Third Party Anti-Dumping: a tentative rationale

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Abstract

This paper considers the phenomenon of third part anti-dumping: the ability of a firm to bring an AD case in a foreign country against third party dumpers. We discuss some recent experience in New Zealand and offer a couple of suggestions as to why a country might wish to permit foreigners to demand that other foreigners increase prices in that country.

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1. Introduction

There are no producers of a product called "clear float glass"[1] in New Zealand (NZ) and there have been no producers of sheet glass in NZ since Pilkington (NZ) Ltd., a NZ subsidiary of the British multinational Pilkington PLC, closed its Whangarei plant in 1991.[2] In 1997 an antidumping (AD) case was lodged with the NZ Secretary of Commerce alleging dumping of clear float glass in NZ by firms from China, Indonesia and Thailand. The application was lodged by Australian authorities on behalf of Pilkington Australia Ltd. (PAL), the Australian subsidiary of Pilkington PLC, claiming material injury resulted to PAL in the NZ market.

This is an example of third-party antidumping (TPAD) and raises the interesting question of why a country would permit an AD action to be brought in its territory on behalf of foreign firms. The basic economics of dumping suggests that it is almost invariably in the national interest of the importing country and the rationale for AD is that policy-makers weight the interests of domestic producers more heavily than those of domestic consumers.[3] Hence TPAD is a bit of a puzzle: with no domestic industry interests at all, why inflict damage on domestic consumers?

One obvious answer might be 'reciprocity': yes, NZ loses from Australian TPAD actions but it then gains from TPAD actions brought on behalf of NZ firms in Australia. This is possible but, in this particular instance, it seems that NZ has never

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[1] The float process was invented by one Sir Alastair Pilkington in 1952 and makes glass for buildings and vehicles. Extremely hot molten glass is poured onto a pan of melted tin where it floats and spreads into a flat surface, the thickness of which can be adjusted by the speed at which the glass is drawn off the tin. Float plants are extremely capital intensive and have high minimum efficient scale. They are designed to operate continuously for over a decade and there are over 260 worldwide (source: www.pilkington.com.)

[2] The reasons given for the plant's closure were that it could not compete with imported glass (mainly from China) in the absence of tariff protection and that it was technologically outdated (National Business Review, 1991). The cost of converting the plant to a float plant was in the order of NZ$70m and was not considered economic, given the limited size of the market. Pilkington PLC continued to serve the NZ market with imports of float glass from plants elsewhere, including Australia.

[3] The one generally accepted exception to this is the case of predatory dumping which is not an issue here.

brought a TPAD case in Australia while four cases have been brought by Australia in NZ in the 1990s.

This paper suggests another explanation for allowing TPAD. In a setting where firms can establish international subsidiaries, TPAD can enhance the efficient international location of production. One could then justify it on standard economic welfare grounds both from the perspective of the joint welfare of the importing country and the complainant and even, as we show, from the welfare perspective of the importing country alone, albeit in some very special circumstances.

The purpose of this paper, however, is not to suggest that TPAD is wise policy. Indeed, the circumstances we describe below in which the importing country alone gains from TPAD are very particular. Furthermore, the case for TPAD based on the joint welfare of the importing country and the complainant is a second-best case: the circumstances in which joint welfare is raised by TPAD are circumstances in which the abolition of AD would be even better still.

The remainder of the paper is organised as follows. In the next section we discuss in a little more detail the experience of NZ with TPAD and the legal context in which it operates. Section 3 then outlines our argument and sets up a model to demonstrate our arguments. Section 4 then considers a practical caveat in the Australia-NZ case that mitigates our case somewhat and a final section summarises and concludes.

2. Some background

The legal background for TPAD arises in the GATT agreement, Article VI:6(b) of which states that, "[t]he contracting parties may…permit a contracting party to levy an anti-dumping or countervailing duty on the importation of any product…which

causes or threatens material injury to an industry in the territory of *another* contracting party exporting the product concerned to the territory of the importing contracting party" (italics added.) Furthermore, Part 1: Article 14 of the 1994 Agreement on Implementation of Article VI (Antidumping) of the GATT entitled *Anti-Dumping Action on Behalf of a Third Country* addresses TPAD directly and stresses that, "[t]he decision whether or not to proceed with a case shall rest with the importing country."

These enabling treaties then find their way into the relevant law and trade agreements of a number of GATT signatory countries, of course. So Title 19: Chapter 4: Subtitle iv: Part iv: Sec. 1677k of the US Code, for instance, outlines US TPAD procedures.   It is significant that this section was enacted as part of the Omnibus Trade and Competitiveness Act of 1988 and so its sole concern is with procedures for US firms to initiate TPAD actions in other countries, not the facilitation of such actions in the US. The North American Free Trade Agreement (NAFTA) also covers TPAD by affirming, in Article 317, the signatory parties' commitment to §.14 of the 1994 GATT Agreement on Implementation of Article VI.

In the New Zealand case, §18 of the Dumping and Countervailing Duties Act 1988 allows that NZ's AD law can be applied on behalf of foreign complainant firms just as if they were NZ firms (and there is nothing to specify the nature of 'material injury' any differently for such firms.) Furthermore, Article 15:8 of the Australia New Zealand Closer Economic Relations Trade Agreement (ANZCERTA or just CER) states the following: "[i]f a Member State…is of the opinion that goods imported into the territory of the other Member State from outside the Area are being dumped and that this dumping is causing …or threatening to cause material injury to an industry located in the first Member State, the other Member State shall, at the

written request of the first Member State examine the possibility of taking action, *consistent with its international obligations*, to prevent material injury" (italics added.)

