IV. Evaluating the Market Impacts of STEs

To study the market impacts of state trading activities, one approach would be to examine the effects that such enterprises have on domestic and international prices. For instance, a state trader that restricts imports into a country will increase domestic prices in the same way an import tariff does. Similarly, an STE that expands exports will have an effect on domestic price that resembles an export subsidy. Thus, we can explain the market effects of STEs by expressing their impacts on prices in terms of tariff or subsidy equivalents. This tariff/subsidy equivalent approach dispenses with the need for a special theory of state trading.

The analytical framework for measuring the tariff/subsidy equivalent of state trading enterprises is well established in the literature (Dixit and Josling, 1997; Lloyd, 1982). Consider an STE that faces an import demand function represented by ED and an excess (export) supply function ES that is perfectly elastic (limitless availability of the commodity) at the world price P_w (fig. 2). If the STE sells at the same price (account being taken for handling costs and tariffs applicable to all firms), then the tariff equivalent—represented by the gap between domestic and world prices—is zero. Consumers can obtain an unrestricted volume of imports at the world price and the existence of an STE importer has no additional effect on market prices or trade. The STE behaves no differently than a private firm under competitive market conditions. If the STE sells at a price higher than the world price, then the market effects of the STE can be represented as the difference between the domestic and world prices (P_m-P_w). In other words, the existence of an STE leads to a domestic price that is greater than world price by t, the tariff equivalent. The trade impact of the STE is the reduction in import volume (M_0-M_1) that would be caused by the tariff equivalent (t). If the STE sells at a price lower than the world level, then the trade effect is the increase in imports from the subsidy equivalent.

A similar approach can be used to represent a state trading exporter. Consider an STE exporter that exhibits an excess (export) supply schedule ES and faces an excess demand (import) schedule ED that is perfectly elastic (limitless demand for the commodity) at the world price P_w (fig. 3). At a domestic price of P_m, the STE is willing to export X_1 quantity of the commodity. But this can be done only if the STE offers an export subsidy of s in the world market. The per unit subsidy s is analogous to the tariff equivalent of the STE importer, and the trade effect is X_1- X_0, the amount by which export expands beyond levels corresponding to price P_w. The level of export subsidy equivalent multiplied by the quantity of exports equals the total expenditure on export subsidies.[10] If the domestic price offered to producers is lower than the

[10]It is worth noting that the WTO Agreement on Agriculture disciplines export subsidies in terms of total expenditures and not on a per unit basis as with tariffs.

Figure 2
Tariff equivalent for STE importer

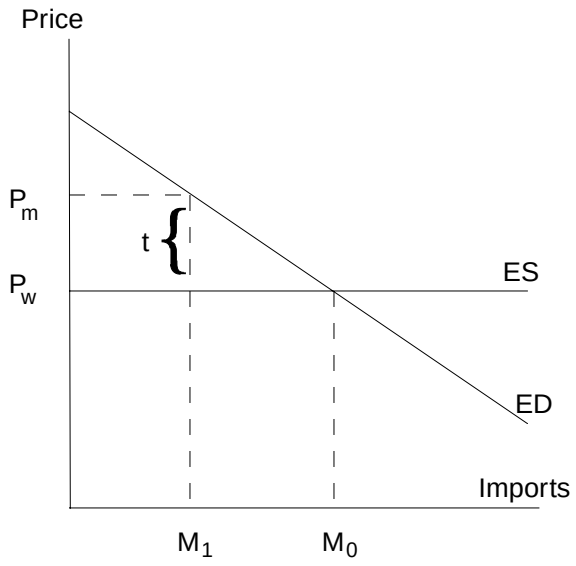
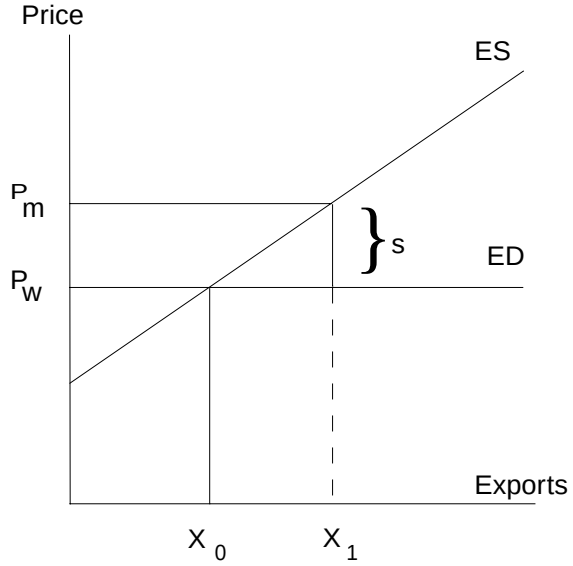


