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Corporate Social Responsibility and International Competition: A Welfare Analysis

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Abstract

This paper examines the welfare implications of corporate social responsibility (CSR) in international markets under imperfect competition. Based on a stylized model of an import-competing duopolistic market, we show the feasibility of moving toward tariff reductions when both domestic and foreign firms launch CSR initiatives in that their payoffs include not only individual profits, but also the benefits of consumers. For the case where the foreign exporter unilaterally adopts the consumer-oriented CSR as a strategy, there is a rent-shifting effect because the foreign firm's payoff increases whereas the domestic firm's profit decreases. In response, the importing country's government raises its tariff on the foreign product. If, instead, the domestic firm adopts the CSR strategy unilaterally, the rent-shifting effect disappears and both the competing firms' payoffs increase. We further identify the conditions under which the CSR initiatives of the firms constitute the dominant strategy, leading to a Pareto efficient outcome at which the firms' payoffs, consumer surplus, and social welfare are at their maximum levels.

> "*When looked at strategically, corporate social responsibility can become a source of tremendous social progress . . .*"
>
> Michael E. Porter and Mark R. Kramer (2006)

1. Introduction

In the December 2006 issue of *Harvard Business Review*, Porter and Kramer present a systematic analysis linking competitive advantage to corporate social responsibility (CSR), and explain how a company can use competitive strategy to plumb the opportunity of CSR—and in the process enhance its own long-term competitiveness while producing much more *social good* than traditional CSR does. The authors further point out two key reasons why many companies which launched CSR efforts found these efforts not as much productive as they could be. One reason is that these companies simply considered CSR as "a cost, a constraint, or a charitable deed" (p. 2). The other reason is that these companies did not incorporate CSR efforts as parts of their core business strategies. In view of these observations, we present an economic

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approach to analyze the potential efficacy of CSR as a management strategy to gain social welfare in international business when markets are characterized by imperfect competition.

As the world's economic landscape is increasingly moving toward a higher degree of globalization, considerable debates have centered on how to effectively stop protectionism in international trade or business. Voluminous studies have paid particular attention to the roles that national governments play in reducing, or even eliminating, unfair barriers on trade. Many countries have "fair trade" laws designed to ensure that foreign exporting firms do not receive subsidies from their governments and that their exports are not dumped at prices below their fair market levels. Nevertheless, a great deal of studies have shown that such fair trade laws frequently turn into instruments of trade protectionism since they are used unfairly against foreign competition.[1] One important issue of concern naturally arises. What are effective ways to achieve a lesser degree of trade protection which is beneficial not only to domestic producers in importing countries but also to foreign exporters? What are possible roles that the domestic firms of trading nations play to prevent international markets from moving toward trade protectionism? This paper is an attempt to identify these conditions and discuss the potentially positive roles of firms in the global economy.

In the analysis, we argue that the success of competing firms in international markets and the maximization of consumer and social welfare are not a zero-sum game under imperfect competition. We analyze the behavior of firms pursuing not only their own profits, but also the benefits of their consumers. That is, we wish to know how the for-profit firms make their production decisions when they have a truly altruistic motivation of pro-consumer behavior. These firms are said to be consumer-friendly in that consumer preferences enter directly into the objective functions of their business operations. Corporate altruism in such seller–buyer relationships is analogous to studies in the labor economics literature that stress altruism and social interactions with the family.[2] This notion of corporate altruism may be treated as a subset of CSR addressed by Porter and Kramer (2006), among other researchers. Fundamentally, CSR refers to a broader concept that firms integrate social, economic, or environmental concerns into their values and business operations in a positive manner.[3] We make no attempt to examine the economic effects of CSR in general. Instead, we concentrate our analysis on a "consumer-oriented CSR" initiative, which is defined as a firm's commitment in that the firm, in making its production and price decisions, takes into account both the profits of its own and the benefits of its consumers.