One argument that has been made for TPAD[4] is that it can be used to offset possible intermediate good problems: a NZ firm could get access to cheap, dumped, imported inputs and thereby have an 'unfair' advantage over an Australian rival in the final product market. This is addressed explicitly in Article 14 of the CER, which deals with intermediate goods problems: where the Member States policies' enable producers in one country to obtain intermediate goods "at lower prices or more favourable terms" than producers in the other. Section 4 of that Article covers remedies the Parties may seek and subsection (d) allows for, "initiation by the other Member State of anti-dumping or countervailing action in respect of goods imported from third countries *in so far as this action would be consistent with other international obligations*" (italics added.)

Since 1990 there have been four cases of TPAD brought in NZ, all on behalf of Australian firms, and I can find no evidence of any other TPAD initiations world-wide.[5] In none of these four cases has the intermediate goods issue been relevant. Furthermore, such a TPAD case would presumably be brought on behalf of the final-good producer, but AD cases require that material injury (or its threat) be demonstrated by producers of "like goods" to the allegedly dumped good, so it is not clear how such a case could be argued under AD law.

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[4] I am grateful to Peter Lloyd for drawing this to my attention.
[5] "[I]n 1993… an application [was received] from a New Zealand industry… for an investigation into alleged dumping…of goods into Australia which were claimed to be injuring the New Zealand industry. The application was referred to the Australian authorities but was subsequently withdrawn and replaced by an amended application in 1994. The amended application was also referred to the Australian authorities, but was also subsequently withdrawn. In neither case, therefore, was an investigation initiated." Correspondence from Martin Garcia, Ministry of Economic Development, Wellington NZ.

None of the four NZ cases has led to the imposition of AD duties and the reason may lie in the CER requirement that any such actions are consistent with the countries' GATT obligations. Article 14.4 of the GATT Agreement on Anti-Dumping notes that if a case *is* taken against another WTO member it must then be approved by the WTO Council for Trade in Goods (CTG). As the Council operates on a consensus basis, it could generally be vetoed by the dumping country and, perhaps for this reason, NZ has never taken a TPAD case to the Council.

The first case brought in NZ was in 1992 and concerned plaster of Paris bandages from Germany. The Ministry of Commerce (now Ministry for Economic Development) investigation concluded that dumping of the product in the NZ market had occurred, that it had not caused material injury to the Australian complainant but that it did constitute a *threat* of material injury. Accordingly, their recommendation to the relevant Minister was that the possibility of TPAD duties should be investigated. However, the exporter responded by increasing their price to non-dumping levels and no further action was taken.

The next case brought in NZ is one to which we have already referred: a case brought by Pilkington Australasia Ltd. in 1997 against clear float glass from Thailand, China and Indonesia being dumped in NZ. The investigation in this case found dumping and actual material injury to PAL and again recommended to the Minister that AD duties be considered. The Minister dropped Indonesia from the investigation on the grounds that the volume of dumped exports was insignificant, but decided (with the support of the Australian government) to pursue the possibility of levying AD duties on China and Thailand. Consultations were entered into with both countries and Thailand made it clear that they would block any consensus in the

WTO's CTG to authorise AD duties. The Minister decided not to approach the CTG for approval for such TPAD duties and so not to impose any duties in this case.

In 1999 another TPAD investigation was commenced at the instigation of the Australian government on behalf of Merck Sharp & Dohme Australia Pty Ltd alleging the dumping in NZ of ACE inhibitors (a pharmaceutical) from Germany and Switzerland. And in 2000 a further TPAD investigation was commenced at the instigation of the Australian government on behalf of Amoco Chemicals Pty Ltd, an Australian firm, alleging the dumping in NZ of primary carpet backing fabric from Saudi Arabia – a preliminary report found that dumping had occurred but no evidence of damage or threat of damage to the Australian industry was determined. Both of these investigations were terminated due to the withdrawal of the respective applications by the Australian producer in question.

To summarise, then, while a number of TPAD actions have been brought they have not resulted in any AD duties. Nevertheless, the fact that they were brought at all indicates that the complainants, at least, either anticipated some success (and, in the plaster of Paris case, achieved it) or brought them for harassment value.[6]

In the model that follows we assume that if TPAD actions are brought they will be successful where dumping actually occurs, but it should be borne in mind that the practical experience with TPAD has indicated that success is much less automatic! Furthermore, experience with TPAD, at least in Australasia, has been that it is not invoked for intermediate goods (the exception being the carpet backing case but the complainant therein was as Australian producer of carpet backing, not carpets.) One further wrinkle in the following model that is at odds with the reality of TPAD: we assume that the only relevant damage to the complainant firm is that which occurs in

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[6] See Prusa (1992) for discussion of the harassment value of AD actions.

the importing country; in reality, the damage assessment in CER TPAD cases considers the impact of dumping in, say, NZ on the performance of a complainant in the entire Australia-New Zealand market. In the context of our model these are the same thing.

