in a recent paper, Colantone and Stanig (forthcoming) focus on the surge in imports from China in 15 European countries over 1988–2007, and find that at the district level within the countries in question, a larger import shock leads to an increase in political support for nationalist and isolationist parties as well as for radical-right parties. Last, a number of papers investigate the determinants of individual attitudes toward trade, including the role played (or not) by nationalist views or feelings

among individuals in shaping their trade preferences (see, for instance, Mayda and Rodrik, 2005; Mansfield and Mutz, 2009; Rho and Tomz, 2017).

The remainder of the paper is organized as follows. The next section sets out the basics of our model. Section 3 derives the non-cooperative Nash tariff equilibrium that would emerge in a one-shot interaction between countries. Section 4 analyzes the implications of asymmetric consumer nationalism across countries for multilateral tariff cooperation in the context of asymmetric multilateral trade agreements, whereas Section 5 repeats the analysis focusing on symmetric agreements. Finally, Section 6 offers some concluding remarks.

2 The Model

We assume that the world consists of two countries, Home (H) and Foreign (F). There exists one firm in each country: firm h in Home and firm f in Foreign. The two firms produce horizontally differentiated products—i.e., consumers view firms' products as imperfect substitutes for each other. Markets are segmented and firms compete in prices à la Bertrand in both countries.

The demand for product $i \in \{h, f\}$ in country $j \in \{H, F\}$, q_i^j, is given by:

$$q_i^j \left(p_i^j, p_{-i}^j\right) = \alpha_i^j - \beta_i^j p_i^j + \gamma_i^j p_{-i}^j, \tag{1}$$

where p_i^j is the price charged by firm i in market j and $-i \in \{h, f\} \setminus \{i\}$. Moreover, α_i^j, β_i^j, and γ_i^j are positive constants, while $\beta_i^j > \gamma_i^j$ (i.e., demand is more responsive to own-price changes than cross-price ones).[2] On the production side, the firms have constant marginal costs, c_h and c_f, and no fixed cost of production. We further assume that $\alpha_i^j > \beta_i^j c_i$.

The governments and firms engage in a two-stage game as follows:

Stage 1: The two governments simultaneously pick specific (non-prohibitive) tariffs so as to maximize national welfare.

Stage 2: The two firms simultaneously select their prices in both markets so as to maximize their aggregate profit.

[2]Note that $\gamma_i^j > 0$ reflects the fact that the goods are substitutes.

3 One-Shot Game

We first characterize the tariff equilibrium that would emerge in a non-cooperative environment. In particular, let us assume that the governments and firms engage in a one-shot interaction. We solve our two-stage game backwards in order to identify its subgame-perfect Nash equilibria in pure strategies.

3.1 Stage 2: Bertrand Competition

Let τ^j denote the import tariff imposed by country $j \in \{H, F\}$. The aggregate profits of firms h and f, respectively, from sales in both markets equal:

$$\pi_h = \left(p_h^H - c_h\right) q_h^H \left(p_h^H, p_f^H\right) + \left(p_h^F - c_h - \tau^F\right) q_h^F \left(p_h^F, p_f^F\right) \text{ and} \tag{2}$$

$$\pi_f = \left(p_f^F - c_f\right) q_f^F \left(p_f^F, p_h^F\right) + \left(p_f^H - c_f - \tau^H\right) q_f^H \left(p_f^H, p_h^H\right). \tag{3}$$

It is immediate to show that $\left(\partial^2 \pi_i / \partial p_i^j \partial p_{-i}^j\right) = \gamma_i^j > 0$, meaning that firms' prices in a given market are strategic complements.

Each firm chooses two prices, and setting $\left(\partial \pi_i / \partial p_i^j\right) = 0$ for $j \in \{H, F\}$, we obtain firm i's ($i \in \{h, f\}$) first-order conditions, yielding:

$$p_h^H = \frac{\alpha_h^H + \beta_h^H c_h + \gamma_h^H p_f^H}{2\beta_h^H}, \tag{4}$$

$$p_h^F = \frac{\alpha_h^F + \beta_h^F \left(c_h + \tau^F\right) + \gamma_h^F p_f^F}{2\beta_h^F}, \tag{5}$$

$$p_f^F = \frac{\alpha_f^F + \beta_f^F c_f + \gamma_f^F p_h^F}{2\beta_f^F}, \text{ and} \tag{6}$$

$$p_f^H = \frac{\alpha_f^H + \beta_f^H \left(c_f + \tau^H\right) + \gamma_f^H p_h^H}{2\beta_f^H}. \tag{7}$$

