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# **IS STRATEGIC TRADE POLICY RELEVANT FOR A SMALL COUNTRY?\***

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## **ABSTRACT**

Recent developments in trade theory and practice indicate that superior performance in international markets may not necessarily be attributed to underlying comparative advantages of the exporters but to their activist trade policy actions. This paper seeks to explore the potential role for strategic trade policy for a small country. To that end, conditions under which a small country can enhance 'the importance of being unimportant' are specified. The central focus of the analysis is on the dynamic game and commercial policy considerations. The trade policy implications for Australian agriculture and the overall economy are discussed.

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## IS STRATEGIC TRADE POLICY RELEVANT FOR A SMALL COUNTRY?

World trade has always experienced, right back to the mercantilist days, significant levels of government intervention inhibiting the free exchange of goods. The GATT, which has existed for over 40 years, has helped to reduce the degree of activist policies in trade, but it is under severe pressure to survive due to the conflicting protectionist policies of various member countries. Active protectionist programs are widely pursued by countries with little or no apparent world market power with tariffs and subsidies or other trade-distorting policies forming the heart of such programs. This is inconsistent with neoclassical economic theory which implies that there is little role for activist policy in trade. However, there has been a vast literature in the past two decades that has brought to light various justifications for activist policies in trade. Most of these insights have been directed at large countries with significant market power.

This paper attempts to specify the conditions under which it would be desirable for an activist trade policy to be pursued by a small country. Theoretical considerations are discussed first. The arguments for and against strategic trade are then discussed and applied to the small country case. Subsequently, the Australian wheat industry is used to illustrate an example of strategic trade for a small country prior to conclusion.

### *Theoretical Observations*

The theory of comparative advantage postulates that a country can gain from trade, due to differences in tastes, technology or factor endowments, even if it has no absolute advantage in producing any good or has advantage in producing every good. According to this theory, there is no justification for intervention in trade on economic grounds, although, distributional grounds are a different matter and do provide governments with a role for compensating losers via taxing gainers.

Under certain conditions, there may be a role for an activist trade policy which can be defined as a strategic trade policy (STP). Many writers (see, for example, Krugman 1987; Baldwin and Flam 1989; Crook 1990; Baldwin 1992) have defined STP to mean government intervention in markets that are characterised by imperfect competition. However, this definition is rather narrow, as a strategy is a set of actions taken by agents to accomplish their objectives within a set of structural constraints. Strategic moves can, thus, be taken to include any attempt affecting a rival's behaviour (Warsh 1989, p87) and, as such, STP can be defined to be any activist policy, whether it be by a government

or a firm, that impacts the trade of that particular country or firm and at least one other country or firm.

There are two main types of situations under which STP is desirable. These are the environment of imperfect competition and the existence of external economies which are not necessarily mutually exclusive.

An imperfectly competitive environment stems from increasing returns to scale implying that output increases more than the proportional increases in inputs. The existence of increasing returns means that long run average costs are decreasing, assuming that the firm faces an elastic supply of factors of production, because an extra unit of output requires less resources than the previous unit. Decreasing long run average costs can arise from a variety of sources. These include the existence of large fixed costs, large research and development (R and D) costs, significant learning by doing or gains from specialisation.

The existence of imperfect competition allows the possibility of capturing rents if price is greater than marginal cost. For instance, the use of a subsidy can result in the expansion of the market share by undercutting competitors. That is, as long as demand is elastic, a subsidy will increase sales. The increased sales may capture supernormal profits as long as price remains above marginal cost. The degree of economies of scale and barriers to entry will determine by how much and for how long price remains above marginal cost. As long as the rents obtained from the extra sales outweigh the subsidy cost and reduced profit on the existing sales, the subsidy is a beneficial policy.