3. The argument and a model

We first outline the basic argument we shall make here. Suppose, for concreteness, that an Australian firm and, say, a Thai firm could serve NZ either by exports or by establishing a subsidiary in NZ. In the absence of NZ TPAD suppose the equilibrium is such that the Australian firm establishes a subsidiary in NZ but the Thai firm does not. This enables the Australian firm to use NZ's regular AD law against the Thai firm and will tend to give high variable profits for the Australian firm in NZ but also means incurring the fixed costs of establishing a subsidiary. Allowing TPAD then enables the Australian firm to shut down its subsidiary (saving these fixed costs) and serve NZ from Australia, but to maintain high profits in NZ as the Thai firm must keep its prices high in NZ to avoid a TPAD case. From the joint perspective of Australia and NZ, then, if the subsidiary was an inefficient decision to start with (driven by a desire to pre-empt the Thai firm or to exploit AD rules in NZ) then its closure can represent a welfare improvement. Furthermore, it is also possible that NZ welfare alone could increase: if the NZ market is sufficiently small that a low-cost supplier can effectively capture the entire market then the establishment of a subsidiary in NZ can lead to monopoly prices. When the subsidiary is closed duopoly competition is restored and prices can fall. We now turn to a formal model to demonstrate these results.

Suppose we have three countries, A, B and C. There is some good, x, which is consumed in all three countries but, initially, produced only in A and C. So A takes the role of Australia in our earlier discussion of the NZ cases, B is New Zealand and C represents the rest of the world. The single producer in each of A and C can serve the market in B either through exports from their respective home countries or, potentially, by establishing a plant in B at cost F_j, j=A,C. So in each case below we have four configurations to consider: neither firm establishes a subsidiary in B, only A's firm does, only C's firm does or both firms do. We assume the following three-stage timing: the firm from country A first decides whether or not to establish a subsidiary in B, the firm from country C then decides whether or not to establish a subsidiary in B and finally the firms then play Cournot simultaneously in all markets.

The constant marginal cost of production for each firm in any plant is c_i=c, i=A,C and the firm in A, perhaps because of prohibitive trade policy in C, never sells into country C. The per-unit cost of shipping from j=A,C to B is given by t_j where t_A<t_C and an exporter from j also incurs a fixed cost of M_j which represents the cost of establishing the export market. As firm C's market is largely irrelevant throughout this analysis we suppose its price is fixed, perhaps through international competition, at $\underline{p}$. (Inverse) demand in country i=A,B is given by $p^i=\alpha^i-\beta Q^i$ where $Q^i \equiv q_A^i + q_C^i$, q_j^i denotes sales from country j's firm in country i, j=A,C and B is the smallest market: $\alpha^B<\alpha^A$. Generally, subscripts denote country of origin, superscripts country of operation. In country B, sales from either A or C could be due to exports from the home country or could be made from a local subsidiary in B.

As all competition is Cournot so, if a firm with effective MC=c_i (i.e. including any transport costs) and one with MC=c_j compete in market X, then, in equilibrium,

$$q_i^X = \frac{1}{3\beta}\left(\alpha^X - 2c_i + c_j\right) \quad Q^X = \frac{1}{3\beta}\left(2\alpha^X - \left(c_i + c_j\right)\right) \quad p^X = \frac{1}{3}\left(\alpha^X + \left(c_i + c_j\right)\right)$$

<div align="right">(*)</div>

$$\pi_i^X = \frac{1}{9\beta}\left(\alpha^X - 2c_i + c_j\right)^2 \quad \text{and} \quad CS^X = \frac{1}{18\beta}\left(2\alpha^X - \left(c_i + c_j\right)\right)^2$$

all for i,j=A,C $i \neq j$, in self-explanatory notation (except that π_i^X denotes operating

profits of firm i in country X excluding any fixed costs.) As our interest is in

dumping, we suppose that the price in C is greater than the price that would prevail in

A if served from A and C.[7] That is, we suppose throughout that $\underline{p} > \frac{1}{3}\left(\alpha^A + 2c + t_C\right)$.

In this Cournot setting we capture the effect of AD as follows. If, say, the firm

from country C is dumping in A (i.e. $p_C^A < \underline{p}$) then the effect of an AD action is that C

must set its sales in A such that the total quantity sold in A, including firm A's

optimal output, is such that $p^A = \underline{p}$. Diagrammatically, if the firms' initial reaction

functions are R_A and R_C, as shown below, yielding a Nash equilibrium of N and total

sales in A of Q_N^A, then an AD action transforms C's reaction function into R_C'

yielding an equilibrium at D and total sales in A of Q_D^A, where $\alpha^A - \beta Q_D^A = \underline{p}$:
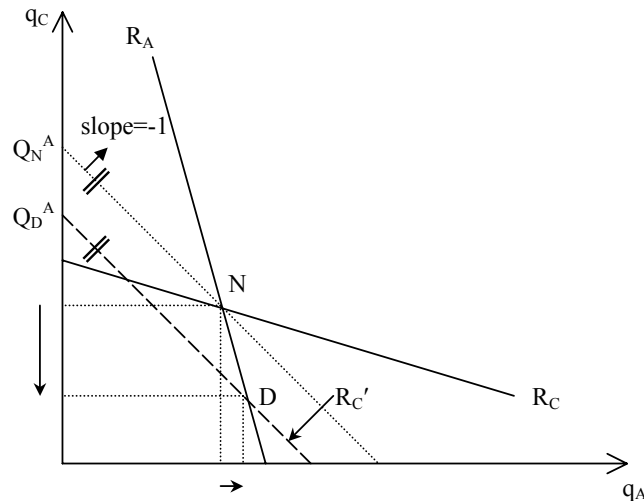
[7] For simplicity we assume that the relevant domestic price of an import good for AD purposes is the c.i.f. price; that is, we do not look at the price net of transport costs.