Finally, straightforward algebra provides us with the Bertrand–Nash equilibrium prices charged by firms in the two markets:

$$p_{h_{Nash}}^H = \frac{2\beta_f^H \left(\alpha_h^H + \beta_h^H c_h\right) + \gamma_h^H \left[\alpha_f^H + \beta_f^H \left(c_f + \tau^H\right)\right]}{4\beta_h^H \beta_f^H - \gamma_h^H \gamma_f^H}, \tag{8}$$

$$p_{h_{Nash}}^F = \frac{2\beta_f^F \left[\alpha_h^F + \beta_h^F \left(c_h + \tau^F\right)\right] + \gamma_h^F \left(\alpha_f^F + \beta_f^F c_f\right)}{4\beta_f^F \beta_h^F - \gamma_f^F \gamma_h^F}, \tag{9}$$

$$p^F_{f_{Nash}} = \frac{2\beta^F_h\left(\alpha^F_f + \beta^F_f c_f\right) + \gamma^F_f\left[\alpha^F_h + \beta^F_h\left(c_h + \tau^F\right)\right]}{4\beta^F_f\beta^F_h - \gamma^F_f\gamma^F_h}, \text{ and} \tag{10}$$

$$p^H_{f_{Nash}} = \frac{2\beta^H_h\left[\alpha^H_f + \beta^H_f\left(c_f + \tau^H\right)\right] + \gamma^H_f\left(\alpha^H_h + \beta^H_h c_h\right)}{4\beta^H_h\beta^H_f - \gamma^H_h\gamma^H_f}. \tag{11}$$

The resulting equilibrium quantities, then, equal:

$$q^H_{h_{Nash}} = \frac{\beta^H_h\left\{2\alpha^H_h\beta^H_f - c_h\left(2\beta^H_h\beta^H_f - \gamma^H_h\gamma^H_f\right) + \gamma^H_h\left[\alpha^H_f + \beta^H_f\left(c_f + \tau^H\right)\right]\right\}}{4\beta^H_h\beta^H_f - \gamma^H_h\gamma^H_f}, \tag{12}$$

$$q^F_{h_{Nash}} = \frac{\beta^F_h\left[2\alpha^F_h\beta^F_f - \left(2\beta^F_f\beta^F_h - \gamma^F_f\gamma^F_h\right)\left(c_h + \tau^F\right) + \gamma^F_h\left(\alpha^F_f + \beta^F_f c_f\right)\right]}{4\beta^F_f\beta^F_h - \gamma^F_f\gamma^F_h}, \tag{13}$$

$$q^F_{f_{Nash}} = \frac{\beta^F_f\left\{2\alpha^F_f\beta^F_h - c_f\left(2\beta^F_f\beta^F_h - \gamma^F_f\gamma^F_h\right) + \gamma^F_f\left[\alpha^F_h + \beta^F_h\left(c_h + \tau^F\right)\right]\right\}}{4\beta^F_f\beta^F_h - \gamma^F_f\gamma^F_h}, \text{ and} \tag{14}$$

$$q^H_{f_{Nash}} = \frac{\beta^H_f\left[2\alpha^H_f\beta^H_h - \left(2\beta^H_h\beta^H_f - \gamma^H_h\gamma^H_f\right)\left(c_f + \tau^H\right) + \gamma^H_f\left(\alpha^H_h + \beta^H_h c_h\right)\right]}{4\beta^H_h\beta^H_f - \gamma^H_h\gamma^H_f}. \tag{15}$$

It is important to note here than an increase in τ^H raises the equilibrium prices of both goods in Home, with the impact on $p^H_{f_{Nash}}$ being relatively larger (in absolute terms).[3] In addition, a higher τ^H results in a market-share gain for firm h in its domestic market at the expense of firm f, as $\frac{\partial q^H_{h_{Nash}}}{\partial \tau^H} = \frac{\beta^H_h\beta^H_f\gamma^H_h}{4\beta^H_h\beta^H_f - \gamma^H_h\gamma^H_f} > 0$ while $\frac{\partial q^H_{f_{Nash}}}{\partial \tau^H} = -\frac{\beta^H_f\left(2\beta^H_h\beta^H_f - \gamma^H_h\gamma^H_f\right)}{4\beta^H_h\beta^H_f - \gamma^H_h\gamma^H_f} < 0$.[4] Analogous relationships hold for Foreign as far as changes in its tariff level are concerned.

3.2 Stage 1: Tariff Equilibrium

We define the welfare of country $j \in \{H, F\}$, W^j, as the sum of consumer surplus (from consumption of both goods), domestic firm's aggregate profit, and tariff revenue. More specifically:

$$W^H\left(\tau^H, \tau^F\right) = \int_{p^H_h}^{\frac{\alpha^H_h + \gamma^H_h p^H_f}{\beta^H_h}} q^H_h\left(p^H_h, p^H_f\right) dp^H_h + \int_{p^H_f}^{\frac{\alpha^H_f + \gamma^H_f p^H_h}{\beta^H_f}} q^H_f\left(p^H_f, p^H_h\right) dp^H_f$$
$$+\pi_h + \tau^H q^H_f\left(p^H_f, p^H_h\right) \text{ and} \tag{16}$$

[3] From Equations (8) and (11), we have that $\frac{\partial p^H_{h_{Nash}}}{\partial \tau^H} = \frac{\gamma^H_h\beta^H_f}{4\beta^H_h\beta^H_f - \gamma^H_h\gamma^H_f} < \frac{\partial p^H_{f_{Nash}}}{\partial \tau^H} = \frac{2\beta^H_h\beta^H_f}{4\beta^H_h\beta^H_f - \gamma^H_h\gamma^H_f}$ since $\gamma^H_h < 2\beta^H_h$.