Many studies have indicated that CSR is increasingly becoming a significant part of modern companies, but relatively little research has been done to analyze its economic effects within the framework of international trade and competition. This notion of the consumer-oriented CSR commitment is in parallel with that of consumer-friendly initiative. A recent contribution by Wang et al. (2012) analyzes how tariffs and welfare of an importing country are affected by consumer-friendly foreign exporters. Among the interesting findings of their study are as follows. Foreign exporters that care about their profits and consumer surplus are willing to increase their exports and lower their prices when compared with scenario where they are purely profit-maximizing firms. In response to the consumer-friendly initiatives of the foreign firms, the importing country's government lowers tariffs, causing a gain in profits for the firms. In equilibrium, the exporting firms' consumer-friendly initiative generates a positive outcome since not only are the firms' payoffs greater,

both consumer surplus and social welfare of the importing country also increase. The authors stress that in equilibrium there is a win–win–win solution in international trade.

In this paper, we examine issues on CSR and international trade under different situations where home and foreign firms compete in a domestic country. We show that whether a foreign exporter's consumer-oriented CSR initiative will mitigate the trade protection measure set by the government of an importing country depends crucially on whether there is domestic production. For the case of an importing-competing industry, we find that the domestic government may, on the contrary, *increase* the intensity of tariff protection when the foreign exporter launches its CSR initiative unilaterally. This indicates that, other things being equal, a foreign exporter's CSR initiative has a negative effect on domestic profits. The economic intuition is as follows. The foreign firm's consumer-oriented CSR initiative makes it more aggressive in increasing the quantity of its export, causing the foreign product to be less expensive than the product produced domestically. This, in equilibrium, creates a "rent-shifting effect" because foreign profit increases whereas domestic profit decreases. In response, the domestic government finds it optimal to increase tariffs, but if the domestic firm also launches the CSR initiative of the same sort, the equilibrium outcome changes dramatically. The domestic government finds it optimal to reduce tariffs, leading to an equilibrium in which there are gains to consumers and the society as a whole. Our analysis suggests that when the domestic firm also initiates the consumer-oriented CSR, both competing firms will be better off and there will be no rent-shifting effect. Moreover, we find that whether governments of importing countries will be able to move toward the equilibrium with a lesser degree of trade protectionism depends in part on production efficiency.[4]

The present paper complements the contribution by Wang et al. (2012), but some distinctive differences between the two studies should be mentioned at the outset. First, we examine tariff protection for domestic production in an import-competing market, while their paper examines the case of foreign firms exporting their products to a third country where there is no domestic production. It would be interesting to see how a domestic firm and its national government react to the CSR initiatives of foreign competitors. Second, the tariff policy in the present paper has the dual roles of protecting domestic industries and collecting revenues from foreign exporters. The tariff policy in Wang et al. (2012) is purely for the purpose of collecting revenues from foreign exporters. Third, we find that the unilateral adoption of the consumer-oriented CSR initiative by a foreign exporting firm has a "rent-shifting effect" in that the foreign firm's profit increases whereas the domestic producer's profit decreases. In response to such a rent-shifting effect, the importing country's government finds it welfare-improving to raise import tariffs. Fourth, we show that only when both the domestic and foreign firms launch the consumer-oriented CSR initiatives will the trade equilibrium be Pareto-improving in the import-competing markets. In this case, there is a win–win–win equilibrium at which the firms' payoffs, consumer surplus and social welfare are at their maximum levels.

The remainder of the paper is organized as follows. Section 2 presents an analytical framework with tariff policy and derives the equilibrium outcomes for cases when home and foreign firms may or may not incorporate the consumer-oriented CSR initiatives into their production decisions. Section 3 examines the welfare implications of the CSR firms under international market competition. Concluding remarks can be found in section 4.

2. The Model of the Consumer-oriented CSR and Tariff Protection

The Basic Assumptions

To take into account the possibilities of tariff protection for domestic production, we follow Brander and Spencer (1984) and consider a simple framework with an import-competing market. There are two firms, one domestic and one foreign, producing and selling a homogenous product in the domestic market. We assume that the importing country's government is committed to protect its domestic production by imposing tariffs on all imports.[5] Denote q_d and q_f as the quantities of the competing good produced by the home and foreign firms, respectively. We assume that (inverse) market demand for the good is $p = f(Q)$, where p represents market prick and $Q = q_d + q_f$. Note that $f'(Q) \equiv df/dQ < 0$and $f''(Q) \equiv d^2f/dQ^2 \geq 0$.

We assume that both domestic and foreign firms use the same technology in production and have a quadratic cost function. That is, $C_m = C(q_m)$, where $C'(q_m) \equiv dC/dq_m > 0$ and $C''(q_m) \equiv d^2C/dq_m^2 \geq 0$ for $m = d, f$. This cost function implies that each firm's marginal cost is strictly positive and is non-decreasing. The domestic and foreign firms are assumed to engage in Cournot competition in their production decisions.

