

APPROACH AND METHODOLOGY FOR THE ANALYSIS OF IMPORT SURGES

5

5.1 Challenges in studying import surges in developing countries

Identifying the presence, duration, sources and impacts of import surge is a difficult exercise even in developed countries because of the lack of an appropriate definition of an import surge and its duration and the lack of standard procedures in the investigations of the surge. For the developing countries, the challenge is even more daunting because of the lack of resources to gather and analyse relevant information. This chapter addresses these challenges and details an FAO framework with several major steps on how to analyse import surges especially for developing countries. These steps that guide the examination of an import surge include: agreement on the commodity; identification of the like, competitive and substitutable product; performing stakeholder surveys to identify the impact of the surges; collection of data on production, trade, prices and policy; identification of the injured industry and sectors; identification and estimation of injury indicators; establishing causality between injury and imports; and the performing of a non-attribution analysis. Before examining these several steps, this chapter outlines first the challenges in studying import surges.

5.1.1 Terminology and definition ambiguity

The definitions of many key words related to the phenomenon of import surge in the WTO Agreements, as discussed in Chapter 1, are vague and remain open to different, often opposing interpretations. For

developing countries this terminology problem is of a great concern when timely decisions have to be made on what intervention is appropriate. For instance, because there is no standard measure of what the duration of a surge is or should be, some measures taken in response to import surge may overshoot and hurt an ongoing import trend rather than help the sector deal with a short-lived surge. Similarly, the minimum rate of increase in import volume that qualifies as a surge has no unique or conventional definition.

5.1.2 Lack of information

Lack of adequate trade data to reveal the presence and especially the duration of an import surge makes the examination of import surge in developing countries difficult. Inability to determine the actual duration of import surge, for instance, leaves no assurance that the observed increase in import is detached from a long increasing trend. Similarly, there is often insufficient information at hand to help assess the impacts, even for an *ex ante* analysis. Measuring the actual injuries at both subsector, let alone economy-wide, level becomes almost impossible.

Another issue is on the measure of the surge itself. The dilemma is on whether the 'net' or 'gross' import is the most appropriate measurement of import surges. Many developing countries are both importers and exporters of specific agricultural products, both in primary and processed forms. With regard to basic foodstuffs, many low-income food-deficit countries (LIFDCs) are net importers. Analysis conducted by FAO for selected major commodity

groups indicates that the numbers of import surges based on net import data were greater than those based on gross imports. This is probably due to the fact that import surges are often accompanied, especially in emergency situations, by a reduction in the export of the same product. This suggests that the use of net import could be a much more rigorous way to identify surges.

5.1.3 Confusion over concurrent sources of import surges

Import surge is often the result of many concurrent contributing factors both internal and external to the countries and, unless its main root cause is fully identified, the setting of priorities to prevent the surge remains difficult. An example is a supply shock due to crop failure at a time when the exporter's currency depreciates or fluctuates. In this case, when resources (time and money) are scarce, choosing the priority between two actions, namely, creating institutional supports to deal with crop risk and revaluing and stabilizing the currency (*vis-à-vis* its trading partner) is difficult. The identification of the root cause and the actions to be taken are even more difficult when the crop failure and currency depreciation coincide with market and trade reforms.

5.1.4 Confusion over the identification of injuries

Identification of the consequences of the import surge also poses considerable challenges in developing countries because besides those caused by surge, the observed injuries may also come from the failures of the market and institutions. This leaves ambiguity about how much responsibility an import surge has in a well-defined injury. For instance, besides import surge, a fall in profit may have come also from irregular input delivery (leading to a sudden hike in input prices), an oligopsony in the product market or other temporary output price policies (e.g. taxation). In such an example it remains difficult to determine the surge's share of responsibility without enough data for analyses. Even if the surge's share of responsibility in a link in the sector's value chain is determined, it is difficult to assess the full extent of the consequences in other links within the sector

(e.g. increase in consumers' welfare due to low price), let alone the spillover effects on other sectors over time.¹

To overcome these methodological and information challenges, a manual has been prepared before the investigations on import surge in developing countries are performed. The manual is presented and detailed in Sharma (2005b) and is discussed at length in the next sections.

5.2 Overall analytical approach

The overall analytical approach for the country case studies is based on typical steps taken in the investigation of the WTO trade remedy measures (i.e. AD, countervailing and emergency safeguards) for the purpose of the WTO disputes. This makes sense given the WTO-context of the phenomenon of a surge and its injury. Of the three measures, the approach taken in the SA is more relevant for the surge case studies. In recent disputes involving this Agreement, Panels and ABs have elaborated on the approach to be taken, various stages of the investigation and analytical standards. Although these standards, in the context of dispute panels, have proved too stringent, the standard provides a useful framework to follow. At the cost of some simplification, Box 5.1 shows the five key elements or building blocks of this approach. In addition to the WTO legal materials, the rapidly expanding literature on the impact of trade liberalization on markets, poverty and food security provide ample analytical insights and methods in particular for the case studies on import surges.

Although it is obviously a daunting task to go through all these stages thoroughly, these requirements make good logical and economic sense. For example, there has to be a surge, above all; otherwise imports cannot be the cause of the injury. Second, there has to be injury because a surge may or may not cause an injury, if there is no injury, the

¹ In some cases, however, the segmentation of markets (due to geography and lack of infrastructure) in developing countries can be an advantage in identifying the injury as a market segmentation may easily help isolate and assess the effects of an import surge on the sector for a particular area or a group of stakeholders.

entire rationale of undertaking the investigation is lost. Third and fourth, imports have to be the cause of the injury, either on their own or in combination with other factors. Moreover, it needs to be demonstrated that the role played by other factors in causing or contributing to the injury is properly identified, and the problems caused by other factors are not attributed to imports.

While the five elements or stages of the analysis are sequential, and will be discussed likewise in this chapter, the research will require additional activities to move from the surge identification process to the actual identification of injury and causality.

The analysis that adheres to the five aforementioned key building blocks for investigating import surges is thought of being consisted of several steps that the next section will discuss in detail. Within the steps, several analytical tools are proposed in order to guide and facilitate the research to be undertaken by the national consultants for policy uses. It is only after determining the nature and extent of injury and showing causality that measures which would remedy serious injury and facilitate adjustment can be proposed. To facilitate an understanding of the process, additional materials and specific examples are presented in the Annexes at the end of this chapter.

Box 5.1

Five key building blocks of an investigation of a surge and its effects

- Surge – a proof that a surge has occurred and is occurring;
- Reason – the potential causes of the surge are identified;
- Injury – the domestic industry (properly defined) is injured on the basis of several indicators listed in the SA (as well as other indicators as relevant);
- Causation – there has to be a causal link between imports and injury; and
- Non-attribution – the injury caused by other factors (other than imports) have to be properly identified and accounted for.