[4] The term "market share" here and throughout the paper refers to unit market share.

$$W^F\left(\tau^F,\tau^H\right)=\int_{p_f^F}^{\frac{\alpha_f^F+\gamma_f^F p_h^F}{\beta_f^F}} q_f^F\left(p_f^F,p_h^F\right)dp_f^F+\int_{p_h^F}^{\frac{\alpha_h^F+\gamma_h^F p_f^F}{\beta_h^F}} q_h^F\left(p_h^F,p_f^F\right)dp_h^F$$
$$+\pi_f+\tau^F q_h^F\left(p_h^F,p_f^F\right). \tag{17}$$

With Equations (16)–(17) in place, we may now derive the best-response tariffs for Home and Foreign by setting $\left(\partial W^j\left(\tau^j,\tau^{-j}\right)/\partial\tau^j\right)=0$, where $-j\in\{H,F\}\setminus\{j\}$. It turns out that both countries have a dominant strategy, i.e., each country's best-response tariff does not depend on the tariff imposed by its trade partner. This arises because of the assumptions that markets are segmented and that firms face a constant marginal cost of production. Countries' best-response tariffs thereby constitute the Nash tariff equilibrium of our one-shot game, denoted by $\left(\tau_N^H,\tau_N^F\right)$.[5]

3.3 Nash Tariff Equilibrium under Consumer Nationalism

Throughout the paper, we maintain the assumption that stronger nationalist consumer preferences translate into a parallel outward shift of the demand for the domestic product accompanied by a parallel inward shift of the demand for the import product. In other words, stronger nationalist preferences in, for instance, Home would imply a higher α_h^H and a lower α_f^H.

To get some first insights into the ramifications of consumer nationalism for the multilateral trading system, let us examine its impact on the Nash tariff equilibrium of our one-shot game. As we discussed in the introduction, in line with the empirical findings in the literature on cross-country differences in consumer ethnocentrism, we assume that there is asymmetry in consumer nationalism between Home and Foreign. In particular, let us now introduce nationalist consumer preferences only in Home and explore their implications for both τ_N^H and τ_N^F. To this end, suppose that $\alpha_h^H=\widetilde{\alpha}_h^H+k$ and $\alpha_f^H=\widetilde{\alpha}_f^H-k$, with $k>0$ capturing the degree of nationalism characterizing the consumers in Home, and $\widetilde{\alpha}_h^H$, $\widetilde{\alpha}_f^H$ denoting the α demand parameters in Home in the absence of nationalist preferences among its consumers.

[5]The closed-form solutions for τ_N^H and τ_N^F are cumbersome and are included in a technical appendix (available from the authors upon request). Note that in a perfectly symmetric world, in which $\alpha_i^j=\alpha$, $\beta_i^j=\beta$, $\gamma_i^j=\gamma$ and $c_i=c$ for all $i\in\{h,f\}$ and $j\in\{H,F\}$, $\tau_N^H=\tau_N^F=\frac{\beta(2\beta+\gamma)(2\beta+3\gamma)[\alpha+c(\gamma-\beta)]}{12\beta^4-11\beta^2\gamma^2+\gamma^4}$.

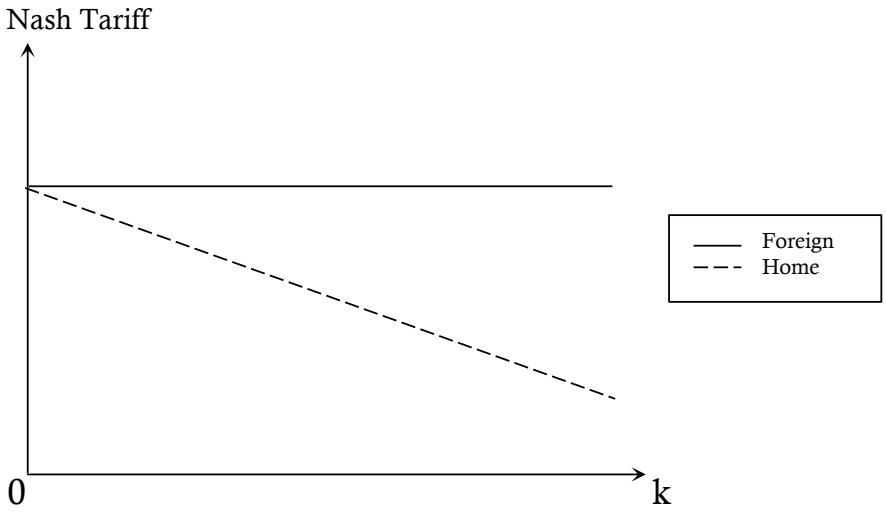


Figure 1: Nash Tariff Equilibrium and Consumer Nationalism

It can be readily shown that:

$$\frac{\partial \tau_N^H}{\partial k} = \frac{\beta_h^H \left[2\beta_f^H \left(3\gamma_h^H + \gamma_f^H - 2\beta_h^H\right) - 3\left(\gamma_h^H\right)^2\right]}{12\left(\beta_h^H\right)^2\left(\beta_f^H\right)^2 + \left(\gamma_h^H\right)^2\left(\gamma_f^H\right)^2 - \beta_h^H\beta_f^H\gamma_h^H\left(3\gamma_h^H + 8\gamma_f^H\right)}. \tag{18}$$

Thus, if β_i^H is "large" relative to γ_i^H and γ_{-i}^H—which is the reasonable assumption to make—then $\left(\partial \tau_N^H / \partial k\right) < 0$, meaning that the Nash tariff of Home is decreasing in Home consumers' nationalism (i.e., in k). Intuitively, when optimally choosing its import tariff, a country must consider the marginal cost and the marginal benefit of protection, which are determined by how consumer surplus, tariff revenue, and the profit of the domestic firm vary as the level of import protection rises. Here, the dominant force driving the result is the fact that an increase in k lowers, ceteris paribus, Home import demand (to the benefit of the domestic firm h), thereby having a dampening effect on the tariff-revenue gain for Home from marginally raising τ^H. On the other hand, the Nash tariff of Foreign, τ_N^F, does not depend on the degree of Home consumers' nationalism (i.e., $\left(\partial \tau_N^F / \partial k\right) = 0$), which is due to our assumptions of segmented markets and constant marginal costs.

Figure 1 illustrates these results by depicting the Nash tariff equilibrium that would emerge for different values of k in an otherwise symmetric world—i.e., a world in which $\widetilde{\alpha}_i^H = \alpha_i^F = \alpha$, $\beta_i^j = \beta$, $\gamma_i^j = \gamma$, and $c_i = c$ for all $i \in \{h, f\}$ and $j \in \{H, F\}$, but $\alpha_h^H = \alpha + k > \alpha_i^F = \alpha >$

$\alpha_f^H = \alpha - k$—and under the "large"-β assumption.[6] As Figure 1 demonstrates, in such a case, $\tau_N^H < \tau_N^F$ for any $k > 0$.

4 Tariff Cooperation under Consumer Nationalism

In order to explore the implications of asymmetric consumer nationalism across countries for multilateral tariff cooperation, we now allow for infinitely repeated interaction between Home and Foreign. More specifically, we consider the infinite repetition of the two-stage game analyzed above, while assuming that Home consumers exhibit nationalist preferences as modeled in Section 3.3 (i.e., $\alpha_h^H = \widetilde{\alpha}_h^H + k$ and $\alpha_f^H = \widetilde{\alpha}_f^H - k$, where $k > 0$). In each period—comprising two stages—the governments choose import tariffs with perfect information with respect to all past tariff choices. Moreover, let $\delta \in (0, 1)$ denote the discount factor between periods.

As is standard in the literature on trade agreements, we assume that countries are limited to cooperative agreements that are self-enforcing, i.e., agreements balancing for each country its one-time gains from defection from the agreed-upon trade policies against its discounted future welfare losses due to the trade war a unilateral defection would ignite.[7] Furthermore, to focus on the main points of our paper (and for tractability), firms are assumed to act as Bertrand competitors in every period of the repeated game—i.e., the possibility of firm collusion is excluded.

For this asymmetric game, we first consider asymmetric cooperative subgame-perfect equilibria in which (i) along the equilibrium path, Home and Foreign select, respectively, the cooperative tariffs $\tau_C^H < \tau_N^H$ and $\tau_C^F < \tau_N^F$ in each period; and (ii) if at any point in the game a defection occurs, then both countries revert from the following period onwards to non-cooperative Nash play. In other words, the countries employ grim-trigger strategies in order to support multilateral cooperation. Of course, multiple such equilibria exist. Our focus

[6]Note that if $\beta_i^j = \beta$ and $\gamma_i^j = \gamma$, then $\frac{\partial \tau_N^H}{\partial k} = \frac{\beta\left[4\beta(2\gamma-\beta)-3\gamma^2\right]}{12\beta^4+\gamma^4-11\beta^2\gamma^2}$. Thus, in this case, a sufficient condition for $\left(\partial \tau_N^H / \partial k\right) < 0$ is that $\beta > 2\gamma$.