There may also be a case for STP in monopolistically competitive markets where there are a large number of firms producing differentiated products. The presence of differentiated products may be due to the existence of increasing returns, as economies of scale lead each firm to produce only one, or at most a few, varieties and styles of the same product rather than many different varieties and styles. This is the basis for intra-industry trade. An appropriate type of STP in a monopolistic market is R and D to decrease marginal cost through improved technology and to better differentiate the product or more correctly to improve the quality of the product and get consumers to switch from other foreign substitutes to this product. This implies that, significant investments in R and D may result in a firm being able to produce an even more differentiated product which will enhance market power allowing greater profits to be reaped. The degree to which this is possible depends on the consumers valuation of the more differentiated product. However, the benefits obtained from R and D that lead to technological advances and decreasing the cost of production may be limited due to technology transfer. This is

because foreign producers may be able to acquire the new technology and compete on an equal footing which would reduce or even eliminate the monopoly rents (Salvatore 1993).

The second situation under which STP is desirable is that of external economies which involve the actions of one party impacting on another without these actions being priced. External economies can occur with perfect or imperfect competition. For instance, external economies arise when there are increasing returns to an industry but constant returns to a firm. The constant returns to scale at the firm level indicate that perfect competition is likely and thus, the existence of monopoly rents is not an issue in this case (Helpman and Krugman 1985). However, increasing returns to the industry rather than the firm means that an individual firm would not receive all the benefits from its investment in resources, leading to under-investment. There needs to be some sort of strategy for the industry as a whole to overcome the under-investment. This may require government investment or legislation so that each firm contributes to the overall industry investment and to raise it to the optimal level for the industry than that faced by individual firms.

An important factor about external economies is that the policies that promote sectors yielding external economies need not affect other countries adversely (Krugman 1987). This implies that STP, in these cases, is not only desirable from a national perspective but also from a world perspective and eliminates one of the major arguments (retaliation) against the use of STP. The role of STP in external economies depends on the degree to which the external benefits are national or international in scope. That is, the justification and degree of STP is determined by how long and to what extent external benefits can be kept within national boundaries (Baldwin and Krugman 1988). The greater external economies can be kept within national boundaries, in terms of both degree and time, the greater is the justification for STP.

The above situations have so far not considered the response of the competitors. The policy actions of firms or governments interact to represent the situation of dynamic games. That is, industries that are characterised by market power and/or lags in policy actions are best analysed by dynamic games. Dynamic game theory provides a framework for analysing the interactions of economic agents and sets the appropriate mathematical tools for arriving at 'optimal' decisions (Basar 1986). In game theory where the players make decisions independently and there is no co-operation among the players, the natural solution is the Nash equilibrium, where no single player has an incentive to deviate unilaterally from that solution. In the situation where one player has a dominant role a Stackelberg equilibrium solution will result. In the case of STP, it is

quite likely that there will be a structural hierarchy or domination in the decision making process (Bagchi 1986). The fact that most of the analysis of trade policy should take the non-cooperative approach is due to the lack of enforcement measures available in the international environment (Dixit 1987a).

With dynamic games, a strategic policy can still be very effective, even if it attracts response from the competitors as there may exist certain first mover advantages. That is, the country to first introduce the subsidy/tariff or the firm to first reduce price to increase sales will gain across all markets leading to greater domination in the markets. If the competitors were to attempt the same policy, they would have to decrease price by even more which may actually prove unprofitable because of the first mover advantage gained by the other firm. Alternatively, just because the opposition has moved first does not mean that an activist retaliatory policy is not desirable. For instance, it was found that the most successful strategy in a prisoner's dilemma game that was repeated 200 times was a 'tit for tat' strategy (Brander 1986). That is, the most successful strategy was to repeat or at least retaliate with a similar action in the next round of the game.

One of the key requirements in game theory is that of credibility. This is quite often the justification for government intervention because it is able to commit to a policy which makes the actions of the home firm credible. That is, a country may be able to make a credible commitment to maintaining a leadership position, while a firm may not be able to, as in the absence of government intervention firms may be on an equal footing knowing that strategic actions may not be credible (Stegemann 1989). Credibility can be achieved through either reputation or pre-commitment that makes following through with the actions credible. Of particular relevance are Schelling's 'strategic moves', which include threats and promises that can be used to alter the competitors behaviour to one's own advantage (Dixit 1986).

In sum, in an environment of oligopolistic or monopolistic markets or in the presence of external economies, there is justification for STP. In an oligopolistic market there can be gains from economies of scale and potential rent shifting. In monopolistic competition a strategic policy in R and D to better differentiate a product may be desirable. In an environment of external economies there is a role for the government to correct the market failure either through intervention or legislation so that the optimal level of trade is achieved for the industry as a whole rather than individual firms.