Depending on whether or not the domestic firm incorporates CSR into its production decisions, we have two possible payoffs (profit or utility):

$$(N)\ \pi_d = f(q_d + q_f)q_d - C(q_d) \quad \text{without CSR initiative of any form,} \tag{1}$$

$$(C)\ V_d = f(q_d + q_f)q_d - C(q_d) + S \quad \text{with the consumer-oriented CSR initiative,} \tag{2}$$

where $S = \int_0^Q f(x)\,dx - pQ$.

Similarly, there are two possible payoffs for the foreign exporting firm:

$$(N)\ \pi_f = f(q_d + q_f)q_f - tq_f - C(q_f) \quad \text{without CSR initiative of any form,} \tag{3}$$

$$(C)\ V_f = f(q_d + q_f)q_f - tq_f - C(q_f) + S \quad \text{with the consumer-oriented CSR initiative,} \tag{4}$$

where t is tariff on each unit of the foreign product.[6]

Based on the objective functions in (1)–(4), we have four possibilities: {*NN*, *CN*, *NC*, *CC*}, where *NN* is the case when neither firm launches a CSR initiative of any form, *CN* is when the home firm launches the CSR initiative but the foreign firm does not, *NC* is when the home firm does not launches the CSR initiative but the foreign firm does, and *CC* is when both firms launch the CSR initiatives.

As in the trade literature, social welfare of the importing country is taken to be the sum of consumer surplus, domestic profits or payoffs, and tariff revenues. That is,

$$W^{Nj} = S^{Nj} + \pi_d^{Nj} + t^{Nj}q_f^{Nj} \quad \text{when the domestic firm does not launch the CSR initiatives,} \tag{5}$$

$$W^{Cj} = S^{Cj} + V_d^{Cj} + t^{Cj}q_f^{Cj} \quad \text{when the domestic firm launches the CSR initiatives,} \tag{6}$$

where $j = N$ or C.

For the ease of illustration, we follow Wang et al. (2012) and assume that market demand for the competing good is linear: $p = a - (q_d + q_f)$, where p represents the market price and a is a positive parameter. The corresponding measure of consumer surplus is then given as $S = (q_d + q_f)^2/2$. We assume increasing marginal cost of production that $C(q_d) = kq_d^2$ and $C(q_f) = kq_f^2$ where $k > 1$. As in Wang et al. (2012), we consider a game that involves two stages with complete information. In the announcement stage, the home and foreign firms simultaneously decide whether or not to launch a consumer-oriented CSR initiative. In the basic stage, the importing country's government moves first to determine its optimal tariff rate that maximizes social welfare in equation (5) or (6), knowing the decisions of the firms on launching the CSR initiatives. Given the tariff rate optimally set by the government, the home and foreign firms independently and simultaneously determine their output levels that maximize respective objectives (payoffs or profits).

Equilibrium Outcomes of the Four Possible Cases

As standard in game theory, we use backward induction to solve for the sub-game perfect Nash equilibrium for each of the four alternative cases: *NN*, *CN*, *NC* and *CC*. For the *CN*, *NC* and *CC* cases, we calculate both monetary profits and utilities for a firm that launches the consumer-oriented CSR initiative.

- *The NN Case*: *Neither firm launches a CSR initiative of any form*

This is the traditional case where both the domestic and foreign firms are the purely profit maximizers and hence show no interest in the benefits of their consumers. At the second stage of the basic game, the domestic firm sets an output level q_d^{NN} that maximizes its own profit in equation (1) and the foreign firm sets an output level q_f^{NN} that maximizes its own profit in equation (3). At the first stage of the basic game, the domestic government sets an optimal tariff t^{NN} that maximizes social welfare in equation (5). We report the equilibrium outcome in the following Lemma.