5.3 Identification of the problem and collection and analysis of basic trade statistics and policy information

Step 1 – Establish whether or not imports have increased

It is critical at the onset of the analysis to establish that “a product is being imported in such increased quantities, absolute or relative to domestic production, and under such conditions as to potentially cause or threaten to cause serious injury to a domestic industry producing like or directly competitive products.” In addition, the public interest in this issue, and an acknowledgement of the “social relevance” of the issue needs to be confirmed through discussions with various stakeholders.

Step 2 - Stakeholders’ survey²

Various stakeholders in the country are expected to hold different views on the issue of the surge, notably perceptions about how imports have affected markets and households, both positively and negatively. As an example, local processors of imported milk powder may perceive these imports to be beneficial for the consumers and economy, while local producers of fresh milk will see the effects differently. Government officials, with their often different mandate and constituency may also see the issue differently, with officials from finance differing in their perspective from officials from the Ministries of Trade or Agriculture³. Also importantly, different perceptions that these stakeholders have, whether they be consumers, producers, non-governmental organizations (NGOs), or government officials, lead to a better understanding of at the channels or

² The subsequent three elements, collection and analysis of trade, price and policy data, can proceed simultaneously at this stage, although it is better to complete the stakeholders’ survey first because this helps sharpen the scope and focus and so helps avoid collecting information that is not essential.

³ Note that it has sometimes been observed that officers from these three ministries hold different views on the issue – hence the importance of knowing their views.

mechanisms through which imports cause injury or benefit. Therefore, it is considered important that a survey of various stakeholders be undertaken prior to data collection or analysis. The evidence and views of all interested parties should be considered and the purpose of this activity is to verify that the issue is of public concern.

To the extent possible, while this step is focused on assessing the market impact of a surge, specifically the extent and nature of industry injury, the surveys should be used to understand the broader extent to which the import surge is affecting poverty, food security or livelihoods of vulnerable groups.

There is no particular method how a stakeholder survey is undertaken. It can amount to informal chats, with or without structured questionnaires, lasting one or two hours with each of the stakeholder identified (see Annex 5.1 for some illustrative questions). Interviews with additional stakeholders, perhaps in stakeholder fora, may generate more dialogue and insights. Depending on the commodities identified (including the range of “like” and competitive products, and parties potentially affected), the following would be typical stakeholders for the survey:

- producers and their associations;
- consumers and their associations;
- other users (e.g. hotels, super markets);
- chambers of industry/commerce;
- importers, wholesalers, other economic agents such as transporters;
- NGOs/CSOs;
- government e.g. agriculture, trade and finance ministries;
- research/academic community.

Step 2 bis⁴ – Identification and agreement of “like”, competitive and substitutable products

The next activity in the surge case study, which should also be discussed in the stakeholder surveys, focuses on the identification of products that are directly

or indirectly affected by the imported product. This determines the range of commodities and subsectors affected (e.g. markets) for which data are to be collected and analysed.

“Like”, competitive and substitutable products are terminologies found and defined in the WTO Agreements.⁵ Under the SCM Agreement: “like” product is interpreted to mean a product which is identical (i.e. alike in all respect to the product under consideration, or in the absence of such a product, another product which, although not alike in all respects, has characteristics closely resembling those of the product under consideration) . In contrast to the technical nature of the word substitutable, the interpretation of the word competitive is based on economic reasoning, from the demand or consumer side. Evidence on elasticity of substitution is useful. An example of the classification of these terms is the case of SMP. It is not, according to WTO definitions, a “like” product to fresh milk. However, in fact, reconstituted liquid milk from milk powder competes directly with fresh milk produced in the country. A commercially produced broiler cut is considered a “like” product to an imported leg quarter while live chickens are considered a competitive product as are beef, fish and pork. Animal feeds (grains) are often not “like” products, but can be substitutable products in terms of protein content. Thus, an import surge in a product not only affects the “like” domestic product but is also competitive or substitutable products. This identification of affected products is important for identifying various market participants affected by the surge.

Table 5.1 gives examples of some “imported” commodities and their “like”, “competitive”, and “substitutable” products. Essentially, such an identification is not a difficult task but some care is needed in determining what attributes make a product “like” versus competitive or substitutable. Often, “like” products are differentiated based on one or more quality characteristics related to factors such as agroclimatic differences, processing, packaging, consumer tastes and habits, etc. Meanwhile, product characteristics determine such qualities as

⁴ “Bis” numbering is used in several places in this chapter to emphasize the fact that this step is not sequential but occurring at the same time.

⁵ See the background paper on import surge by Mosoti and Sharma (2005) for these legal definitions and interpretations.

TABLE 5.1
Examples of “like”, “competitive” and “substitutable” products

| Imported product | “Like” | “Competitive” or vertically linked | “Substitutable” or horizontally linked | Input/output (other affected sectors) |
|-------------------------|----------------------------------|---|--|---------------------------------------|
| Chicken leg quarters | Domestic commercial broiler meat | Live birds | Beef, fish, pork, eggs | Feed |
| Broken rice | Domestic broken rice | Milled rice, Paddy rice | Millet, maize, cassava | Feed, rice cakes, beer |
| Refined sugar | Domestic processed sugar | High Fructose Corn-Syrup (HFCS), other sweeteners | Raw sugar, sweeteners | Begas |
| Whole milk powder (WMP) | Domestic whole cow milk powder | Fluid milk, processed milk from domestic production | Milk powder of other species | Yogurt, cheese, butter |
| Palm oil | Domestic palm oil | Palm kernel | Butter, other oils | Soap, other industrial uses of oils |

perishability, storability and so on. The identification of these products (and markets) will determine the scope of the study and subsequent data collection and analyses, e.g. price and trade data, policies, competition analysis and so on.

Steps 3 - Collection and analysis of statistics and information on: i) trade or imports; and ii) import policy for selected commodities

The timing and nature of the surge needs to be considered when determining the exact years of data needed, whether they be trade, policies, prices or other injury indicators. This is necessitated by the fact that the impact assessment of a surge may need to be reviewed over a long period than just the surge itself. The identification and understanding of the reason for a surge will determine the trade remedy response; however, the nature and duration of the injury will determine the types of appropriate impact compensation.

Step 3a - Collection and analysis of trade statistics for selected commodities

Trade data are obviously the key to identifying an import surge. The first important purpose of the import data is to demonstrate the surge, or a strongly rising import trend. These data will also be useful for

a variety of purposes, e.g. to identify the origin of the product (exporter) or the price of the product so that the reasons for the surge can be adequately analysed.

The following import data would be required to establish a surge through the usual approaches.⁶

Import data by volumes, values and sources

- product or commodity coverage - statistics for the products identified earlier in Step 1 (i.e. imported product under study, and “like” and competitive products). Often, these products are at HS6 or HS8 level (e.g. whole chicken, chicken cuts, broken rice, etc.);
- origin of the import – i.e. exporters, including their market shares;
- period – as far as possible, all statistics (e.g. import volume and value, derived import prices) and related information (e.g. policy regime) should be for a period of six years.⁷ Where monthly data are not available, identify appropriate quarterly or annual statistics.