Figure 3
Export subsidy equivalent for STE exporter



world price, then the trade impact is the reduction in exports caused by the tax equivalent.

Although we focus on the trade impacts of STEs, we should not lose sight of the associated effects of STEs on the domestic market. An STE that curtails imports is likely to induce expanded production and reduced domestic demand compared with free-market levels. Conversely, an STE that pursues policies that subsidize food consumption is likely to cause decreases in domestic supply and increases in consumption beyond free-market levels. Each of these can have far-reaching income and welfare implications.

Preconditions for State Traders To Influence Domestic Prices and Trade

A state trading enterprise can maintain a price gap between domestic and world prices (tariff/subsidy equivalent) and affect external trade if it is able to influence domestic prices by altering the volume of the product available in the market.[11] Thus, an STE importer that attempts to raise consumer prices by holding back sales will succeed only if it does not face competition from domestic sellers. Similarly, an STE exporter seeking to maximize its profits might want to lower the price it offers to producers by restricting the volume of purchases. But again, for this to succeed, the STE exporter must be able to control domestic purchases of the product. Otherwise, domestic producers could sell their product to competitors and acquire better prices. Domestic market power, or the ability to control the volume of products bought and/or sold in the internal market, is an essential precondition for STEs to influence the market.

To exercise domestic market power, an STE must also be able to control commodity trade in and out of the country. Consider again the STE importer that seeks to raise the price paid by domestic consumers by restricting sales volume. If the STE has no quantitative controls over imports, then buyers can always satisfy their needs from imports even in the absence of other domestic sellers. The STE importer will not be able to sustain a higher price, and the quantity of imports will be no different from that of a competitive firm. A similar situation exists for STE exporters.

[11]These represent some of the basic preconditions for STEs to influence domestic prices and trade. They are by no means exclusive, and other factors relative to the structure and behavior of STEs also would influence the market. We point out some of these factors when we classify major STEs later in the report and in Appendix C.

Take the case of the STE exporter that acts as the sole buyer of domestic output (monopsonist) and tries to minimize its purchasing costs. The monopsonist might wish to purchase less than under competitive market conditions. But this would require export controls (or the compulsory purchase of all domestic products, which implies a ban on exports). If domestic suppliers can export, then the monopsonist loses its market power. Export restrictions are, therefore, the key issue with respect to the use of monopsony power on the domestic market. Such restrictions are the vital link between the use of monopsony power and impact on trade flows.

Another prerequisite for an STE to influence prices and affect trade is its ability to regulate substitute products. An STE importer may control the market for a particular product, but its ability to influence prices is greatly diminished if buyers can purchase substitute products from other sources. For instance, an STE importer may be unable to raise rice prices if consumers are willing to eat wheat instead, which is available under competitive market conditions. Similarly, an STE exporter will have little market power if sellers can offer substitute products over which the STE has no control. For instance, the monopoly power of an STE that offers rice producers prices lower than world levels would be meaningless if a substitute crop could be grown on the same land and exported without restrictions. Clearly, the existence of nonregulated substitute commodities will substantially affect an STE's ability to influence the market for regulated commodities.