LEMMA 1. *When none of the competing firms (domestic or foreign) launches a CSR initiative of any form in an import-competing duopolistic market, the equilibrium values for the optimal tariff, the quantities of the outputs produced, the domestic and foreign profits, consumer surplus, and overall welfare are given, respectively, as*

$$t^{NN} = \frac{3a + 16ak^2 + 8ak^3 + 12ak}{38k + 44k^2 + 16k^3 + 9}, \quad q_d^{NN} = \frac{4a(k+1)(2k+1)}{38k + 44k^2 + 16k^3 + 9},$$

$$q_f^{NN} = \frac{a(6k + 4k^2 + 1)}{38k + 44k^2 + 16k^3 + 9},$$

$$\pi_d^{NN} = \frac{16a^2(k+1)^3(2k+1)^2}{(38k + 44k^2 + 16k^3 + 9)^2}, \quad \pi_f^{NN} = \frac{a^2(k+1)(6k + 4k^2 + 1)^2}{(38k + 44k^2 + 16k^3 + 9)^2},$$

$$S^{NN} = \frac{a^2(18k + 12k^2 + 5)^2}{2(38k + 44k^2 + 16k^3 + 9)^2}, \quad W^{NN} = \frac{a^2(22k + 12k^2 + 7)}{2(38k + 44k^2 + 16k^3 + 9)}.$$

This equilibrium outcome of the *NN* case serves as the benchmark for evaluating the alterative three cases.

- *The CN case. Only domestic firm launches the consumer-oriented CSR initiative*

This second case is when consumer benefits enter into the objective function of the domestic firm, but not that of the foreign firm's. At the second stage of the basic game, the domestic firm sets an output level q_d^{CN} that maximizes its payoff function in equation (2) while the foreign firm sets an output level q_f^{CN} that maximizes its own profit in equation (3). At the first stage of the basic game, the domestic government sets an optimal tariff t^{CN} that maximizes social welfare in equation (6), where $j = N$. We report the equilibrium outcome in the following Lemma.

Lemma 2. *When only the domestic firm launches the consumer-oriented CSR initiative in an import-competing duopolistic market, the equilibrium values for the optimal tariff, the quantities of the outputs produced, the domestic payoffs (profit and utility), the foreign profit, consumer surplus, and overall welfare are given, respectively, as*

$$t^{CN} = \frac{a(k-1)}{2k+1}, \quad q_d^{CN} = \frac{a}{2k+1}, \quad q_f^{CN} = \frac{a}{2(2k+1)},$$

$$\pi_d^{CN} = \frac{a^2(2k-1)}{2(2k+1)^2}, \quad V_d^{CN} = \frac{a^2(8k+5)}{8(2k+1)^2}, \quad \pi_f^{CN} = \frac{a^2(k+1)}{4(2k+1)^2},$$

$$S^{CN} = \frac{9a^2}{8(2k+1)^2}, \quad W^{CN} = \frac{a^2(6k+5)}{4(2k+1)^2}.$$

- *The NC case. Only foreign firm launches the consumer-oriented CSR initiative*

This is the case when consumer benefits enter into the objective function of the foreign firm, but not that of the domestic firm's. At the second stage of the basic game, the domestic firm sets an output level q_d^{NC} that maximizes its own profit in equation (1) but the foreign firm sets an output level q_f^{NC} that maximizes its payoff function in equation (4). At the first stage of the basic game, the domestic government sets an optimal tariff t^{NC} that maximizes social welfare in equation (5). We report the equilibrium outcome in the following Lemma.

Lemma 3. *When only the foreign exporting firm launches the consumer-oriented CSR initiative in an import-competing duopolistic market, the equilibrium values for the optimal tariff, the quantities of the outputs produced, the domestic profit, the foreign payoffs (profit and utility), consumer surplus, and overall welfare are given, respectively, as*

$$t^{NC} = \frac{2a + 16ak^2 + 8ak^3 + 12ak}{26k + 36k^2 + 16k^3 + 5}, \quad q_d^{NC} = \frac{a(8k + 8k^2 + 1)}{26k + 36k^2 + 16k^3 + 5},$$

$$q_f^{NC} = \frac{a(2k+3)(2k+1)}{26k + 36k^2 + 16k^3 + 5}, \quad \pi_d^{NC} = \frac{a^2(k+1)(8k + 8k^2 + 1)^2}{(26k + 36k^2 + 16k^3 + 5)^2},$$

$$\pi_f^{NC} = \frac{a^2(k+1)(2k+1)(2k+3)(4k^2 - 4k - 1)}{(26k + 36k^2 + 16k^3 + 5)^2},$$

$$V_f^{NC} = \frac{a^2(k+1)\left(36k+96k^2+88k^3+16k^4+5\right)}{\left(26k+36k^2+16k^3+5\right)^2},$$

$$S^{NC} = \frac{8a^2(3k+1)^2(k+1)^2}{\left(26k+36k^2+16k^3+5\right)^2}, \quad W^{NC} = \frac{a^2(2k+3)(3k+1)}{26k+36k^2+16k^3+5}.$$