⁶ These are: 1) the approach taken in safeguards dispute cases as illustrated in FAO Import Surge Working Paper No. 3 (Mosoti and Sharma, 2005); and ii) the approach of the Special Safeguard of the AoA, as illustrated in FAO Import Surge Working Paper No. 2 (de Nigris).

Analysis of the trade data

1. Demonstrate a surge – analyse the trends in the monthly trade statistics to demonstrate that imports have surged (optionally, use the AoA's SSG method on volume surge to determine if conditions are met for volume triggers).⁷
2. Changing composition of imports - review the data to identify any change in trends in the source and composition of imports (e.g. frozen chicken parts versus whole birds).
3. Changing import prices – calculate the per unit import prices of the appropriate product. To facilitate this review, annual data could be used.
4. Comment on the statistics - comment on the reliability of the data and indicate any problems which limit the data's usefulness for analysis and a trade surveillance system. Provide some preliminary comments on whether the import surge could have been caused by a sudden decline in import prices.

Note: It is useful to separate **food aid** from commercial imports. Therefore, collect trade statistics on commercial imports and food aid separately where the product in question is also received as food aid. The definition of food aid can raise issues for the definition of commercial trade. There is a spectrum of terms and conditions on which imports take place, which for convenience may be divided into three groups:

- (a) normal commercial sales;
- (b) other sales, where the costs to the importer are reduced by e.g. export subsidies, export credits on non-commercial terms (grace period, lower than commercial rates of interest, usually favourable insurance or freight rates);
- (c) food aid properly provided on full grant or highly concessional terms.

For the purposes of this project, import surges would ideally be estimated on the totals of groups a) and b) but in practice, while attempts can be made to

estimate commercial imports correctly, it is not always clear whether the figures on total imports include every food aid transaction or not. It is recommended that statistics be collected on both food aid and commercial trade but that the basic analysis should focus exclusively on commercial imports. However, the study should provide details on the amount and nature of food aid provided, if appropriate, particularly if there is evidence that food aid has a role in counteracting or worsening the effect of an import surge.

Similarly, the presence of substantive **re-exports** of the imported product (or substitutes), including in processed form (e.g. raw sugar imported and refined sugar exported) distorts the analysis and gives a wrong conclusion. Therefore, this aspect needs to be assessed, if necessary by also collecting and analysing export data.

Step 3b – Documenting and analysing border measures governing the import regime of the selected commodities

This is yet another building block of the surge analysis. The purpose is to document all policy measures that affect imports, and to review them in the context of the import surge or trends identified earlier. This requires going beyond ordinary tariffs (*ad valorem* or specific) to include other non-tariff measures that may be effective constraints to imports.⁸

First, as the primary purpose of the policy information is to explain trends in imports, the period for policy review should be the same six years adopted for trade statistics. Second, the commodity or product coverage of the import measures should be the same as above, i.e. the main imported product being analysed and its like and competitive products. This helps to understand policy bias if any among competing products (e.g. in terms of effective protection rates), and tariff escalation or de-escalation if any. It is important that all changes over the time period in the import regime of “like” and other products be highlighted.

⁷ The typical period that Panels have considered in safeguard investigations.

⁸ The WTO's Trade Policy Review reports, if available, is a good reference for this type of review. However, this information should be validated through a comparison with information collected from national sources.

Tariff measures

Customs duty:

- the WTO bound rate;
- applied tariff - type and rates during the review period;
- common external tariffs (CETs) in case of customs union;
- tariff applied to partners of a Free Trade Area (FTA);
- exceptions/exemptions made if any, e.g. to imports by an STE and food aid.

Other taxes and duties (these are often statistics tax, infrastructural taxes and so on).

Non-tariff measures

- import restrictions - seasonal or annual bans, tariff quotas if any during the review period;
- import licensing – are imports (or related products, such as feedstuffs which are an input to the livestock sector) subject to license? Automatic or non-automatic license? If non-automatic, discuss the cost/difficulties involved in obtaining/distributing licences;
- trade remedy measures – what form of trade remedy measures are applied? (SSG of the AoA, other WTO general trade remedy measures);
- imports by STE – are STEs involved in imports? How could this have affected the imports?
- standards and technical requirements – refer to Sanitary and Phytosanitary (SPS) and technical barriers to trade (TBT) measures in place during the review period;
- minimum import/reference prices – sometimes permitted by the World Customs Organization.

5.4 Analysis of competition, causal relations, injury and non-attribution issues

The investigation, after having identified affected products and obtained basic trade statistics and policy information, should then focus on the further stages as shown in Box 5.1. The nature of competition between imported and domestic products needs to be identified, as well as the manifestation of injury and its indicators. In addition the factors other than

imports affecting the industry, positively or negatively, need to be analysed (the non-attribution analysis).

Step 4 – Identifying market segments where imports compete with domestic products

The essential challenge underlying this analysis is to understand the nature of the competition and its implications. The impact on domestic products (in terms of price, sales volumes) will be different according to this nature of competition. A formal way of understanding this relationship is in terms of price elasticities of substitution, but that requires econometrics and lots of statistics, which may not be feasible for the case studies. Therefore, analysts need to use other, less formal methods to characterize the nature of competition. One obvious way, building on the activities in Step 2, is to conduct interviews with stakeholders (e.g. consumers, local producers) to determine how they see the nature and strength of the competition, and thus the economic implications for various economic agents.

Market competition takes place at particular market segments where impact could be sizable. It is a challenge to identify such points or market segments, which can have both spatial and temporal dimensions. In most cases, comparing total imports with total national production (i.e. assuming one single market segment) is not useful because often imports are a small fraction of total production (e.g. imported milk powder and total milk production in the country). Any estimate of the impact from such aggregate data would be likely negligible and potentially misleading. The identification of these segments is very commodity and country-specific (e.g. processed products could have multiple competition points along the value chain in contrast to products that are not processed).

Defining the domestic “industry” in the sense of the WTO Agreements

For a surge investigation aimed at determining injury or threat thereof, a “domestic industry” that is affected needs to be defined. The industry, according to the WTO ASG, is interpreted as “the producers as a whole, of the like or directly competitive products operating within the territory of a member, or

those whose collective output of the like or directly competitive products constitutes a major proportion of the total domestic production of those products.”⁹ Thus, for example, if the product in question is imported milk powder, the corresponding domestic industry would be milk farmers in the country (in the sense of the wider “competitive product”) and “milk processors” (in the sense of narrower “like products”).

The reference to the sizable “collective output of the product” is to avoid cases where an investigation is undertaken because only one or two firms producing a fraction of the total product are affected. For the surge case studies, it would be useful to try to identify the industry as defined by the Agreements, and to point out potential conflict with this definition where a surge affects only a small segment of the domestic industry.