[7]For an in-depth analysis of enforcement issues within the context of the General Agreement on Tariffs and Trade/World Trade Organization, see Bagwell and Staiger (2002).

lies on the most cooperative equilibrium tariffs, $\left(\widehat{\tau}_C^H, \widehat{\tau}_C^F\right)$, where $\widehat{\tau}_C^H$ and $\widehat{\tau}_C^F$ are the lowest non-negative tariffs that can be supported as an equilibrium outcome of our infinitely repeated two-stage game.

We begin our analysis by looking at countries' potential gains from cheating. Clearly, a country opting to deviate from the cooperative course does best by selecting its best-response tariff. The one-time gains from cheating for country j, then, equal:

$$\Omega^j\left(\tau_C^j, \tau_C^{-j}\right) \equiv W^j\left(\tau_N^j, \tau_C^{-j}\right) - W^j\left(\tau_C^j, \tau_C^{-j}\right). \tag{19}$$

Ω^j simply equals the one-time welfare gains for country j from deviating to its best-response tariff, τ_N^j, while its trade partner $-j$ still cooperates with τ_C^{-j}.

However, violating multilateral cooperation comes at a cost as it leads to an infinite reversion to non-cooperative Nash play. The discounted future welfare loss a defector faces is given by:

$$\frac{\delta}{1-\delta}\left[W^j\left(\tau_C^j, \tau_C^{-j}\right) - W^j\left(\tau_N^j, \tau_N^{-j}\right)\right] \equiv \frac{\delta}{1-\delta}\omega^j\left(\tau_C^j, \tau_C^{-j}\right), \tag{20}$$

where $\omega^j\left(\tau_C^j, \tau_C^{-j}\right)$ is the per-period value of cooperation for country j, i.e., the per-period difference in its welfare under multilateral cooperation and during a tariff war.

Using Equations (19) and (20), we can now formally state the no-defect condition for Home and Foreign:

$$\textbf{(Home)} \quad \Omega^H\left(\tau_C^H, \tau_C^F\right) \leq \frac{\delta}{1-\delta}\omega^H\left(\tau_C^H, \tau_C^F\right) \text{ and} \tag{21}$$

$$\textbf{(Foreign)} \quad \Omega^F\left(\tau_C^F, \tau_C^H\right) \leq \frac{\delta}{1-\delta}\omega^F\left(\tau_C^F, \tau_C^H\right). \tag{22}$$

Any cooperative tariff pair $\left(\tau_C^H, \tau_C^F\right)$ that satisfies inequalities (21)–(22) can be supported as a subgame-perfect equilibrium outcome of the infinitely repeated two-stage game. Our interest lies in the most cooperative equilibrium tariff pair, $\left(\widehat{\tau}_C^H, \widehat{\tau}_C^F\right)$, which can be obtained by solving simultaneously (21)–(22) for the smallest tariffs that give equalities.[8]

As the model is rather complicated, we need to resort to numerical analysis in order to gain some further insights into the implications of (asymmetric) consumer nationalism for

[8] As is typical in the literature on trade agreements, we assume that the discount factor is sufficiently low so that neither country's most cooperative equilibrium tariff equals to zero.

multilateral trade cooperation.[9] Furthermore, to focus on the main points of our analysis, we assume henceforth that $\widetilde{\alpha}_i^H = \alpha_i^F = \alpha$, $\beta_i^j = \beta$, $\gamma_i^j = \gamma$, and $c_i = c$ for all $i \in \{h, f\}$ and $j \in \{H, F\}$, with β being "large" relative to γ.[10]

The main result that emerges from our numerical analysis is that, for reasonable parameter values, $\widehat{\tau}_C^H < \widehat{\tau}_C^F$ for all $k > 0$. In other words, the country with the nationalist consumers is able to maintain more liberal trade policies than its trade partner. The intuition underlying this finding is rather involved. We proceed by analyzing in detail the impact of consumer nationalism in Home on both countries' one-time gains from cheating (i.e., Ω^j) and per-period benefit from cooperation (i.e., ω^j).

Let us start by examining the ramifications of nationalist preferences in Home for its per-period benefit from cooperation, ω^H. To this end, note that multilateral cooperation results in (i) lower prices in Home, especially for the import good, benefitting Home consumers; (ii) a gain in sales and market share for firm h in its export market accompanied by a loss in sales and market share in its domestic market; and (iii) a tariff-revenue loss for the Home government. Consumer nationalism in Home affects, then, ω^H—relative to the benchmark scenario of no nationalism—via three channels. First, it acts to raise the relative importance for firm h profitwise—in terms of both sales and markup over its marginal cost—of the Home market vis-à-vis the Foreign one, rendering the decrease in $p_{h_{Nash}}^H$ and the loss in sales of the Home firm in its domestic market both more costly from the firm's perspective. Second, it lowers Home import demand, which has a dampening effect on the consumer-surplus gain for Home from multilateral trade liberalization. Third, it has a mitigating effect on the tariff-revenue loss for Home from the reduction in Home's tariff barriers, since it acts to lower both the imports of Home from Foreign and the non-cooperative equilibrium tariff of Home (i.e., τ_N^H). Our numerical analysis reveals that the first two forces (affecting negatively ω^H) dominate, meaning that consumer nationalism in Home has an overall negative effect on its per-period benefit from multilateral trade cooperation.