- *The CC case. Both firms launch the consumer-oriented CSR initiatives*

This fourth case is when consumer benefits enter into the objective functions of both the domestic and foreign firms. At the second stage of the basic game, the domestic firm sets an output level q_d^{CC} that maximizes its payoff function in equation (2) and the foreign firm sets an output level q_f^{CC} that maximizes its payoff function in equation (4). At the first stage of the basic game, the domestic government sets its optimal tariff t^{CC} that maximizes social welfare in equation (6), where $j = C$. We report the equilibrium outcome in the following Lemma.

Lemma 4. *When both of the competing firms (domestic and foreign) launch the consumer-oriented CSR initiatives in an import-competing duopolistic market, the equilibrium values for the optimal tariff, the quantities of the outputs produced, the payoffs (profits or utilities) of the firms, consumer surplus, and overall welfare are given, respectively, as*

$$t^{CC} = \frac{a(k-1)}{2k}, \quad q_d^{CC} = \frac{a}{2k+1}, \quad q_f^{CC} = \frac{a(k+1)}{2k(2k+1)},$$

$$\pi_d^{CC} = \frac{a^2(k-1)}{2k(2k+1)}, \quad \pi_f^{CC} = \frac{a^2(k+1)(k-1)}{k(2k+1)^2},$$

$$V_d^{CC} = \frac{a^2\left(2k+5k^2+8k^3+1\right)}{8k^2(2k+1)^2}, \quad V_f^{CC} = \frac{a^2\left(4k+9k^2+2k^3+1\right)}{8k^2(2k+1)^2},$$

$$S^{CC} = \frac{a^2(3k+1)^2}{8k^2(2k+1)^2}, \quad W^{CC} = \frac{a^2(3k+1)(k+1)}{2k(2k+1)^2}.$$

How would the consumer-oriented CSR affect the production decisions of domestic and foreign firms in the import-competing market? If the domestic firm launches its CSR initiative but the foreign firm is a purely profit-maximizing firm, the equilibrium levels of outputs produced by the two firms are strictly greater than those when the two firms are the purely profit-maximizing firms. That is,

$$q_d^{CN} - q_d^{NN} = \frac{a\left(18k+12k^2+5\right)}{(2k+1)\left(38k+44k^2+16k^3+9\right)} > 0,$$

$$q_f^{CN} - q_f^{NN} = \frac{a\left(22k+12k^2+7\right)}{2(2k+1)\left(38k+44k^2+16k^3+9\right)} > 0.$$

If the foreign firm launches its CSR initiative whereas the domestic firm is a purely profit-maximizing firm, there is a negative effect on domestic production and a positive effect on foreign exports, as compared with the equilibrium outputs when both are the purely profit-maximizing firms. That is,

$$q_d^{NC} - q_d^{NN} = -\frac{a(54k + 76k^2 + 32k^3 + 11)}{(38k + 44k^2 + 16k^3 + 9)(26k + 36k^2 + 16k^3 + 5)} < 0,$$

$$q_f^{NC} - q_f^{NN} = \frac{2a(k+1)(54k + 76k^2 + 32k^3 + 11)}{(38k + 44k^2 + 16k^3 + 9)(26k + 36k^2 + 16k^3 + 5)} > 0.$$

If both the domestic and foreign firms launch their CSR initiatives simultaneously, they produce more outputs in equilibrium relative to the scenario where both are the purely profit-maximizing firms. That is,

$$q_d^{CC} - q_d^{NN} = \frac{a(18k + 12k^2 + 5)}{(2k+1)(38k + 44k^2 + 16k^3 + 9)} > 0,$$

$$q_f^{CC} - q_f^{NN} = \frac{a(45k + 66k^2 + 28k^3 + 9)}{2k(2k+1)(38k + 44k^2 + 16k^3 + 9)} > 0.$$