Mapping the industry/sector

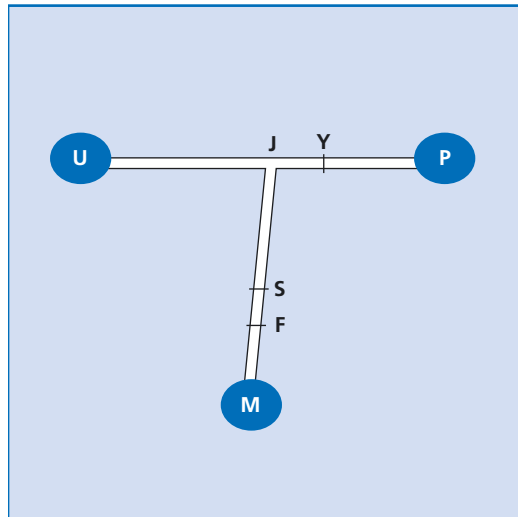
Mapping is a valuable tool for understanding the points of market competition between products and its nature. This exercise will provide input into subsequent parts of the study, e.g. how to study the competition, identify injured economic agents and data needs. Figures 5.1 and 5.2 show two illustrations of the type of approach useful for identifying market segments for the purpose of competition analysis.

Figure 5.1 is from Westlake (2005). This figure focuses on understanding the spatial dimension of competition by way of identifying distribution of imported products, points of competition, production areas, major consumption centres and so on.

The diagram indicates the following important nodes in the process of the spatial flow of the imported products across the country.

1. The point of import (typically the port) - M in the figure.
2. Production area/areas - P in the figure.
3. Consumption area/areas (typically urban area/ areas) - U in the figure.

FIGURE 5.1
Identifying points of competition by mapping



Source: Mucavele (2000); Westlake (2005).

The points S, F, J, Y are arbitrary points along the routes connecting U, P and M.

It is assumed that the good is produced in one main surplus area (P) in the east of the country, imported through one port (M) in the south and consumed mainly in one main urban area (U) in the west. At a point (J) the route from the port joins a route running from the domestic surplus producing area to the main urban area. As M is not in an area of surplus production, importers maximize profit by selling as close as possible to M (closeness being defined in terms of unit transport costs rather than distance). Their profits decline as the good is transported further into the country along the route from M to J. This is because the cost of marketing the imported good increases whereas the unit marketing cost of the competing domestic good falls as one moves closer to P. Imports penetrate to the point at which the imported good can be sold in competition with the domestically produced good at a price that just covers importers’ unit costs and the minimum profits per unit that they are prepared to accept (Point F). Importers’ unit costs comprise their costs to CIF plus their costs from CIF to the point of sale. At all locations from M to F, the entire supply comprises imports. At all other locations supply is from domestic production. Between M and F,

⁹ See Mosoti and Sharma (2005) background paper for details.

prices are lower than if there were no imports, with the difference between the pre-import and post-import price falling as one moves from M to F.

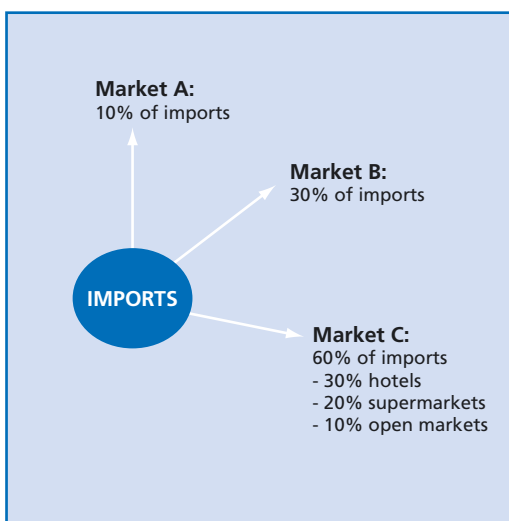
Now assume that the import price falls and imports increase, pushing the point at which the two sources compete to S, further down the route from M to J. This further lowers prices along the import route from M to F and reduces prices from F to S. However, it will not change them elsewhere.

If the import price fall is just sufficient to make the unit cost of imports equal to the domestic market price at point J, imports will penetrate to this point, where the price will be equal to the unit cost of imports. Having penetrated and competed successfully with the domestic good at this point, importers will be able also to compete successfully at all points through to the main urban market U, provided their unit marketing costs are not higher than those of traders of the domestic good. Thus, this market will be supplied with both the domestic and imported good. At each point from M through J to U, the price will be lower than before, equal to the unit cost of marketing imports to that point. Prices will be unchanged along the route from P to J.

If the unit cost of imports at point J is less than the prior domestic market price, importers are able to sell profitably from J back towards the main producing area P. Imports will penetrate along this route until increases in their marketing costs and the reduced costs of marketing the domestic good prevent them from selling profitably any further towards P (Point Y). In this case, all sales at points from Y along the marketing routes to U and M will comprise imports. Prices will be lower at each of these points, with the price reduction being greatest at M, diminishing to J, staying constant from J to U and diminishing further between J and Y. The price will be unchanged between Y and P.

Prices rise as one moves away from the port, down M towards J. This is the reverse of the pre-import situation, where prices increased progressively towards the port. Prices through to the main urban area will also be lower, but the *increases* in price as one moves away from point J, will be roughly the same as before. This outcome for prices is generally consistent with the impact of imports in the simple supply and demand model shown in Figure 5.1. However, there is not an identical proportionate fall

FIGURE 5.2
Market segments and competition



Sources: Mucavele (2000); Westlake).

in all prices throughout the country, and in parts of the country prices are unaffected.

Figure 5.2 is another illustration similar to the above. It shows, for example, that a country imports a known quantity of poultry, which are marketed as follows: 60 percent in the capital city (Market A); 30 percent in the interior market (Market C); and 10 percent in another market (Market B). It also shows the sales of the first 60 percent in the capital city. This essentially implies that there are three “market segments” in the capital city itself. The primary reason why “three” market segments are identified in this illustration is to stress the fact that the “nature” of competition could be different in these three segments, e.g. strong competition (“high price elasticity of substitution”) in open markets but weak competition in supermarkets.

Step 5 – Identifying injury indicators

This activity needs to refer to the definition of the domestic industry (Step 4) because injury indicators for industry A, e.g. farming or producers, would be different from industry B, e.g. milk processors.

Although the concept of injury and its indicators are widely known to specialists and non-specialists, these are also defined and listed in the WTO trade

remedy measures.¹⁰ The Subsidies Agreement in particular defines the concept of serious injury as a *significant overall impairment* in the position of domestic industry. Likewise, a *threat of serious injury* is understood to mean serious injury that is clearly imminent. The Agreement *requires* an evaluation of *all* relevant factors having a bearing on the situation of that industry and goes on to list the following indicators as being *particularly* required:

- rate and amount of the increase in imports of the product concerned in absolute and relative terms;
- share of the domestic market taken by increased imports;
- changes in:
 - the level of sales;
 - production;
 - productivity;
 - capacity utilization;
 - profits and losses; and
 - employment

The surge case studies need not follow everything that is said in the Subsidies Agreement, but the guidance is helpful. In particular, analysts need to consider at least four to five injury indicators that are particularly relevant for the industry in question. Annex 5.2 shows some examples for the chicken meat sector; obviously the indicators will differ by commodity and, as mentioned, by the nature of the participation of the economic agent along the marketing chain.