Note that this approach means that an AD action is always beneficial for the complainant and harmful for the dumper – there is no facilitating aspect to the AD procedure, in contrast to some of the literature.

A. No TPAD

(i) No subsidiaries

If neither A's firm nor C's firm establishes a subsidiary in B then B is served by exports and C sells into A directly from C. In B's market, then, $c_A=c+t_A$ and $c_c=c+t_c$ so, in the absence of any AD actions, we would have:

$$q_j^B = \frac{1}{3\beta}\left(\alpha^B - c - 2t_j + t_i\right) \quad Q^B = \frac{1}{3\beta}\left(2\alpha^B - (2c + t_A + t_C)\right)$$

$$p^B = \frac{1}{3}\left(\alpha^B + (2c + t_A + t_C)\right) \quad \Pi_j^B = \frac{1}{9\beta}\left(\alpha^B - c - 2t_j + t_i\right)^2 - M_j \quad \text{and} \tag{1}$$

$$W^B = CS^B = \frac{1}{18\beta}\left(2\alpha^B - (2c + t_A + t_C)\right)^2$$

all for i,j=A,C i≠j.

Here Π_j^B denotes the full profit of the firm from country *j* selling in market B, including the fixed costs of marketing from home or establishing a subsidiary in B.

We suppose throughout this section that all countries have non-discriminatory AD policies in place. So in A's market we have sales from A's firm at marginal cost $c_A=c$ and sales from C's firm at marginal cost $c_C=c+t_C$. This will lead to a price that is less than $\underline{p}$; accordingly an AD action brought by A's firm will raise the price to $\underline{p}$.

Firm A's reaction function is given by $q_A^A = \frac{1}{2}\left(\frac{\alpha^A - c}{\beta} - q_C^A\right)$ but the AD action means

that C must choose output such that $\alpha^A - \beta(q_A^A + q_C^A) = \underline{p}$ or $q_C^A = \left(\frac{\alpha^A - \underline{p}}{\beta} - q_A^A\right)$. Hence:

$$q_A^A = \frac{1}{\beta}\left(\underline{p} - c\right) \quad q_C^A = \frac{1}{\beta}\left(\alpha^A + c - 2\underline{p}\right) \quad Q^A = \frac{1}{\beta}\left(\alpha^A - \underline{p}\right) \quad p^A = \underline{p}$$

$$\Pi_A^A = \frac{1}{\beta}\left(\underline{p} - c\right)^2 \quad \Pi_C^A = \frac{1}{\beta}\left(\alpha^A + c - 2\underline{p}\right)\left(\underline{p} - (c + t_c)\right) \text{ and} \qquad (2)$$

$$CS^A = \frac{1}{2\beta}\left(\alpha^A - \underline{p}\right)^2$$

In sum, then,

$$\Pi_A = \Pi_A^1 = \frac{1}{9\beta}\left[\left(\alpha^B - c - 2t_A + t_C\right)^2 + 9\left(\underline{p} - c\right)^2\right] - M_A$$

$$\Pi_C = \Pi_C^1 = \frac{1}{9\beta}\left[\left(\alpha^B - c - 2t_C + t_A\right)^2 + 9\left(\underline{p} - (c + t_C)\right)\left(\alpha^A + c - 2\underline{p}\right)\right] - M_C$$

$$(3)$$

$$CS^A = CS_1^A = \frac{1}{2\beta}\left(\alpha^A - \underline{p}\right)^2 \quad \text{and}$$

$$W^B = W_1^B = CS^B = CS_1^B = \frac{1}{18\beta}\left(2\alpha^B - \left(2c + t_A + t_C\right)\right)^2$$

(ii) A alone establishes a subsidiary in B

Now things are unchanged in country A, so values of variables in country A are as given in (2). But in country B the firm from A serves the market at a MC of $c_A = c$. Because B's market is so small, we assume that, while the firm from country C is profitable competing in B against a rival exporting from A, it would make losses in B if it were to attempt to compete, subject to an AD action, against a *subsidiary* of A's. That is, we suppose that $\pi_C^B(c_A, c_C) - M_C = \pi_C^B(c, c + t_C) - M_C < 0$. That is,

$$M_C > \frac{1}{9\beta}\left(\alpha^B - 2t_C - c\right)^2. \text{ Accordingly, A makes monopoly profits in B:}$$

$$q_A^B = Q^B = \frac{1}{2\beta}\left(\alpha^B - c\right) \quad p^B = \frac{1}{2}\left(\alpha^B + c\right) \quad \Pi_A^B = \frac{1}{4\beta}\left(\alpha^B - c\right)^2 - F_A \quad \text{and}$$

(4)

$$CS^B = \frac{1}{8\beta}\left(\alpha^B - c\right)^2$$

In sum, then,

$$\Pi_A = \Pi_A^2 = \frac{1}{\beta}\left[\frac{1}{4}\left(\alpha^B - c\right)^2 + \left(\underline{p} - c\right)^2\right] - F_A$$

$$\Pi_C = \Pi_C^2 = \frac{1}{\beta}\left[\left(\underline{p} - (c + t_C)\right)\left(\alpha^A + c - 2\underline{p}\right)\right]$$

(5)

$$CS^A = CS_2^A = \frac{1}{2\beta}\left(\alpha^A - \underline{p}\right)^2 = CS_1^A \quad \text{and}$$

$$W^B = W_2^B = CS_2^B = \frac{1}{8\beta}\left(\alpha^B - c\right)^2$$

(iii) C alone establishes a subsidiary in B

Now in country B the firm from C serves the market at a MC of $c_A = c$ and, symmetrically to the previous case, we assume that the firm from country A would also make losses in B if it were to attempt to compete, subject to an AD action, against a *subsidiary* of C's. That is, we suppose that $M_A > \frac{1}{9\beta}\left(\alpha^B - 2t_A - c\right)^2$.