### *Strategic Trade Policy for A Small Country*

Within the context of this paper, a small country is referred to as one which enters an international market as a price taker. However, as suggested by Dixit (1987b), it is recognised that many countries that are small by any commonsense criterion may still have significant market power in particular commodities or differentiated products. More importantly, small countries have been active in various rounds of GATT negotiations that are ultimately about the division of potential gains from trade and, therefore, may have some impact on prices (Dixit 1987b).

Generally speaking, STP can take various forms. The two most common are tariffs (taxes) and subsidies which directly affect the price level of a product. Tariffs and subsidies can either be targeted or across the board. STP also includes non-tariff barriers such as voluntary export restraints, quotas or maximum export prices, while there are many other forms that STP actions can take including statutory marketing boards.

Looking first at export subsidies, a situation observed frequently in less-developed countries is when an export subsidy is granted to an export industry which uses imported inputs that are subject to import taxes. In this case, the export industry is granted an export subsidy which, in effect, is a rebate of the tariff paid by the same industry on imported inputs. This type of export subsidy does indeed make economic sense. There are many other circumstances which may trigger activist trade responses from a small country. These are discussed below.

One of the major arguments against the implementation of STP by a large country is that it may invite retaliation. The critics argue that STP will lead to retaliation and counter-retaliation which results in everybody being worse off (Crook 1990; Baldwin 1992). In fact, STP can simply become a beggar-thy-neighbour policy that at best only achieves the goal of making the country relatively better off but almost certainly makes the country absolutely worse off. The likelihood of retaliation depends crucially on the actual type of STP and market environment in which it is carried out. In the case of a small country, however, the 'puppy dog ploy' will not involve retaliation because of the inability of the larger countries to separate markets. The puppy dog ploy (or 'the importance of being unimportant') is an activist policy that subsidises exports of the small country and increases its market share, while only reduces the profits of a large country marginally and will not attract retaliation from the large country. That is, to regain the lost market share a large country has to make a price cut that affects all its marginal units and thus may actually decrease profit by more. This argument is based on the fact that the small country will not continue to increase its market share and thus there is no threat of the

competition increasing implying that it is not worthwhile for the large country to retaliate (Dixit 1987b). In the case where there are many consuming countries and the small country only exports to one or a few of these countries, this argument is based on the premise that the opportunities for sorting between markets by the large competitors is small. Otherwise, it may be in the interests of the large country to retaliate if it can price discriminate between markets and therefore, regain its market share in the particular market being targeted by the small country.

Similarly, 'hit and run' strategies pursued by large or small nations do not need to be concerned with retaliation because the benefits of the strategy are obtained in a short period of time and the action is withdrawn before it would be desirable for retaliation to take place. In fact, the time it takes for the impact of retaliation to be felt would be the guiding factor as to how long the 'hit and run' situation would be profitable.

If Bertrand competition exists, the puppy dog ploy can operate in reverse as the strategic policy now is a commitment to a higher price which is in fact a commitment to remain small and there is no possibility of retaliation. As opposed to the subsidy situation the small country is better off as it is gaining the tax revenue in the case of a tariff or the above normal profit. Based on this analysis "small countries should favour industries where price is the strategic variable and where there is a large country that can provide price leadership" (Dixit 1987b, p355) and the small country tags along on the premise of being unimportant. It appears that many small exporting countries fall into this category.

There is, clearly, a limited role for a small country to use STP to shift profits as it has little market power and this argument is really based on a market environment of only a few firms with supernormal profits existing. However, increased specialisation and moving down the learning curve could make STP desirable for a small country, even though it has no market power. That is, rather than shift profits by increasing market share as above, the benefits come through lower cost of production of the increased output. Many industries in various small countries, targeting niche markets, seek to achieve this objective.

The case of differentiated products is also applicable to a small country as small countries may have better capacity specialising in a particular niche market and in differentiating the product and increasing demand for it. The only inhibiting factor may be that a small country would be less likely to have the funds to support the R and D than large countries and the large countries would have just the same incentive if not greater to invest in R and D.