An evaluation of all relevant factors, which could include factors not listed in the Agreement, would include other relevant commodity specific indicators applicable to different segments of the entire length of the supply and distribution chain, e.g. even impact on transporters, input suppliers, etc.

Prices were not included in the aforementioned list but it is clear that prices are of overriding importance. The impact on market prices is one of the key

indicators of injury. The Antidumping Agreement in particular singles out impacts on domestic prices as a key injury indicator. Consequently, the market price is one key variable to be collected and analysed in any economic analysis. The collection of price data is discussed next, as a supplement to the section on injury indicator.

Step 5 bis – Collection of price data for the surge case studies

Changes in relative prices are one of the key channels through which the impact of an import surge is felt by market participants (the other channel being production and consumption responses to price changes, or “second round” effects). Price data are also needed to understand spatial transmission of shocks due to imports (discussed later). The surge study would require a range of price data, notably the following:

- domestic market prices of the imported and affected commodities – this is required for better understanding the nature of competition between domestic and imported products. Price ratios or other more sophisticated analysis should reveal if there has been some “price undercutting” due to imports;
- ideally, monthly price data would be essential for detecting such price effects. The overall period for which the price data would be required would be the same six-year period as in trade and policy data;
- as several or most case studies would be looking at effects from the angle of “vertical” market structure, it would be useful to collect price data relevant at the levels of farm, wholesale and retail. Producer price data are often available on a yearly basis, and so analysts may consider using some proxy for this (e.g. monthly wholesale or retail price data for a market closest to the producing area);
- the price data should cover not only the “like” product but also those of competitive products and substitutes, e.g. commercial broiler cuts, live birds and feed prices. It should be remembered that the injury indicators related to an import surge in a commodity such as broiler meat can be revealed through changes in feed prices;

¹⁰ See Mosoti and Sharma (2005) background paper for details. Also, Sharma (2005a) and Grethe and Nolte (2005) include more explanations.

- for analysing the transmission of price shocks across markets (discussed below), price data are needed for the spatially separate markets. The selection of the appropriate market prices should be clear through the market mapping exercise undertaken in Step 4;
- other considerations, but mainly at the stage of analysis, include understanding seasonality patterns, and expressing prices in real terms as needed.

Step 6 – Causation analysis: relationship between imports and injury indicators

The term “causation” or “causal link” denotes a relationship of cause and effect such that increased imports contribute to “bringing about”, “producing” or “inducing” the injury. It is obvious that such a relationship should exist in order to make a case that imports have caused injury. Otherwise, the cause of the injury needs to be attributed to factors other than imports (see discussion on non-attribution analysis in Step 7).

WTO dispute panels have to deal with this question in all safeguard cases. Because of the difficulties of attributing causality, Panels in recent disputes have developed an approach to handle this issue.

The Panel of a specific trade dispute in 2001 considered the following three-step process as the appropriate approach for this part of the investigation.

1. The need for a correlation analysis: identify the relationship between the *movements* in imports (volume and market share, etc.) and the *movements* in injury factors (e.g. sales, production, productivity, capacity utilization, profits and losses and employment).
2. Additional insights/analysis: determine whether the conditions of competition between the imported and domestic product as analysed demonstrate the existence of the causal link between the imports and any injury. While vague, this step requests that additional analysis and insights be provided on why there is a causal link. In the absence of the expected

negative correlation, the case is not dismissed but more and stronger evidence must be produced to argue why imports have caused injury despite the positive correlation.

3. Non-attribution analysis – ensure that all other relevant factors have been analysed and establish that injury caused by factors other than imports has not been attributed to imports (discussed in Step 7).

The WTO approach makes logical and economic sense. In view of this, the case studies shall strive to collect data that allow a correlation analysis or, as a minimum, allow for a graphical depiction of the relationship between imports and injury indicators. The challenge is to provide the additional analysis and insights necessary to make a compelling case that the relationship is negative, or positive, or none.¹¹ This requires a creative analysis of the relevant injury factors identified earlier.

Step 6 bis – Analysing causation across spatially separate markets – the study of price transmission

There would be several instances in the case studies where competition between imported and domestic products has a spatial dimension. In Figure 5.2, for example, about 40 percent of the imported products are sold in far-away markets B and C. Even where the products are not sold outside of the capital city, it is possible that farmers in those areas are affected through a change in relative price of the product they sell to the capital city market (Market A) or/and their sales are displaced.

Therefore, in order to understand how surges have affected, or will affect in the coming years, markets located in distances from the main market, analysts undertake “price transmission” studies. These studies use econometric time-series techniques to determine whether and to what extent shocks, such as changes in relative prices that originate in one market, are felt in other markets. There is large and growing literature on this.

For this part of the study, the key statistics required are price data for the markets that are part of the transmission analysis (part of Step 5 bis). As with all econometrics methods, sufficient data points are required for the analysis. Therefore, national analysts should collect monthly price data (retail or wholesale,

¹¹ At this stage of the study, it would help the analysts to review the “causation” sections of some WTO disputes where panels tried to make sense of the correlations presented by the parties to the dispute.

depending on availability and quality) for a number of years, about six, the same period as for other analysis, which gives about 72 observations. Where price data are readily available, it would not be an issue to use longer periods for the analysis.

In addition to the price data, the following qualitative information and insights would be useful to interpret the results:

- transaction costs (including periods when these changed markedly for some reason) involved in shipping products across the markets (transport costs, credit availability and other costs of doing business);
- trade flow pattern: e.g. seasonality of specific product trade flows between markets which could include reverse flows in some periods, etc.;
- other elements which can determine rigidities in the transmission of price signals, such as information costs, physical and/or cultural barriers.

Step 7 – Non-attribution analysis: making sure that the role of factors other than imports are properly identified and accounted for

The so-called “non-attribution analysis”, mentioned in previous sections, is an integral part of the “causation” analysis. Non-attribution analysis implies an understanding of all other relevant factors potentially implicit in injury issues and the determination that injury caused by factors other than imports has not been attributed to imports.

Any analysis of a cause and effect type needs to take into account the effects of other causal factors, so that injury caused by other factors is not wrongly attributed to the causal factor under investigation. Many WTO disputes, or other studies, have failed or been discredited because a country that has put into place a safeguard measure failed to properly undertake the non-attribution analysis.

The factors other than imports that could cause injury vary from commodity to commodity and from country to country. Some examples of such factors examined in the WTO disputes include credit tightening, hiked interest rates, exchange rate overvaluation, overall economic recession, rising labour costs, changing consumer tastes, export surge which might prompt imports of a good as an

input into the production of export products and so on. Once the national analysts develop a good understanding of why and how identified industries may be suffering, these potential causal factors should be evident. These are the underlying factors which potentially underpin the competitiveness of a domestic industry.