We also find that $q_d^{CC} = q_d^{CN}$. This indicates that when the domestic firm launches its CSR initiative, the equilibrium output remains unchanged irrespective of whether its competitor launches its CSR or not. The ranking of equilibrium outputs for the domestic and foreign firms are given, respectively, as

$$q_d^{CC} = q_d^{CN} > q_d^{NN} > q_d^{NC} \quad \text{and} \quad q_f^{CC} > q_f^{NC} > q_f^{CN} > q_f^{NN}.$$

We thus have

Corollary 1. *In an import-competing duopolistic market, there is a negative effect on domestic production when the foreign exporting firm launches the CSR initiative while the domestic firm does not; but if the domestic and foreign firms launch the CSR initiatives simultaneously, both firms produce more of their products than the case when they are purely profit-maximizing firms.*

In next step of the analysis, we wish to compare the decisions of the competing firms on their CSR initiatives for the four different cases, as well as the resulting trade policy response of the importing country government.

Economic Incentives of Launching the Consumer-oriented CSR Initiatives

To see whether domestic and foreign firms in an import-competing market are interested in the consumer-oriented CSR at the commitment stage, we look at their payoffs at the basic stage. Table 1 presents the payoff matrix in an international duopolistic game, where the equilibrium values of payoffs for the firms are summarized in Lemmas (1)–(4).

If the foreign exporting firm launches its CSR initiative while the domestic firm is a purely profit-maximizing firm, how will this affect the two firms' profits as compared

Table 1. Payoffs to the Firms

	Foreign firm	
Domestic firm	*Do not launch the CSR initiative*	*Launch the CSR initiative*
Do not launch the CSR initiative	(π_d^{NN}, π_f^{NN})	(π_d^{NC}, V_f^{NC})
Launch the CSR initiative	(V_d^{CN}, π_f^{CN})	(V_d^{CC}, V_f^{CC})

with the case when both are purely maximizing firms? To answer this question, we calculate the following:

$$\pi_d^{NC} - \pi_d^{NN} = -\frac{a^2(k+1)(54k+76k^2+32k^3+11)}{(274k+916k^2+1376k^3+960k^4+256k^5+29)} < 0,$$
$$(38k+44k^2+16k^3+9)^2(26k+36k^2+16k^3+5)^2$$

$$V_f^{NC} - \pi_f^{NN} = \frac{4a^2(2k+1)(k+1)E}{(38k+44k^2+16k^3+9)^2(26k+36k^2+16k^3+5)^2} > 0,$$

where

$$E = 1254k + 7073k^2 + 21,940k^3 + 40,540k^4 + 45,648k^5 + 30,736k^6 + 11,392k^7 + 1792k^8 + 95 > 0.$$

The opposite signs of the inequalities indicate that there is a rent-shifting effect, which is consistent with the negative effect on domestic output as shown in Corollary 1.

These results permit us to establish the following proposition:

Proposition 1. *In an import-competing duopolistic market, a foreign firm's CSR initiative generates a rent-shifting effect in that its payoff increases whereas the domestic firm's profit decreases.*

An examination of the domestic firm's payoffs for the four cases as shown in Lemmas (1)–(4) reveals that

$$V_d^{CN} - \pi_d^{NN} = \frac{a^2(2660k+10,124k^2+19,536k^3+20,240k^4+10,752k^5+2304k^6+277)}{8(2k+1)^2(38k+44k^2+16k^3+9)^2} > 0,$$

$$V_d^{CC} - \pi_d^{NC} = \frac{a^2(3k+1)(235k+968k^2+2532k^3+4512k^4+5040k^5+3072k^6+768k^7+25)}{8k^2(2k+1)^2(26k+36k^2+16k^3+5)^2} > 0.$$