An STE can affect trade if it can exploit differences in price responsiveness, either between domestic and international markets or among individual global markets (Houck, 1986, page 112). For instance, the Canadian Dairy Commission can charge higher prices for milk to be consumed at home than for dairy products destined for export because demand for milk in Canada is relatively less responsive to price changes than dairy product demand in Canada's export markets. With exclusive authority over Australian wheat exports but not over domestic wheat sales, the Australian Wheat Board attempts to obtain price premiums in less price-responsive markets like Japan while selling at lower prices to other export markets that are more price responsive. Exploiting differences in price responsiveness can work as a pricing strategy if there is no arbitrage between the two markets. Price discrimination strategies also become costly when exporters compete for the same markets.

Factors Influencing the Tariff or Subsidy Equivalent

Several factors influence the tariff/subsidy equivalent associated with a state trading agency, including the degree of control that the STE has over the domestic market, the STE's policy objectives, the extent of the STE's international market power, and the range of privileges that are exclusive to the enterprise. These factors not only influence the tariff equivalent associated with the state trader but also determine the type of policy instrument the STE might use.

Degree of Control Over Domestic Markets

The principal factor that influences the magnitude of the tariff/subsidy equivalent associated with an STE is its degree of domestic market power. In general, the greater the market power an STE possesses, the more it can influence prices and the volume of products traded. An STE's domestic market power depends on both the array of market activities that it controls as well as the range of commodities that it regulates.

An STE's control over four specific activities—domestic marketing, procurement (i.e., sales and purchases), imports, and exports—determines its capacity to exercise domestic market power. There are several possibilities in this regard. At one end of the spectrum is an STE that maintains complete control over each of these activities. All transactions, whether in the domestic or international markets, have to be channeled through the STE. The other extreme is an STE that has no control over any of these activities. Presumably, the STE in this situation behaves no differently from a competitive private firm, and the possibilities for an STE to influence the domestic market are very limited. Thus, an STE that controls the full gamut of marketing activities will affect prices and the tariff/subsidy equivalents much more than a state trader that controls only one of these activities.

Similarly, an STE's market power depends on its capacity to differentiate products and regulate use of substitutes. Hence, the larger the number of substitute products over which an STE has regulatory control, the greater its ability to manipulate the market and influence the tariff/subsidy equivalent. This capacity is likely to be even greater if the STE controls upstream and downstream marketing and processing activities and engages in transfer pricing as a consequence of vertical integration.

Breadth of Policy Objectives

The policy goals of an STE influence the magnitude of its tariff/subsidy equivalent. For instance, an STE importer that seeks to maximize its own profits can do so by exploiting consumers, producers, or both. The tariff equivalent of the policy set in each case would be different. If the objective is to maximize profits by taxing consumers, the tariff equivalent is the difference between the world price and the higher price at which imports are sold to consumers. Conversely, if the objective of the STE is to tax producers, the tariff/subsidy equivalent is the difference between the world price and the lower acquisition price offered to producers. However, if the STE importer controls domestic marketing as well and decides to exploit both consumers and producers to maximize its profits, imports could be sold domestically at a high price and domestic products could be purchased at a low price. With market differentiation, the tariff/subsidy equivalent would have to be calculated separately either as producer and consumer subsidy equivalents (OECD, 1987), or from a combination of price differences faced by producers and consumers (Roningen and Dixit, 1991). This type of market differentiation existed in several countries of the former Soviet Union.

It is possible that a state trader is in place to support the producer monopoly, working with producers to exploit domestic consumers. If the entire rent is to be distributed to producers through higher prices, then the tariff equivalent of the STE is the gap between domestic and world prices. If only part of the rent is passed on to producers in the form of higher prices, then the tariff/subsidy equivalent, as earlier, will depend on the combination of prices faced by producers and consumers. Marketing boards in some exporting countries are examples of state traders that seek to support producers by exploiting consumers.

If the state trader is in place to support consumers through lower food costs, then it would keep domestic prices below world levels. The trade impact of an STE is measured by the subsidy or tax equivalent on consumers only.