Step 7 bis – Competitiveness of the domestic industry affected and the role played by imports and other factors in influencing competitiveness

One approach to better identify these factors could start with a cost of production survey which reveals the sources of the industry competitiveness or lack thereof. A cost of production survey is the starting point of a competitiveness analysis because it brings together in one place all possible costs (e.g. in Table 5.2). These statistics could then be used for a variety of analyses to better understand the role played by factors other than imports in determining or undermining the competitiveness of the industry in question.

The cost of the production approach involves collecting survey-based cost of production (complemented by reviewing any type of secondary data generated by government or industry sources). It is important that trends in competitiveness be evaluated through using one year data and constructing trends around the various costs (see below). It is particularly important to describe and investigate firms or market/industry efficiency and the presence of economy of scale. These two issues are particularly relevant in understanding how and if domestic products can compete with imported products.

A typical procedure for a cost of production survey:

- identify appropriate year for deriving cost data (preferably a “normal” year);
- investigate cost data availability from government, official statistics, etc.;
- collect primary data using semi-structured interviews;
- calculate average costs for different sized (in terms of quantity produced and employees) firms and farms;
- compare the data with international price;
- by collecting data from different size firms and farms, build up an average cost curve for the

Table 5.2
Typical costs of production in farming

| Traded intermediary | Non-traded intermediary | | Primary factors |
|---------------------|-------------------------|--------------------------------------|-------------------------------|
| | <i>Direct use</i> | | |
| Fertilizer | Manure | | Land: irrigated non-irrigated |
| Pesticides | Services: | | Labour: skilled and unskilled |
| Fuel | | Handling | Sunk capital or fixed assets |
| Lubricants | | Transport | Tractor |
| Seeds | | Electricity | Draft power |
| | | Repair and maintenance | Farm implements |
| | | Insurance | Buildings |
| | <i>Indirect use</i> | | |
| | Land | Embodied in non- traded intermediary | |
| | Labour | | |
| | Capital | | |

Note: Data requirement will vary depending on product type and level of the value chain (producer, processor) being evaluated.

sector/industry. This is useful for investigating the presence of economies of scale and efficiency;

- investigate how costs have been changing by collecting point data on certain elements of the cost data (e.g. wages, energy prices, etc.), or by developing some general indicators from stakeholders.

There are several ways of summarizing and adding value to the statistics thus collected and analysed, in particular using the data to calculate various indices. One technique is to use the concept of effective protection coefficient (EPC). This coefficient is particularly useful when comparing products with very different levels of input use. An additional technique for analysing these data is Policy Analysis Matrix (PAM) while the use of the Herfindahl Index and Concentration Index measures industry concentration or, on the other hand, the degree of segmentation and market power.¹² The use of these tools should be used when (i) additional insight on how factors related to the competitiveness of a particular product

could result in an import surge; or (ii) reveal the factors which make a particular product/industry susceptible to injury from imported product. These indicators are formally defined in Annex 5.3 and useful background documents are listed in the references.

To better understand the statistics and their underlying trends, all domestic policies, or changes thereof, which would influence the competitiveness of the industry should be highlighted. This should include those for competitive and substitutable products. Examples could include pricing policies, input subsidies, subsidized credit, etc.

5.5 Concluding remarks: analysis of the institutional capability for a trade surveillance system

One of the main goals of the surge investigation is to provide a broader understanding of the capacity

¹² See Tsakok (1990), Mucavele (2000).

of the developing countries to use enhanced trade surveillance and trade remedy measures with the objectives of identifying, analysing and responding to import surges. Critical to this objective is an understanding of the institutional capacity of the government (institutions, statistics, etc.) to develop and strengthen trade surveillance systems. This would include the ability to respond to the problem with WTO trade remedy measures (including the SSM) as well as appropriate domestic response measures. In addition, an assessment of the type and appropriateness of domestic policy responses, in the context of the implementation of WTO trade remedy measures, should be provided.

In order to assess the actual situation, the following information needs to be documented:

- institutions involved in trade monitoring; their role and analytical capability;
- number of ports and personnel (from various agencies) involved in trade surveillance activities;
- an assessment of constraints to effective trade surveillance (through discussions with customs agents, policy-makers, representatives from international organizations involved (such as Crown Agents);
- a brief description of what is required for building this capability;
- elaboration of appropriate domestic policy responses, if needed.

The implementation of these steps in this chapter does not guarantee a full view of agricultural import surges in the selected countries and commodities. Nevertheless, these steps provide a better understanding of the impacts of an import surge and inform on the appropriate measures to deal with its impacts.

APPENDIX 5.1

QUALITATIVE APPROACH: REVIEW OF VARIOUS STAKEHOLDERS TO THE SURGE

(BASED ON ONE-TWO HOURS OF INTERVIEWS WITH KEY STAKEHOLDERS)

Government

- What is the view of the government officials on the surge? Do they consider recent import trends as being “surges”? (responses often differ between officials from Ministries of Agriculture, Commerce and Finance).
- If the phenomena are considered to be surges, what was the government response? Responses often take the form of raising applied tariffs, other regulations that limit imports (licensing, SPS/TBT-type measures), triggering WTO safeguards, giving domestic aids, etc. Or, do the officials consider that the surge was not strong enough for its effects to be felt, and therefore, nothing was done?

Farmers (both subsistence and commercial farmers) and farm associations

- What do they think of the phenomenon of import surge?
- Did they react in any way, e.g. petition the government for response/relief?
- What measures were called for?
- What did the farm association do? Were the cases publicized in the media?

Importers of the products/traders/import associations

- What do they think of the import surge?
- Do they see the negative side? How would they “view” or quantify the negative effects?
- Or, do they only see the positive side, e.g. on the ground that imports have helped employment in factories and food security for poor consumers?

NGO/civil society views

- Same questions as above – their views? Why? How would they quantify the effects?

Research/academic community

- Was this an issue that attracted research interest in the country? In newspapers?
- Where are analyses, papers done?
- How would they conduct this type of research?