We next turn to the per-period benefit from cooperation for Foreign, ω^F. Home consumers'

[9] The numerical analysis was carried out using Mathematica (the code is available upon request).

[10] Recall, though, that $\alpha_h^H = \widetilde{\alpha}_h^H + k$ and $\alpha_f^H = \widetilde{\alpha}_f^H - k$, meaning that $\alpha_h^H > \alpha_i^F > \alpha_f^H$. Moreover, in our numerical analysis, we impose that $\beta > 2\gamma$ (see footnote 6).

nationalism affects Foreign welfare only via its impact on the aggregate profit of firm f. Arguing as above, multilateral cooperation leads to a gain in sales and market share for the Foreign firm in its export market (i.e., in Home) along with a loss in sales and market share in its domestic market (i.e., in Foreign). At the same time, it results in a higher price net of tariff, $p^H_{f_{Nash}} - \tau^H$, received by firm f for its exports to Home—notwithstanding the fact that $p^H_{f_{Nash}}$ does decrease. Consumer nationalism in Home acts to diminish the relative importance for firm f profitwise—in terms of sales and markup—of the Home market vis-à-vis the Foreign one, reducing the benefit to the Foreign firm from the gain in sales in Home and the rise in $\left(p^H_{f_{Nash}} - \tau^H\right)$. Therefore, Home consumers' nationalism also affects negatively the per-period value of cooperation for Foreign.

Finally, we explore the implications of nationalist preferences in Home for both countries' one-time gains from cheating. Let us start with Ω^H. Note here that a unilateral defection by Home would result in (i) higher prices in Home, particularly for the import good, hurting Home consumers; (ii) a gain in sales and market share for firm h in its domestic market; and (iii) a tariff-revenue gain for the Home government. Consumer nationalism in Home has an impact, then, on Ω^H via three channels. First, as we discussed above, it acts to heighten the relative importance for firm h profitwise of the Home market vis-à-vis the Foreign one, increasing the benefit to the Home firm from the gain in sales in its domestic market and the rise in $p^H_{h_{Nash}}$. However, it also acts to lower the best-defect tariff for Home, τ^H_N, which renders ambiguous its overall effect on firm h's profit gain in the case of defection by the Home government.[11] Second, it lowers the import demand of Home, which, along with the fact that τ^H_N is (strictly) decreasing in k, has a mitigating effect on the consumer-surplus loss for Home associated with its unilateral deviation from the cooperative course. Third, it has a dampening effect on the tariff-revenue gain for Home from the increase in Home's tariff barriers, as it entails both fewer imports of Home from Foreign and a lower best-defect tariff for Home. According to our numerical analysis, consumer nationalism in Home unambiguously has a negative effect on its one-time gains from defection, implying that the tariff-revenue force is the dominant

[11] It turns out that for "high" cooperative tariffs, the profit gain for firm h associated with Home government's unilateral defection is *lower* under consumer nationalism in Home than in its absence, while the exact opposite holds for "low" cooperative tariffs.

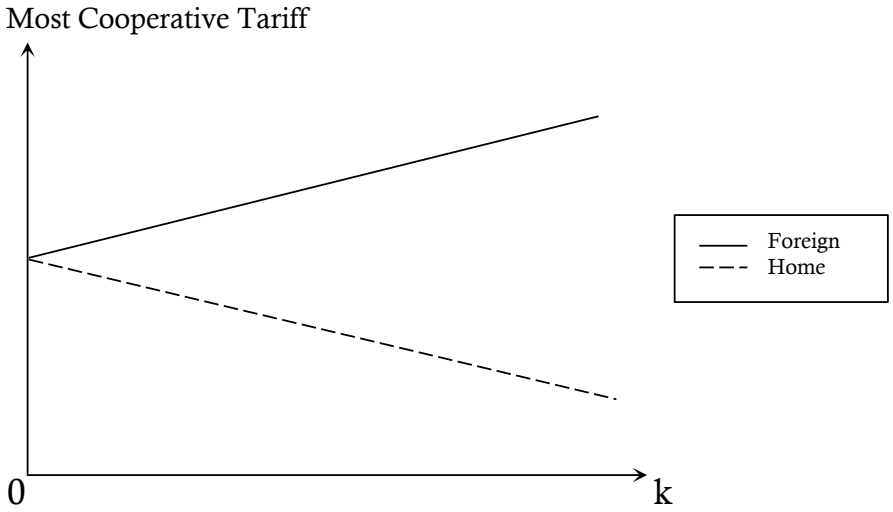
one at play. On the other hand, Home consumers' nationalism has no effect on Ω^F, which is a direct consequence of our assumptions of segmented markets and constant marginal costs.