STEs may have access to a wide variety of trade instruments to alter consumer and producer prices. For instance, consumer prices could be increased either through an import tariff or quantitative trade controls, such as quotas or licenses. Similarly, producer prices could be lowered by using import subsidies

or export controls. While the tariff/subsidy equivalents in either case would be the same, an STE that relies on quantitative restrictions on imports (or exports) is likely to distort international trade much more than an STE that obtains its protection from tariffs/subsidies. From a free-trade perspective, therefore, an STE that is supported by tariffs/subsidies is preferred to one that resorts to nontariff trade barriers.

Extent of International Market Power

The tariff equivalent is defined as the difference between domestic and world prices, taking into account all associated transaction costs and tariffs. Hence, the tariff equivalent attributable to an STE also depends on the extent of its international market power. The analytical exercises presented in figures 2 and 3 assume that a state trader cannot influence world prices. But, this may not be the case. For instance, a few large sellers dominate the global wheat market. Thus, an STE exporter with market power could hold back sales in the international market to achieve higher world prices and increased total revenue.[12] As before, the tariff/subsidy equivalent of the STE is the difference between the domestic price and world price, though the difference is likely to be lower because the state trader could raise international prices as well. Similarly, an STE importer with international market power could force purchases at lower prices by restricting purchases.[13] The difference between the domestic and international price is the tariff equivalent, and the gap is likely to be greater with international market power because of the STE's ability to lower world prices. In general, the greater the international market power that a state trader enjoys, the more it can influence the tariff/subsidy equivalent.

Range of Exclusive Privileges

The range of exclusive or special privileges available to an STE can substantially affect the tariff/subsidy equivalent. Special privileges might include the financial benefits that accrue to an STE as a result of governmental association, such as underwriting of producer payments, interest rate subsidies, tax benefits, and preferential foreign exchange rates, or nonfinancial privileges such as the authority to establish long-term trade agreements with other governments. These privileges, in general, are likely to be affected by the ownership structure of the STEs; that is, the extent of managerial control that the government exercises over the enterprise. For instance, an STE that is owned by the government and has been established to provide income and price stability may behave differently than an STE owned by producers determined to maximize profits. Or, an STE that is owned by the government and is guaranteed against bankruptcy is likely to follow different trading practices than a commercial firm operating without government assistance.

Exclusive privileges, particularly financial support, allow STEs to undertake pricing risks beyond what a commercial enterprise might, especially if the state trader has goals other than profit maximization. Such privileges could lead to prices and tariff equivalents different from those that would exist in the absence of such privileges. The greater the array of privileges available exclusively to the STE, the more it can influence prices and the tariff/subsidy equivalent.

Some Closing Thoughts on the Tariff/Subsidy Equivalent Approach

The tariff/subsidy equivalent approach proposed here captures most of the trade effects associated with STEs. In Appendix C, we point out how this methodology takes into account the trade effects of STE activities that evoke the most controversy, including cross-subsidization across markets, price pooling, and the competitive advantage such firms secure from governmental association. From this perspective, the methodology appears relatively robust. But, there are several weaknesses with this approach. For instance, data limitations may make it difficult to isolate the trade impacts exclusive to the STE if other distortionary forces exist. Similarly, the approach is geared toward obtaining the trade impacts of STEs over a period of time rather than assessing the distortionary implications of state trading practices that involve undercutting competitors on a transaction-by-transaction basis or the use of predatory pricing to drive commercial competitors out of the market.

For these special circumstances, the tariff/equivalent methodology may be somewhat inadequate. But overall, we find this approach extremely appropriate for measuring the trade distortion associated with STEs, given its simplicity, elegance, and the ease with which it allows comparisons across diverse parastatal institutions.

[12]In economic parlance, the trader would equate its excess supply schedule with the export revenue function and impose an optimal export tax.

[13]This is tantamount to introducing an optimal import tariff.