APPENDIX 5.2

IDENTIFICATION OF COMMODITY-SPECIFIC INJURY INDICATORS: THE CASE OF CHICKEN QUARTERS

Indicators which might be useful for measuring injury

| Imported product (examples) | "Like" WTO | "Competitive" or vertically linked | "Substitutable" or horizontally linked | Input/output (other sectors) |
|------------------------------|---|---|---|---|
| Chicken leg quarters | Commercial broiler meat | Live birds | Beef, fish, pork, eggs, live animals | Feed |
| Economic Effects on: | | | | |
| Producer | Changes in: <ul style="list-style-type: none"> chicken production; household income; changing share of poultry sales in total household income; employment | Changes in: <ul style="list-style-type: none"> price of live birds | Changes in: <ul style="list-style-type: none"> relative prices; share of poultry in consumption | Changes in: <ul style="list-style-type: none"> feed prices; used capacity of feed mills; employment in feed mills; profitability of feed production |
| Processor | Change in: <ul style="list-style-type: none"> sales; prices; profits/losses; output; market share; employment; productivity; return on investments; capacity utilization | | | |
| General indicators: | Imports and changing share of the total market | | | Employment in the transport sector |
| Food security impacts | | | | |
| Household employment | | | | |
| Rural incomes | | | | |
| Gender | | | | |
| Macro-indicators: | | | | |
| Balance of payments | | | | |
| Current account | | | | |
| Exports of same product | | | | |

APPENDIX 5.3

TOOLS TO ANALYSE COMPETITIVENESS

Indicators which might be useful for measuring injury. The cost of production data (see Step 7 bis) can be used to feed into various indices. While these tools might be useful for examining factors affecting the general competitiveness of an industry, it should be recognized that they may not be necessarily useful in clarifying the impact of an import surge. Calculation of some of the indices, on the other hand, may add to an understanding of the factors implicit in the vulnerability of a specific industry to an import surge. Hence caution should be used when using these tools.

1. Herfindahl Index and Concentration Index

These indices measure industry concentration and the intensity of competition in a market or, on the other hand, the degree of segmentation and market power (Tirole, 1988).

The **Concentration Index** is calculated as the percentage of the market (by quantity or value) that is controlled by the biggest three (CR3), or four (CR4) or five (CR5) firms operating in the market.

The **Herfindahl Index** is a more precise tool for measuring concentration. The Herfindahl Index is a measure of the size of firms in relationship to the industry and an indicator of the amount of competition among them. It is defined as the sum of the squares of the market shares of each individual firm. As such, it can range from 0 to 10 000, moving from a very large amount of very small firms to a single monopolistic producer. Decreases in the Herfindahl Index generally indicate a loss of pricing power and an increase in competition,

$$H=(S_1)^2+(S_2)^2+(S_3)^2+\dots+(S_n)^2$$

whereas increases imply the opposite where S stands for the market share of each company.

Recommended data requirements:

1. Market share of the firms operating in the market, sector or industry.
2. Quantity and value of the good (imported or domestically produced) sold in each market. Time series of quantities and values of domestic production, consumption and imports.
3. Flows: estimation of the quantities under consideration (tonnes, kg, etc.).

Potential limitations:

- the usefulness of this indicator to detect monopolies is directly dependent on a proper definition of a particular market. Thus, it is important to accurately define the market, or the industry being analysed;
- this statistic does not take into account factors such as firm location. For example, firms may each have 20 percent market share, but may be located in five areas of the country, thus limiting any type of price competition. This constraint highlights the importance of proper use of mapping;
- the application of the Herfindahl Index requires a large amount of information. To be calculated it requires the knowledge of the market share of each firm. The same information is not required when calculating a Concentration Index.

2. Lerner Index

This index is used to investigate the extension of monopoly market power (Lerner, 1934; Tirole, 1988). The theoretical idea is that a firm that has market power can set the price over marginal cost.

$(p-mc)/p=-1/\epsilon$ where p is price, mc marginal cost and ϵ is demand elasticity.

The Lerner Index takes values between 0 and 1. The higher is the value of the index, the larger is monopoly power. For firms in a purely competitive market, the Lerner Index is zero.

The index may be calculated at firms, market or industry level and at each stage of the value chain.

Recommended data requirements:

1. Cost of production based on the inputs that have been roughly summarized in the table presented in the cost of production section.
2. Quantity produced to calculate the average cost of production.
3. Wholesale, retail prices.

Potential limitation:

- in practice, the marginal cost, and hence the relative markup, is difficult to observe and has often been approximated by total cost of production or the average cost of production.

3. Indicators of comparative advantage

Coefficients (or indicators) of comparative advantage measure the performance of the domestically produced products which compete with imported products. These coefficients include net social profits (NSP), domestic resource cost (DRC) and social cost-benefit (SCB) ratios and are defined as follows:

$$NSP = \sum_x P_x Q_x - \sum_i P_i Q_i - \sum_j P_j Q_j \quad (NSP = E - F - G)$$

$$DRC = \sum_j P_j Q_j / (\sum_x P_x Q_x - \sum_j P_j Q_j) \quad (DRC = G / (E - F))$$

$$SCB = (\sum_j P_j Q_j + \sum_i P_i Q_i) / \sum_x P_x Q_x \quad SCB = (F + G) / E$$

where P, Q are price and quantity; the subscript x, i and j, indicate output, tradable inputs and domestic factors.

1. The NSP is expressed in local currency and is an accurate indicator of comparative advantage. This measure can only be used to compare similar types of activities, such as alternative agricultural product projects competing for a given fixed resource. For agricultural production, resources are typically fixed only in the aggregate. The NSP is also one of the fundamental measures of profitability.
2. The DRC is the major indicator of comparative advantage. It is commonly used as a measure of

comparison across the countries. This measure of comparative advantage ensures that the cut-off between efficient and inefficient activities always equals one. The DRCs cannot only be used to compare across countries but also across activities within a country. Given that domestic factor costs are placed in the numerator and tradable factors are placed in the denominator, the DRC formula makes it possible for an activity to appear more efficient by replacing some non-tradable factors with an equivalent value of tradable inputs. This substitution might be thought desirable by analysts who favour high-input activities, but it might also be thought undesirable by those who favour increased demand for local land and labour.

3. The SCB. Similar to the DRC, it is the only ratio which accurately replicates farming activities.

Recommended data requirements:

1. Import prices (c.i.f.), domestic price and official exchange rate (NSP, DRC, SCB).
2. Transaction costs, paying particular attention to transport costs (see appendix) (NSP, DRC, SCB).
3. Alternative market opportunities of the inputs. (NSP, DRC, SCB).
4. Estimates of opportunity costs or shadow prices for the inputs (NSP, DRC, SCB).
5. Major traded inputs and technological coefficients (NSP, DRC, SCB).
6. Border prices of traded inputs (NSP, DRC, SCB).

Potential limitations:

- give the length of the production-marketing-consumption chain (implying different stages at which a commodity can be evaluated) the selection of the appropriate domestic price is problematic;
- the border price should be adjusted for the transaction costs involved in delivering the product to the major market where it competes with local product;
- shadow prices and opportunity costs are not directly observable and need to be estimated.

4. Indicators of protection and policy distortion

Through the calculation of these coefficients and the comparison of domestic prices with foreign prices, the implied structure of taxation and subsidization and the divergence between incentives that are generated by policy and other incentives are revealed.

1. The Nominal Protection Coefficient (NPC) is the ratio of a products domestic price to its border price (defined as the price in the international market converted into local currency).
2. The EPC. This index is analogous to the NPC, except for the fact that value added determines returns to fixed factors.
3. The Producer Subsidy Equivalent (PSE) is the level of producer subsidy that would be necessary to replace the array of actual farm policies employed in the country, in order to leave farm income unchanged.