To sum up, consumer nationalism in Home affects negatively ω^H, ω^F, and Ω^H, whereas it has no implications for Ω^F. Our result that $\widehat{\tau}_C^H < \widehat{\tau}_C^F$ for all $k > 0$ thereby follows.[12] At a more general level, our analysis demonstrates that the country with the nationalist consumers can sustain more liberal trade policies than its trade partner in our infinitely repeated two-stage game.

In fact, for a sufficiently low discount factor δ, the most cooperative equilibrium tariff of Home not only is lower than the one of Foreign, but also is decreasing in the degree of Home consumers' nationalism (i.e., $\left(\partial \widehat{\tau}_C^H / \partial k\right) < 0$ for "low" δ). The intuition underlying the latter result is straightforward. Recall that consumer nationalism in Home affects negatively its one-time gains from defection as well as its per-period benefit from cooperation. Note now that the discounted value of future cooperation that appears on the right-hand side of the no-defect conditions (21)–(22) is a function of both the per-period value of cooperation and the discount factor. As a result, for sufficiently low δ, the pro-cooperation effect of Home consumers' nationalism on the incentive constraint faced by the Home government (i.e., its negative impact on Ω^H) is the dominant force at work. Thus, in the "low"-δ case, the higher k is, the more liberal the trade policies that can be maintained by Home in equilibrium—while the reverse holds in the case of "high" δ. On the other hand, $\widehat{\tau}_C^F$ is increasing in k independently of δ, since Home consumers' nationalism only affects (negatively) the per-period value of cooperation for Foreign (and thereby the discounted cost for Foreign of a future trade war). Figures 2a and 2b illustrate these results by depicting the most cooperative equilibrium tariff pair $\left(\widehat{\tau}_C^H, \widehat{\tau}_C^F\right)$ as a function of k under (i) the "low"-δ scenario (see Figure 2a); and (ii) the "high"-δ scenario (see Figure 2b).

[12] Note that $\widehat{\tau}_C^H = \widehat{\tau}_C^F$ if k were equal to zero, as in such a case, Home and Foreign would be perfectly symmetric.

(a) Low Discount Factor



(b) High Discount Factor

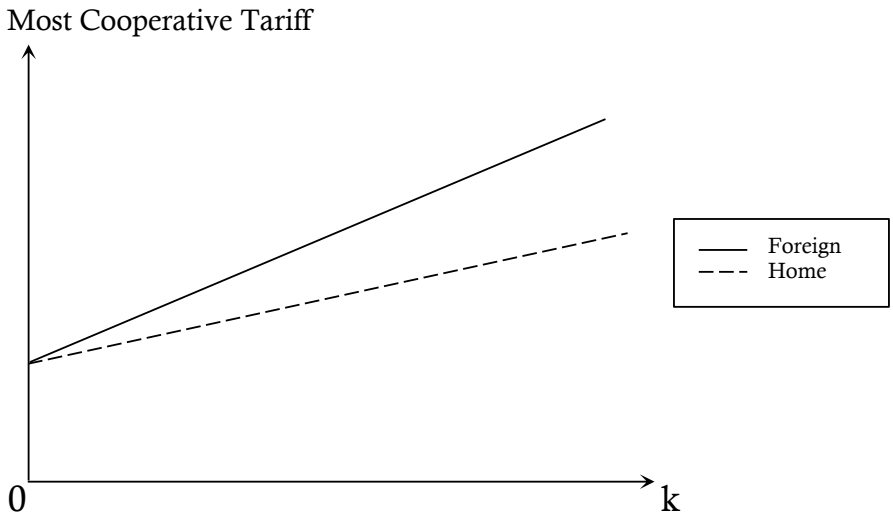


Figure 2: Asymmetric Most Cooperative Equilibrium and Consumer Nationalism

5 Symmetric Multilateral Agreements

In this section, we explore the implications of asymmetric consumer nationalism across countries for multilateral tariff cooperation in the context of symmetric (self-enforcing) multilateral trade agreements. What follows should be regarded as robustness analysis, as given the asymmetry between Home and Foreign (due to consumer preferences), it is only natural to place our main focus on asymmetric cooperative subgame-perfect equilibria.