These results indicate that, regardless of the strategies adopted by the foreign firm, the domestic firm finds it better off to launch its CSR initiative. It can easily be verified that

$$V_d^{CC} > V_d^{CN} > \pi_d^{NN} > \pi_d^{NC}.$$

As for the foreign firm's payoff, we have from Lemmas (1)–(4) that

$$V_f^{NC} - \pi_f^{NN} = \frac{4a^2(2k+1)(k+1)G}{(38k+44k^2+16k^3+9)^2(26k+36k^2+16k^3+5)^2} > 0$$

where

$$G = 1254k + 7073k^2 + 21,940k^3 + 40,540k^4 + 45,648k^5 + 30,736k^6 + 11,392k^7 + 1792k^8 + 95 > 0,$$

and

$$V_f^{CC} - \pi_f^{CN} = \frac{a^2(4k+7k^2+1)}{8k^2(2k+1)^2} > 0.$$

These results indicate that, regardless of the strategies adopted by the domestic firm, the foreign firm finds it better off to launch its CSR initiative. It can easily be verified that

$$V_f^{CC} > V_f^{NC} > \pi_f^{CN} > \pi_f^{NN}.$$

It follows straightforwardly that the *CC* case is a Nash equilibrium and constitutes the dominant strategy for the two firms. We, therefore, have

Proposition 2. *In an import-competing duopolistic market, the consumer-oriented CSR initiatives of the domestic and foreign firms lead to the dominant strategy since both firms make higher payoffs than otherwise.*

If only the foreign exporting firm launches its CSR efforts towards consumers in an importing country, will the country's government respond by reducing its tariffs on foreign imports (as compared with the case when none of the firms is interested in CSR)? We find that the answer is negative. In this case, the government finds it socially optimal to raise import tariffs in order to protect its domestic firm. This can easily be verified by comparing the optimal tariff rate in the *NC* case with that in the *NN* case (see Lemmas (1) and (3)). That is,

$$t^{NC} - t^{NN} = \frac{a(46k+188k^2+304k^3+224k^4+64k^5+3)}{(38k+44k^2+16k^3+9)(26k+36k^2+16k^3+5)} > 0.$$

The unilateral adoption of the CSR strategy by the foreign firm makes it more aggressive on export decision, creating a rent-shifting effect to hurt the domestic firm. To protect its domestic firm, the government raises it tariff against the foreign product.

What is the case when only the domestic firm launches the CSR towards consumers in the import-competing market? Will the importing country's government respond to

the CSR initiative of the domestic firm by reducing the import tariff (relative to the situation where both firms are not interested in CSR)? We find that the answer is positive. This can easily be verified by comparing the optimal tariff rate in the *CN* case with that in the *NN* case (see Lemmas (1) and (2)). That is,

$$t^{CN} - t^{NN} = -\frac{a(47k + 46k^2 + 12k^3 + 12)}{(2k+1)(38k + 44k^2 + 16k^3 + 9)} < 0.$$

An examination of the optimal tariff rates for all the cases as shown in Lemmas (1)–(4) reveals that

$$t^{CN} < t^{CC} < t^{NN} < t^{NC}.$$

These results lead to the following proposition:

Proposition 3. *In an import-competing duopolistic market, when only the foreign exporting firm launches its consumer-oriented CSR, the optimal tariff rate set by the domestic government is strictly higher than the situation where the foreign firm is a purely profit-maximizing exporter.*

The unilateral adoption of the consumer-friendly initiative by the foreign exporting firm has a rent-shifting effect in that it shifts profits from the domestic producer to the foreign exporter. In response to this effect, the importing country's government raises its import tariff rate.

3. Welfare Implications of CSR in International Competition

We are now in a position to analyze and compare the market equilibrium outcomes when domestic and foreign firms may or may not take into account consumer-oriented CSR in their production and pricing decisions. An examination of consumer surplus for the four cases as shown in Lemmas (1)–(4) reveals that

$$S^{CC} - S^{CN} = \frac{a^2(6k+1)}{8k^2(2k+1)^2} > 0,$$

$$S^{CN} - S^{NC} = \frac{a^2(30k + 20k^2 + 7)(126k + 196k^2 + 96k^3 + 23)}{8(2k+1)^2(26k + 36k^2 + 16k^3 + 5)^2} > 0,$$

$$S^{NC} - S^{NN} = \frac{a^2(2k+1)H}{2(38k + 44k^2 + 16k^3 + 9)^2(26k + 36k^2 + 16k^3 + 5)^2} > 0,$$

where

$$H = (54k + 76k^2 + 32k^3 + 11)(516k + 1600k^2 + 2264k^3 + 1504k^4 + 384k^5 + 61) > 0.$$