Accordingly, C makes monopoly profits in B.

As far as the market in A is concerned, however, firm C has two choices: it can serve it from home, facing an AD action as in the previous cases, or it can serve it more cheaply by exporting from its subsidiary in B (and incurring per-unit transport costs $t_A < t_C$). In this latter case, however, it may still face an AD action in A. We consider this case first. The "naïve" optimal price to set in B for C's monopolist subsidiary is, as before, $p^B = \frac{1}{2}\left(\alpha^B + c\right)$ and if C exports to A from B Cournot

competition in A will yield $p^A = \frac{1}{3}\left(\alpha^A + 2c + t_A\right)$. So we will observe an AD action

by A against C's subsidiary in B if $3\alpha^B > 2\alpha^A + c + 2t_A$ which we henceforth assume is

the case. Accordingly, and analogously to (2), total equilibrium output in A will be

$$Q^A = \frac{1}{\beta}\left(\alpha^A - p^B\right) \Rightarrow p^A = p^B \text{ and C's sales in A will be } q_C^A = \frac{1}{\beta}\left(\alpha^A + c - 2p^B\right).$$

Firm C's subsidiary's profits in A then depend on the price it sets in B and its

aggregate profits can then be written as:

$$
\begin{aligned}
\Pi_C &= \left(\alpha^B - \beta q_C^B - c\right)q_C^B + \left(p^B - t_A - c\right)q_C^A \\
&= \left(\alpha^B - \beta q_C^B - c\right)q_C^B + \frac{1}{\beta}\left(\alpha^B - \beta q_C^B - c - t_A\right)\left(\alpha^A + c - 2\alpha^B + 2\beta q_C^B\right)
\end{aligned}
\tag{6}
$$

Maximisation of this with respect to sales in B yields the following:

$$q_C^B = \frac{1}{6\beta}\left(5\alpha^B - 4c - 2t_A - \alpha^A\right) \Rightarrow p^B \equiv \underline{\underline{p}} = \frac{1}{6}\left(\alpha^A + \alpha^B + 4c + 2t_A\right) \tag{7}$$

and overall we have the following:

$$\Pi_A = \Pi_A^3 = \frac{1}{\beta}\left(\underline{\underline{p}} - c\right)^2$$

$$\Pi_C = \Pi_C^3 = \frac{1}{2\beta}\left[\left(\underline{\underline{p}} - (c + t_A)\right)\left(\alpha^A + c - 2\underline{\underline{p}}\right) + \left(\underline{\underline{p}} - c\right)\left(\alpha^A + 4c + 2t_A - 5\alpha^B\right)\right] - F_C \tag{8}$$

$$CS^A = CS_3^A = \frac{1}{2\beta}\left(\alpha^A - \underline{\underline{p}}\right)^2 \quad \text{and}$$

$$W^B = W_3^B = CS_3^B = \frac{1}{12\beta}\left(\alpha^B - \underline{\underline{p}}\right)\left(5\alpha^B - 4c - 2t_A - \alpha^A\right)$$

The other alternative is that C simply reaps monopoly profits in B and serves

A's market, subject to an AD action, from C. In this case its profits in B will simply

be $\Pi_C^B = \frac{1}{4\beta}\left(\alpha^B - c\right)^2 - F_C$ and its profits in A will be, as in (2),

$\Pi_C^A = \dfrac{1}{\beta}\left(\alpha^A + c - 2\underline{p}\right)\left(\underline{p} - (c + t_c)\right)$. Thus, for the firm to serve A's market from its

subsidiary in B, we assume henceforth that the following holds:

$$\Pi_C^3 > \frac{1}{4\beta}\left[4\left(\underline{p} - (c + t_C)\right)\left(\alpha^A + c - 2\underline{p}\right) + \left(\alpha^B - c\right)^2\right] - F_C \qquad (9)$$

(iv) Both firms establish a subsidiary in B

It might seem that we could never observe both firms with subsidiaries in B given that

when one sets up and the other competes through exports the latter's profits are less

than the marketing cost of exporting. However, if both establish then they both serve

the market at a marginal cost of only *c* which yields lower prices but higher profits so

it is possible that operating profits in B now exceed the fixed cost of establishing a

subsidiary.

    The problem facing A's firm now is:

$$\underset{\{q_A^A, q_A^B\}}{Max}\, \Pi_A = \left(\alpha^B - \beta\left(q_A^B + q_C^B\right) - c\right)q_A^B + \left(\alpha^A - \beta\left(q_A^A + q_C^A\right) - c\right)q_A^A - F_A \qquad (10)$$

The problem facing C's firm, however, is again complicated by the choice of source

country from which to serve A's market. Suppose, first, that it serves A from its lower

transport-cost source: its subsidiary in B. Then it faces the following problem:

$$\underset{\{q_C^B\}}{Max}\, \Pi_C = \left(\alpha^B - \beta\left(q_A^B + q_C^B\right) - c\right)q_C^B + \left(\alpha^A - \beta\left(q_A^A + q_C^A\right) - t_A\right)q_C^A - F_C \qquad (11)$$