Let $\tau_C^H = \tau_C^F \equiv \tau_C$ denote the symmetric cooperative tariff selected by Home and Foreign along the equilibrium path. We then have the following no-defect conditions for the two trade partners:

$$\textbf{(Home)} \quad \Omega^H(\tau_C, \tau_C) \leq \frac{\delta}{1-\delta}\omega^H(\tau_C, \tau_C) \text{ and} \tag{23}$$

$$\textbf{(Foreign)} \quad \Omega^F(\tau_C, \tau_C) \leq \frac{\delta}{1-\delta}\omega^F(\tau_C, \tau_C). \tag{24}$$

From all the cooperative tariffs that satisfy (23)–(24), our interest lies in the most cooperative one, $\widehat{\tau}_C$, which is the smallest tariff that does not violate (23)–(24).

Our numerical analysis shows that as τ_C is lowered, a critical tariff is eventually reached at which the incentive constraint for the Foreign government binds, whereas the incentive constraint for the Home government is slack (i.e., (23) holds with strict inequality at the tariff in question). The fact that as the cooperative tariff is lowered, Foreign's incentive constraint is the first one to bind is not surprising given our analysis in Section 4. The aforementioned critical tariff is the most cooperative *symmetric* equilibrium tariff of our infinitely repeated two-stage game, $\widehat{\tau}_C$.

Figure 3 depicts $\widehat{\tau}_C$ as a function of k. As the figure demonstrates, $\widehat{\tau}_C$ is increasing in the degree of Home consumers' nationalism. Intuitively, consumer nationalism in Home has no effect on Foreign's one-time gains from cheating, Ω^F, but it does have a negative impact—for the reasons described in Section 4—on the per-period benefit from cooperation for Foreign, ω^F.[13] Therefore, in the context of symmetric trade agreements, asymmetric consumer nationalism across countries unambiguously has negative implications for multilateral trade cooperation.

[13]We do not analyze here the impact of consumer nationalism in Home on ω^H and Ω^H as the incentive constraint for the Home government is slack at $\widehat{\tau}_C$.

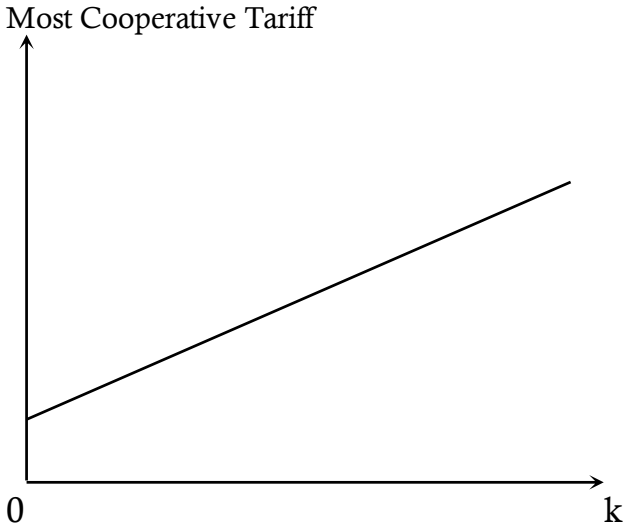


Figure 3: Symmetric Most Cooperative Equilibrium and Consumer Nationalism

6 Conclusions

We have presented the first theoretical analysis of the implications of consumer nationalism for multilateral tariff cooperation. This is an important endeavor given that a large number of empirical studies have documented the significant impact of consumer ethnocentrism on consumers' buying intentions and purchase behavior toward domestically produced goods and imports. We have developed a two-country, two-firm model, in which the governments and firms interact in an infinitely repeated two-stage game: in the first stage, the governments choose their import tariffs, while in the second stage, the firms, which produce horizontally differentiated products, select their prices in both markets. We have assumed that there is asymmetry in consumer nationalism between the two trade partners and that nationalist consumer preferences simply act as a demand shifter—which allows our results to extend to the more general case of asymmetric consumption home bias across countries.

We have demonstrated that the country with the (relatively more) nationalist consumers can sustain more liberal trade policies than its trade partner in our repeated-game setting. Perhaps more importantly, as long as the discount factor is not too high—which is the empirically relevant case—the most cooperative equilibrium tariff of the former country (i.e., the country with the nationalist consumers) is decreasing in the level of its consumers' nationalism. On the other hand, the most cooperative equilibrium tariff of the latter country (i.e., the

country with the non-nationalist consumers) is always increasing in the degree of nationalism characterizing its trade partner's consumers.

In conclusion, our analysis shows that the overall effect of asymmetric consumer nationalism across countries on multilateral trade cooperation is ambiguous. Moreover, our findings raise, at a broad level, the interesting possibility of an eruption of a multilateral trade war in the wake of a surge in consumer nationalism around the globe, with the war in question being fueled (primarily) by protectionist actions taken by the countries with the non-nationalist consumers. Of course, further research is required in order to obtain a more complete picture of the ramifications of consumer nationalism for the world trading system (e.g., in terms of its impact on firms' location choice). Still, our paper offers a first set of testable predictions that are intuitive but not obvious.

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