The argument for STP in the presence of external economies is applicable to small countries just as much as it is to large. There are many situations where increasing returns exist to an industry. These include R and D, transportation, marketing and advertising. Under these cases there is a role for the government to play to improve the trade performance of the industry as the return for the individual firms are not great enough to warrant their own investment. Although not usually recognised as a STP, the existence of statutory marketing boards is, in effect, a form of STP as it is a strategic move by the industry to increase its sales and returns at the expense of other countries trade levels.

Theoretically speaking, policy intervention for one industry may create a strategic disadvantage for some of the remaining sectors of the economy by impacting the prices of resources in a large country (Krugman 1987). That is, if one firm or industry expands it may attract resources away from the rest of the economy by bidding up the payment for the resources. The degree to which resources are attracted away depends on how large the sector being supported is relative to the rest of the economy with the resources being impacted more the greater is the importance of the supported sector. In most cases the impact on attracting resources away from other sectors is going to be minor as the sectors being supported are small relative to the whole economy and more importantly in most economies there is idle capacity and unemployment of resources. The impact on the remaining sectors also depends on which resources are impacted as it may actually be that other sectors of the economy also benefit from an activist policy from one particular sector. For instance, the logistical activities of transport, handling and marketing will be advantaged by an industry that increases output. Alternatively, it may be the case that the activist policy may involve a subsidy towards highly skilled technical labour that increases the supply of this resource which is not only of benefit to the targeted industry but also other industries that demand this resource.

The arguments for STP in the case of an oligopolistic industry where subsidies allow price cutting to increase output and take advantage of economies of scale may, however, be limited in the case of a small country because factor prices cannot be assumed to be fixed. That is, if some of the factors of production are specific, they may be in limited supply in a small country. If there is already full employment of these resources increased demand will increase their price and thus negate the cost advantage (Dixit 1987b). The fact that STP can create a strategic disadvantage for the remaining sectors of the economy is probably more important for a small country in that a strategic disadvantage for the remaining sectors could be extremely harmful whereas for a large country there is a much broader base for the effects to be spread across. This is because a small country is more likely to have a few important industries especially when it comes

to exports whereas a large country tends to be much more diverse in its production of goods. Also, in the case of small countries government funds may be limited which would limit their ability to support STP.

One of the reasons why it may be advantageous for a small country to undertake activist policies is that if a bilateral subsidy game exists then the country with very few firms will be better off than a country with many firms (Cooper and Reizman 1988). That is, a country with many firms may see intense competition amongst its firms with most of the benefits of the subsidy going to foreign consumers, while a country with few firms may not have such intense competition.

Another problem is uncertainty as to whether government support of STP may encourage domestic special interest groups to turn it into an inefficient redistribution program. That is, because the main objective of many governments is to maintain power, they do not always act in the national interest. In this case, government decisions can be influenced by producer groups which lobby for protection or support and use the notion that it is 'us against them' so that domestic firms should get the market share at the expense of foreign firms. However, the costs of this protection may be much greater than the benefits but because of the loyalty factor and that the costs are spread across the community through either higher taxes or higher prices with only marginal impact on each consumer or taxpayer then the government is perceived to be taken the correct option (Krugman 1987). A further consideration is the resources that are used up in the lobbying process which should be added to the deadweight loss of protection (Bhagwati 1989) as they are not creating anything productive for society. The uncertainty about appropriate policies is relevant to a small country but whether it is harder than for a large country is unclear. A small country may have a more accurate knowledge about its own industries, however, it is less likely to have as much knowledge about the international environment. Although, the increased availability and reduced cost of gathering information is weakening this argument.

A final problem with STP is that of income distribution as to who gains and who loses from the implementation of STP. Under free trade, there is a classical harmony between national and cosmopolitan welfare maximisation but this may disappear when STP is introduced (Stegemann 1989). Even in the best case scenario of a positive sum game for the world, there is the likelihood that some countries will lose (Baldwin 1992). In many instances of STP it is the large countries which usually benefit at the expense of the smaller competitors which are quite often developing countries. The fact that the incomes of poor developing countries are being reduced will be disliked by many voters and policy makers, unless these countries have been engaging in unfair practices themselves.

and are contradictory to foreign aid programs (Baldwin 1992). Alternatively, the countries that are receiving the benefits of STP actions are also quite often developing countries and thus, the STP actually goes hand in hand with the foreign aid programs as they are receiving cheap goods. For example, the US export enhancement program provides cheap wheat to developing countries like China and the Middle East which gain while competing countries like Canada and Australia are the losers (Ahmadi-Esfahani and Locke 1994).