Solving these problems yields $p^A = \dfrac{1}{3}\left(\alpha^A + 2c + t_A\right) > \dfrac{1}{3}\left(\alpha^B + 2c\right) = p^B$ so there is no

dumping issue. In sum, then, we have the following:

$$\Pi_A = \Pi_A^4 = \frac{1}{9\beta}\left[\left(\alpha^B - c\right)^2 + \left(\alpha^A - c + t_A\right)^2\right] - F_A$$

$$\Pi_C = \Pi_C^4 = \frac{1}{9\beta}\left[\left(\alpha^B - c\right)^2 + \left(\alpha^A - c - 2t_A\right)^2\right] - F_C$$

$$CS^A = CS_4^A = \frac{1}{18\beta}\left(2\alpha^A - 2c - t_A\right)^2 \quad \text{and}$$ (12)

$$W^B = W_4^B = CS^B = CS_4^B = \frac{2}{9\beta}\left(\alpha^B - c\right)^2$$

The other alternative for C's firm, however, is to serve A's market from C in which case equilibrium in A is as described in (2) and C's subsidiary in B faces the following simple problem:

$$\underset{\{q_C^B\}}{Max} \Pi_C = \left(\alpha^B - \beta\left(q_A^B + q_C^B\right) - c\right)q_C^B - F_C$$ (13)

Solving (13) and (10) we get:

$$q_C^B = q_A^B = \frac{1}{3\beta}\left(\alpha^B - c\right) \Rightarrow p^B = \frac{1}{3}\left(\alpha^B + 2c\right) \Rightarrow \pi_j^B = \frac{1}{9\beta}\left(\alpha^B - c\right)^2 - F_j, \; j\text{=A,C}$$ (14)

For C's firm, then, this strategy yields profits in B as given in (14) and profits in A as given in (2). For serving A from B to be an equilibrium choice, then, we assume henceforth that the following holds:

$$\Pi_C^4 > \frac{1}{9\beta}\left[9\left(\underline{p} - \left(c + t_C\right)\right)\left(\alpha^A + c - 2\underline{p}\right) + \left(\alpha^B - c\right)^2\right] - F_C$$ (15)

(v) Equilibrium with no TPAD

We summarise this case, then, as follows.

(i)   When neither firm establishes a subsidiary in B they each compete there (incurring marketing costs) with marginal costs equal to production costs plus their respective transport costs. In A's market C's firm finds itself subject to

an AD action and so its output is reduced (while A's expands) until the price there equals that in country C.

(ii)   When A alone establishes a subsidiary in B it incurs some fixed cost to do so but then saves its marketing costs and lowers its marginal cost in that market. It lowers it sufficiently, in fact, that C's firm cannot compete at its higher effective marginal cost so A's firm is a monopolist in B. In A things are exactly the same as in case (i).

(iii)   If only C were to establish a subsidiary in B then it would become the local monopolist. This does not leave things unchanged in A, however: when C's firm attempts to serve the market in A from its subsidiary in B (which is lower-cost than its plant at home in C, due to lower transport costs between A and B than between A and C) it will face an AD action. So this affects its choice of quantity (and hence price) in B and thus in A.

(iv)   Finally, if both firms set up subsidiaries in B then each gets lower marginal costs there (production costs only) and B will now *not* face an AD action from A if it attempts to serve A's market from B, its lowest-cost source, as the price in B is lower than that in A.

We assume parameter values are such that case (ii) prevails: A chooses to establish a subsidiary in B and C does not. C then serves only the market in A and A serves each market from on site. In addition to the assumptions already made, then, necessary conditions for this to hold are that $\Pi_A^2 > \Pi_A^3$ if $\Pi_C^3 > \Pi_C^1$ and $\Pi_A^2 > \Pi_A^1$ if $\Pi_C^1 > \Pi_C^3$, which ensures that A prefers a subsidiary to no subsidiary, and that $\Pi_C^2 > \Pi_C^4$ which ensures that C's best response to A's subsidiary is to not establish a subsidiary itself.

B. TPAD permitted between A and B

We now suppose that countries A and B sign a reciprocal TPAD agreement. The consequences of this for our outcomes above will be zero in every case but the first as that is the only case in which country C serves country B through exports.

(i) No subsidiaries

The effects of allowing TPAD here will be that the firm from country A can now force C's firm to price in B as it does in C. This clearly benefits A's firm while harming C's firm. As in our discussion above, the threat of a TPAD action from A gives the following reaction functions for the two firms' operations in B:

$$q_A^B = \frac{1}{2}\left(\frac{1}{\beta}\left(\alpha^B - c - t_A\right) - q_C^B\right)$$

(16)

$$q_C^B = \frac{\alpha^B - \underline{p}}{\beta} - q_A^B$$

Solving these gives $q_C{}^B=(\alpha^B+c+t_A-2\underline{p})/\beta$ and $q_A{}^B=(\underline{p}-c-t_A)/\beta$ from which we get:

$$\pi_A^B = \frac{1}{\beta}\left(\underline{p} - c - t_A\right)^2 \qquad \pi_C^B = \frac{1}{\beta}\left(\underline{p} - c - t_C\right)\left(\alpha^B + c + t_A - 2\underline{p}\right)$$