It follows immediately that the ranking of consumer surplus is:

$$S^{CC} > S^{CN} > S^{NC} > S^{NN}.$$

In view of social welfare for the four cases as shown in Lemmas (1)–(4), we have

$$W^{CC} - W^{CN} = \frac{a^2(3k+2)}{4k(2k+1)^2} > 0,$$

$$W^{CN} - W^{NC} = \frac{a^2(68k+88k^2+24k^3+13)}{4(26k+36k^2+16k^3+5)(2k+1)^2} > 0,$$

$$W^{NC} - W^{NN} = \frac{a^2(134k+324k^2+304k^3+96k^4+19)}{2(38k+44k^2+16k^3+9)(26k+36k^2+16k^3+5)} > 0.$$

It follows immediately that the ranking of social welfare is:

$$W^{CC} > W^{CN} > W^{NC} > W^{NN}.$$

We, therefore, have the following proposition:

Proposition 4. *Among the four cases in an import-competing duopolistic market, we have the following results: (i) Consumer benefit and overall welfare are at their lowest levels when neither firm launches the CSR initiative; (ii) Both consumer benefit and overall welfare are higher when the home launches the CSR initiative but the foreign firm does not, as compared with the case when the foreign firm launches the CSR initiative but the home firm does not; (iii) Consumer benefit and overall welfare are at their highest levels when both firms launch the CSR initiatives.*

In a classic article, Levitt (1958) contends that firms should not worry about social responsibility, which is supposed to be taken care of by government. Instead, managers of firms should concentrate solely on taking care of their own monetary profits. In our analysis that stresses the role of CSR in international markets under imperfect competition, we show that the arguments made by Levitt (1958) no longer hold true. For the case in which both domestic and foreign firms launch their consumer-oriented CSR initiatives when making production decisions, the government of an importing country responds to the CSR efforts by reducing tariffs on foreign imports. As such, there are gains to consumers and to the society as a whole. This suggests that a country's trade policies under imperfect competition cannot be isolated from the SCR efforts of the competing firms in international markets.

For the scenario where there is one firm launching the CSR initiative, consumers are better off when the CSR initiative is launched by a domestic firm. This suggests that the movement toward trade liberalization should start from firms producing domestically.

4. Concluding Remarks

In this paper, we explore the economic feasibility of moving toward a lesser degree of trade protection in international markets under imperfect competition. Instead of focusing only on the "shoulders" of governments to reduce or eliminate barriers to international trade, we further take into account the positive roles that firms (both domestic and foreign) play in affecting the equilibrium outcomes of international markets. We use import-competing markets as an example to highlight the welfare implications of the CSR firms for trade policies.

We show that the feasibility of tariff reduction arises when both domestic and foreign firms launch a consumer-oriented CSR initiative in that they care about not only their own profits, but also the benefits of their consumers. We find that the CSR initiative as a business strategy has a rent-shifting effect when it is unilaterally adopted by a foreign exporter. Nevertheless, this rent-shifting effect disappears when the CSR initiative is launched by a domestic firm. We identify the conditions under which the CSR initiatives of domestic and foreign firms constitute the dominant strategy, leading to a win–win–win equilibrium at which the firms' payoffs, consumer surplus and social welfare are at their maximum levels.

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Notes

1. See, for example, Dixit (1988), Hillman and Ursprung (1988, 1990), Cheng et al. (2001), Irwin (2004), Chang and Gayle (2006), Evenett (2006), Nelson (2006) and Wu et al. (2014).
2. See the seminal work in Becker (1974). For more recent studies on parental altruism and strategic intergenerational transfers within the family in a game-theoretic analysis, see e.g. Chang and Weisman (2005) and Chang (2009).
3. For contributions on various issues of corporate social responsibility, see e.g. Bagnoli and Watts (2003), Heal (2005), Vogel (2005), Husted and Allen (2006), McWilliams et al. (2006), Besley and Ghatak (2007), Calveras et al. (2007), Siegel and Vitaliano (2007), Bénabou and Tirole (2010) and Goering (2010).
4. In this paper, we focus on the role of CSR as a strategy adopted by competing firms in international markets without taking into account CSR induced by social pressure. For studies that examine conditions under which private politics or strategic activism is able to influence a firm's commitment to adopt CSR measures, see e.g. Baron (2001, 2007) and Baron and Diermeier (2007).
5. Liao and Wong (2006) consider that the importing country imposes a uniform tariff or non-uniform tariff against two foreign exporters and when export taxes will be used.
6. For analytical simplicity, we do not consider transportation costs.