The thorny question of income distribution is particularly important within the domestic level. For instance, in the case of a product that is only exported, if a subsidy scheme is used it is the producers who are going to benefit and the taxpayers who will lose even though the benefits outweigh the losses unless there is some sort of redistribution scheme in place. Again in the case of a tariff it is the domestic producers who gain, while the domestic consumers lose. Although it is theoretically possible to redistribute income so that everyone (in the country) is better off, this is extremely difficult to achieve in practice. The fact that most of the benefits are concentrated to certain sectors of the economy makes STP in many cases an unequitable policy. There is also the question of whether one should weight equally the gains to firms against the losses of consumers (Thursby and Thursby 1990). Thus, the use of STP must be considered carefully not only on efficiency grounds but also on equity grounds.

By and large, it appears that, even though a small country is a price taker in the international market, there may still exist a role for STP under certain circumstances. A small country, by using the 'importance of being unimportant', can undertake activist policies and not be concerned about retaliation which is one of the major arguments against STP for a large country. In fact activist policies like the 'puppy dog ploy', where benefits come through lower cost of production and increased output, are only applicable to a small country. However, other STP policies that require market power are not appropriate for a small country.

### *An Application to the Australian Wheat Industry*

In the case of external economies where there is insignificant investment in R and D or there are learning by doing benefits which are not internalised to the firm, a tariff is not the first best policy since the specific market failure is insufficient domestic output rather than excessive imports. However, the tariff is closer to the optimal point in the case of learning benefits, as opposed to the R and D externalities, since "the spillover problem is proportional to quantity produced in the case of learning, whereas R and D expenditures are linked to output levels only through a complex chain of behavioural relations" (Caves 1987). Thus, in the case of R and D, it is appropriate for the government to subsidise the R

and D or alternatively have some form of legislation that forces all producers to contribute so that R and D is undertaken for the industry.

Stored grain research in Australia represents a remarkable illustration of R and D undertaken jointly by the industry and the government. It also exhibits a potent strategic move by the Australian wheat industry to defend its position in international markets and to aggressively appropriate the rewards of quality improvement. Even though Australia does not have market power in exporting wheat, the strategic action in terms of R and D into storage has turned out to be a beneficial policy and has better differentiated Australia's crop from those of its competitors and enhanced its reputation.

In the 1960s, Australia stood to lose some of its major wheat-exporting markets due to the high incidence of insect infestation in export shipments. In response, the wheat industry requested the Government to enact legislation that would ensure continued access to these markets. Export Grain Regulations promulgated in 1963 require that grains be free from infestation and otherwise fit for export. Despite this, significant cargoes of exported wheat were subject to claims by China, the Soviet Union and the United Kingdom, among others, in the mid to late 1960s because of the presence of insects on arrival overseas. The need for a stored grain research laboratory was reinforced by two additional events. First, the development of resistance by insects to malathion about five years after its introduction as a grain protectant. Second, much of the bumper crop in the 1969-71 seasons had to be stored for a considerable period of time that was well beyond the effective life of malathion. As a result, there was renewed demand in the international wheat markets for insect-free grain.

The Australian Wheat Board (AWB) swiftly responded to this need and signed an agreement with the Commonwealth Scientific and Industrial Research Organisation (CSIRO) in 1969 to establish a national laboratory to investigate these problems and to institutionalise research and development (R and D) in grain handling and storage. The provision of a sum of \$305,000 to build the laboratory was approved by the AWB and the Stored Grain Research Laboratory (SGRL) was formally opened as part of the CSIRO Division of Entomology in 1973.