(17)

$$CS^B = \frac{1}{2\beta}\left(\alpha^B - \underline{p}\right)^2$$

All other values are as in the previous case with no TPAD, hence, in summary:

$$\Pi_A = \Pi_A^5 = \frac{1}{\beta}\left[\left(\underline{p} - c - t_A\right)^2 + \left(\underline{p} - c\right)^2\right] - M_A$$

$$\Pi_C = \Pi_C^5 = \frac{1}{\beta}\left[\left(\underline{p} - (c + t_C)\right)\left(\alpha^A + \alpha^B + 2c + t_A - 4\underline{p}\right)\right] - M_C$$

(18)

$$CS^A = CS_1^A = \frac{1}{2\beta}\left(\alpha^A - \underline{p}\right)^2 \quad \text{and}$$

$$W^B = W_1^B = CS^B = CS_1^B = \frac{1}{2\beta}\left(\alpha^B - \underline{p}\right)^2$$

The effect of allowing TPAD, then, is simply to make the establishment of a subsidiary by A less attractive – with TPAD in place it can raise the price charged in B without incurring the costs of establishing a subsidiary in A. If it makes it so attractive that A chooses not to establish a subsidiary in B then, while this is good for welfare in A, as the firm's profits rise if this is an attractive strategy, it turns out that it can also be good for B: when A does not establish a subsidiary B's consumers no longer face a monopoly but, rather, a duopoly. This duopoly is not as competitive as they might like, as C is subject to a TPAD action but, nevertheless, it may well be better than a monopolist (only *may* be better, because the monopolist is at least low-cost, serving the market at a marginal cost of *c*.)

This outcome – the introduction of TPAD leading A's firm to shut down its subsidiary – is more likely the greater are A's fixed costs of establishing a subsidiary relative to its marketing costs (F_A versus M_A) and the lower is the price in B in the absence of TPAD – the TPAD action then raises A's profits in B more significantly. Furthermore, this also requires that establishing a subsidiary in B is not attractive to C which will be the case if their fixed costs are substantial, relative to the difference in transport costs t_C and t_A, and if an AD action taken by A against exports from B's subsidiary is costly.

C. A numerical example

As the algebraic comparisons required above are too messy to yield much insight, we have constructed a simple numerical example to illustrate that the case we discuss above is at least possible. We assume the parameter values shown in Table One. These values satisfy all the restrictions discussed in the earlier analysis: α^B is sufficiently high that, absent AD actions, A and B's prices would be such that

dumping occurs from B to A when only C has a subsidiary; the price in C is set

sufficiently high that there would be dumping from C into A, absent AD restrictions;

and the two marketing costs are sufficiently large that neither firm from A or C can

compete from home in B with a rival's subsidiary so such a single subsidiary would

be a monopolist. Furthermore, these numbers yield results such that C would choose

to serve A from country B rather than from country C if it had a subsidiary in B, as

assumed in our analysis above.

Table One: simulation parameter values	
Variable	Value
α^A	25
α^B	24.5
β	2
c	2
t_A	5
t_C	6
p_C	13.2
F_A	59.4
F_C	69
M_A	15.2
M_C	11.7

Our results are summarised in Table Two where equilibrium values are

highlighted. In the absence of TPAD, then, it is a dominant strategy for C to not have

a subsidiary in B (1.56>-31.49 and 3.21>1.84) and firm A chooses to locates a

subsidiary in B for aggregate profits of 66.6 versus 66.53 with no subsidiary. When

TPAD is allowed, however, while C's strategy is unchanged, it now pays A to *not*

establish a subsidiary for aggregate profits of 66.7 versus 66.6. The main savings for

the firm in A are the fixed costs associated with serving B through exports rather than

a subsidiary. The price in B falls with this, note, and it turns out that B's welfare

(consumers' surplus) rises (from 31.64 to 31.92) while A's welfare rises by the

increase in A's firm's profit – there is no change in consumers' surplus in A because

the price there is pinned down by its AD action against C. Joint welfare of A and B,

then, can be shown to rise (from 133.05 to 133.47.)

Table Two: simulation results				
Scenario	No TPAD		TPAD permitted	
(i) No subs	p^A	13.2	p^A	**13.2**
	p^B	13.17	p^B	**13.2**
	p^C	13.2	p^C	**13.2**
	π^A	66.53	π^A	**66.7**
	π^C	3.21	π^C	**3.12**
(ii) A sub only	p^A	**13.2**	p^A	13.2
	p^B	**13.25**	p^B	13.25
	p^C	**13.2**	p^C	13.2
	π^A	**66.6**	π^A	66.6
	π^C	**1.56**	π^C	1.56
(iii) C sub only	p^A	11.25	p^A	As at left
	p^B	11.25	p^B	As at left
	p^C	13.2	p^C	As at left
	π^A	42.78	π^A	As at left
	π^C	1.84	π^C	As at left
(iv) Both subs	p^A	11.33	p^A	As at left
	p^B	9.5	p^B	As at left
	p^C	13.2	p^C	As at left
	π^A	12.28	π^A	As at left
	π^C	-31.49	π^C	As at left

4. A fly in the ointment

One practical feature of the Australia-NZ situation that we have not so far considered

is that, in 1990, the two countries agreed to abolish AD between them (leaving

predation to be dealt with, appropriately, by competition law.) This will change our

results derived earlier, with and without TPAD, only when C alone[8] establishes a

subsidiary in B, as it can now serve the market in A from that subsidiary with no fear

of an AD action.

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[8] When both establish subsidiaries the price in B will be less than that in A so AD will be irrelevant.

C alone establishes a subsidiary in B

In the case where C alone establishes a subsidiary in B, it now obtains monopoly profits there and, in A, all outcomes are described by a regular Cournot equilibrium with C's marginal costs being $c+t_A$ and A's being just c. In sum, then,

$$\Pi_A = \Pi_A^6 = \frac{1}{9\beta}\left(\alpha^A - c + t_A\right)^2$$

$$\Pi_C = \Pi_C^6 = \frac{1}{9\beta}\left(\alpha^A - c - 2t_A\right)^2 + \frac{1}{4\beta}\left(\alpha^B - c\right)^2 - F_C \qquad (19)$$

$$CS^A = CS_6^A = \frac{1}{8\beta}\left(\alpha^B - c\right)^2 \quad \text{and} \quad W^B = W_6^B = CS_6^B = \frac{1}{8\beta}\left(\alpha^B - c\right)^2 = W_2^B$$

Allowing TPAD makes no difference to this, as C is not selling into B from abroad.

The only possible effect abolishing 'internal' AD can have for our analysis of TPAD is to make the establishment of a subsidiary by C more attractive. So either it has no consequences for our earlier results (if the increased profitability from establishing a subsidiary is small) or it will tempt C to establish a subsidiary. In the latter case the no-TPAD case has a monopolist in B – either A's subsidiary or B's – and TPAD is irrelevant: there are no sales from C into B. In a sense, then, the absence of internal AD makes our earlier, highly improbable result (that TPAD can raise joint welfare and even the importing country's welfare) even less likely.

In our numerical example it turns out that, while A would prefer to remove its subsidiary when TPAD is introduced, it nevertheless maintains its subsidiary to pre-empt C; TPAD has no observable effect at all. This is shown in Table Three. Even though, with TPAD, A would now prefer no subsidiary if C had none (66.7>66.6), C's profits are still enhanced by establishing a subsidiary if A does not (3.67>3.12); hence, given our timing assumptions, A will maintain a subsidiary even when TPAD is introduced, to pre-empt C (66.6>43.56). This is a 'fly in the ointment' in that the

cases discussed earlier all occur within this setting. The implication for the analysis is that the introduction of TPAD can never be welfare-improving for B here: either it has no effect, as in this numerical example, or it simply induces a change in monopolist for B with no welfare effect. It *can* raise joint welfare of A and B still, however, by increasing the profits of A's firm.

Table Three: simulation results with no A-B AD				
Scenario	No TPAD		TPAD permitted	
(i) No subs	p^A	13.2	p^A	13.2
	p^B	13.17	p^B	13.2
	p^C	13.2	p^C	13.2
	π^A	66.53	π^A	66.7
	π^C	3.21	π^C	3.12
(ii) A sub only	p^A	**13.2**	p^A	**13.2**
	p^B	**13.25**	p^B	**13.25**
	p^C	**13.2**	p^C	**13.2**
	π^A	**66.6**	π^A	**66.6**
	π^C	**1.56**	π^C	**1.56**
(iii) C sub only	p^A	11.33	p^A	As at left
	p^B	13.25	p^B	As at left
	p^C	13.2	p^C	As at left
	π^A	43.56	π^A	As at left
	π^C	3.67	π^C	As at left
(iv) Both subs	p^A	11.33	p^A	As at left
	p^B	9.5	p^B	As at left
	p^C	13.2	p^C	As at left
	π^A	12.28	π^A	As at left
	π^C	-31.49	π^C	As at left

5. Summary and conclusion

After a review of TPAD legislation and some Australia-New Zealand cases, this paper has presented a stylised model to illustrate the *possibility* that allowing TPAD could be welfare-improving from the joint perspective of two countries and even from the perspective of the importing country alone. A numerical example was constructed to illustrate this case.

The central questions here, of course, are just how *likely* is this case and are there better policies than TPAD? On the former, the case in which the mutual welfare of A and B could be enhanced by TPAD does not seem too obscure – if A sets up in B primarily to establish a domestic presence to exploit AD rules (and there is certainly evidence that AD laws can affect firms' locational decisions – see Belderbos *et al* (2004), Blonigen (2002) and references therein, although this is evidence on AD-duty *jumping*, not exploitation) then TPAD, by undoing that, can be a useful policy. This reasoning makes it clear, however, that this argument for TPAD is very much a second-best argument and would be dominated by simply abolishing AD altogether (for all the reasons economists have advanced for years.) In such a case, A's incentive to set up inefficiently in B in the first place would be removed. Furthermore, any possible benefits of TPAD in this setting must be weighed against the harmful aspects of TPAD (those of AD policy generally) when used in contexts where international relocation is not an issue.

How likely is it that TPAD can raise welfare in B? We have made no secret of the fact that the scenario we set up here is very special. For TPAD to improve welfare in the importing country it must be that it leads to a fall in prices. This is not the usual consequence of AD actions and only occurs here because of the special parameter assumptions we have made which ensure that any production facility in B would operate as a monopolist. This is possible, of course, if there are substantial transport costs (so the local producer has a big cost advantage) and substantial marketing costs associated with exporting (so foreign competitors stay out, in anticipation of variable profits, in competition with the low-cost local producer, too small to cover these costs).

Two final conclusions follow. First, from a practical perspective there are institutional barriers to TPAD that make it effectively unworkable (namely, the requirement that GATT members get CTG approval) and so unlikely to be of serious concern. Second, from a theoretical perspective, our analysis does suggest that, undesirable though TPAD might generally be for an importing country, it is likely to be more attractive in a free trade area where one might more sensibly argue that policy is set from the welfare perspective of countries jointly.

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