The current key industrial partners of the SGRL are the AWB and the Bulk Handling Authorities (BHAs) which, together with representatives from the CSIRO and the Department of Primary Industries and Energy, form the Management Committee and Council. The Council has powers to approve the Laboratory's programme and budget and to identify the broad strategic objectives of the Laboratory. The main funding of the SGRL is provided by the CSIRO (50 per cent), the AWB (18.75 per cent) and the BHAs (31.25

per cent). This budget is supplemented by additional support from rural industry research funds.

In the context of this analysis, we look at the problem of market structure and incentive to invest in stored grain research from a somewhat different point of view. Rather than describing market structure by the number and/or relative sizes of rivals, we look at aspects of rivals' behaviour and of consumers' demand for wheat. Specifically, we distinguish between the structure of the international wheat market as measured by the elasticity of demand for Australian wheat with respect to quality and the cross-elasticity of demand with respect to quality for competing wheats (that is, US, EC, Canadian and Argentine wheats), and the speed of response of competitors to Australia's technical improvement.

On the basis of empirical evidence (Ahmadi 1993), it is reasonable to assume that Australia is able to continuously improve the attractiveness of Australian wheat at a cost. The improvement is real; however, it could as well be that advertising and other promotion absorb the cost and the improvement is in the image of the product only. The demand for Australian wheat will depend on the attractiveness coefficient of high quality wheat and on the corresponding attractiveness coefficient of rival wheats. For ease of exposition, we will refer to the attractiveness coefficients as measures of quality of the wheat and argue that improved quality is obtained by the overall grain research including innovational efforts of the SGRL.

The demand for Australian wheat is thus assumed to be a function of price, the quality coefficient of Australian wheat and the quality index of the composite rival wheats. Wheat prices may be determined by exporting countries independently, or under some form of oligopolistic interdependence such as the kinked-demand scheme. We further assume that the time scale is sufficiently compressed so that pricing decisions are made effectively instantaneously relative to the time of technical advances. The demand function is presumed to take into account any appropriate price-response factors. This function is consistent with a model in which price is viewed parametrically by Australia. Under these assumptions, product improvement does not alter the relationship specified for the demand function. Thus, in sum, we postulate that the demand for Australian wheat depends on price as well as quality but bypass the oligopolistic pricing problem encountered under a kinked-demand environment in favour of the quality improvement as a potent strategy for Australia as a small wheat exporting country to maintain or enhance market share.

The upshot of the argument is that if Australian grain research technology improves, its sales will expand, primarily at the expense of rivals' sales. Presumably, the reduction in rivals' sales, market shares and profits will stimulate rivals' defensive technical improvement. However, since Australia is most likely interested in maximising its

discounted stream of future profits rather than its current rate of profit, the question becomes translated into one of how long it will take for the rival wheat-exporting countries to duplicate Australia's technical achievements. In the meantime, however, Australia will have been able to establish itself as a reliable supplier of a high quality differentiated product. While research expenditures may serve many functions, a most significant one is to foster a rapid rate of new product introduction and process innovation which then serve to facilitate the achievement of differentiation.

In summary, the marginal benefit of a product improvement in Australia can be considered to be the sum of the long-run or equilibrium effect of market expansion due to improvement of Australian wheat plus the short-run or substitution effect of a temporarily enlarged market share at the expense of lagging rivals. Within the context of the mental model presented above, a high cross-elasticity of demand between rival wheats increases the penetration by Australia into the rivals' markets and so spurs Australia's efforts. A slow response by rivals increases the duration of that penetration and so similarly stimulates technical progress by Australia. Finally, a high market elasticity of demand for the class of wheats produced and exported by Australia is also conducive to a rapid rate of technical progress. The net returns from research innovations by Australia, then, are larger market share and volume of wheat sold overseas under a variety of environments.

### *Conclusion*

The appropriateness of STP for a small country is, clearly, limited by the degree of market power it has. However, strategic trade policy is applicable to a small country in a variety of market environments, particularly, those which give rise to the use of the 'importance of being unimportant'. In an oligopolistic structure, a small country may be able to target small sectors of the market and not attract retaliation from the large countries as long as sorting between markets is limited. In a market environment where product differentiation can lead to increased sales, for example, in the export wheat market, R and D is an attractive policy for a small country with insignificant market power. However, activist policy intervention appropriate for a small country requires a case by case analysis of the specific market, implying that it should be treated with caution.

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