Recommended data requirements:

1. Import prices (c.i.f.), domestic price and official exchange rate (NPC, EPC, PSE).
2. Taxes and subsidies on outputs and on traded inputs (NPC, EPC, PSE).
3. Transaction costs, paying particular attention to transport costs (see appendix) (NPC, EPC, PSE).
4. Categorization of inputs into traded and non-traded inputs (EPC).
5. Technological coefficients for traded inputs in production and processing (EPC).
6. Total amount marketed to compute total transfer (PSE).

Potential limitations:

- give the length of the production-marketing-consumption chain (implying different stages at which a commodity can be evaluated) for which the selection of the appropriate domestic price is problematic;
- the border price should be adjusted for the transaction costs involved in delivering the product to the major market where it competes with local products.

5. Policy analysis matrix (PAM)

The policy analysis matrix (PAM) developed by Monke and Pearson (1989) is one of the approaches developed in a systematic way. It includes all data needed to calculate the PSE, NSP and DRC.

The PAM approach is based on estimation of budgets using market prices and social opportunity costs. Benefits, costs and profits are determined in a systematic way: first, using budgets derived through market prices, and second, using social opportunity costs. Inputs are subdivided into tradable and domestic. The table above shows the PAM approach. Matrix entries A, B and C are the sum of products of market prices (P) and quantities (Q) representing all of a production activity's outputs (with subscript x), tradable inputs (with subscript i) and non-tradable domestic factor inputs (with subscript j). Entries E, F and G use the same quantities but are valued at social opportunity costs or shadow prices (P*). The bottom row is the difference between the other

PAM

| | Benefits | Cost | | |
|------------------------------------|------------------------|------------------------|------------------------|------------|
| | Gross revenue | Tradable inputs | Domestic factors | Net profit |
| Budget at market price | $A = \sum_x P_x Q_x$ | $B = \sum_i P_i Q_i$ | $C = \sum_j P_j Q_j$ | D |
| Budget at social opportunity costs | $E = \sum_x P^*_x Q_x$ | $F = \sum_i P^*_i Q_i$ | $G = \sum_j P^*_j Q_j$ | H |
| Divergences | I | J | K | L |

two rows. The last column shows benefits minus costs. Thus, the PAM is a double-entry accounting system of identities, with no behavioural equations. The behavioural content of the PAM is embodied in the shadow prices used and in the interpretation of the matrix.

This approach allows the determinants of comparative advantage to be explicitly traced to specific elements of the PAM. The presentation of data and results using PAM allows a better comparison among different indicators.

The PAM allows for instance to compute directly the comparative advantage indicators as:

$$\begin{aligned} \text{NSP} &= \sum_x P_x Q_x - \sum_i P_i^* Q_i - \sum_j P_j^* Q_j \quad (\text{NSP} = E - F - G) \\ \text{DRC} &= \sum_j P_j^* Q_j / (\sum_x P_x^* Q_x - \sum_j P_j^* Q_j) \quad (\text{DRC} = G / (E - F)) \\ \text{SCB} &= (\sum_j P_j^* Q_j + \sum_i P_i^* Q_i) / \sum_x P_x^* Q_x \quad \text{SCB} = (F + G) / E \end{aligned}$$

APPENDIX 5.4

THE CASE OF PIG AND PIG MEAT INDUSTRIES: AUSTRALIAN SAFEGUARD ACTION AGAINST IMPORTS

INQUIRY REPORT NO. 3 CONDUCTED BY THE AUSTRALIAN PRODUCTIVITY COMMISSION,
11 NOVEMBER 1998

This inquiry report was conducted to determine whether safeguard action was warranted against imports of meat of swine, frozen, falling with tariff subheading 0203.29 of the Australian Customs Tariff. The Commission is to report on 1) whether the circumstances are such that safeguard measures would be justified under the WTO Agreement; 2) if so, what measures would be necessary to prevent or remedy serious injury and to facilitate adjustment; and finally 3) reference the question of the factors affecting the profitability and competitiveness of the domestic pig farming and pig meat processing industries, specifically examining the extent to which each factor influences industry profitability and competitiveness.

The study followed the following steps:

1. Agreement on the commodity to be investigated; document the increase in imports

The industry solicited the assistance of the Productivity Commission; pig meat imports were at relatively low levels until 1996 at which time they increased by 173 percent. The appropriate period for analysis was considered from 1995 through 1998 (publication of the report).

2. Identification of the like, competitive and substitutable products

The domestic industry producing like or directly competitive products comprises pig producers as well as producers of primal pork cuts (that is, specialist pig abattoirs and boning room operators).

3. Stakeholder surveys conducted to identify the impact of the surges on economic agents (producers, consumers, etc.)

Evidence was solicited from individual pig growers, abattoir operators and processors. In addition evidence was reviewed from stakeholders opposing the imposition of a safeguard mechanisms – the Government of Canada, the Canadian Pork Council and Meat Council. In addition, comments were received from the sugar corporation, farmer associations and policy-makers.

4. Collection of data on production, trade, prices and policy measures for the analysis

Data collected and analysed. In particular, examine how imports in just one segment of the pig meat market might affect producer prices and output. The degree to which imports actually affect pig prices depend on the price of imports relative to the price that would prevail in the absence of imports, the supply response by pig producers to price changes, the strength of consumer demand for other parts of the pig and the substitutability of imported pork for the local product. There is a range of other factors that might affect pig meat prices, including changes in domestic supply, changes in costs (for example, grain prices, other meat prices, which can affect consumer demand for pork), and changes in demand, including export demand.

5. Identification of the domestic industry and the related market segments that are injured or threatened

*“An imported Article is **directly competitive** with a domestic Article at an earlier or later stage of processing, and a domestic Article is **directly competitive** with an imported Article at an earlier or later stage of processing if the importation of the Article has an economic effect on producers of the domestic Article comparable with the effect of importation of articles in the same stage of processing as the domestic article. According to the United States International Trade Commission, in certain safeguard cases involving agricultural goods, producers at all stages should be included as part of the domestic industry”.*

6. Identification and estimation of injury indicators for the domestic industry and the market segments

Injury indicators: imports and market share, sales volume, sale prices, production, productivity and capacity utilization, profits and losses, employment.

7. Establishing causality between injury and imports

Price analysis: evidence from participants suggested that the price paid for locally-produced legs (and other leg cuts) in September 1998 was about 5 percent above the comparable import price. It was estimated that, all else constant, a fall in the domestic price of boned legs from around 560 c/kg to around 440 c/kg would roughly convert to a 20 c/kg fall in the price of a dressed carcass. In addition, import prices also tend to drive down the price of these cuts and the price of pigs. It appeared that most of the reaction to import competition (and thus most of the serious injury) was in the form of lower prices rather than reduced production.

In addition, econometric analysis was undertaken that failed to produce clear-cut results. Granger and Sims (pairwise) causality models as well as a more general Vector Autoregressive (VAR) model designed to capture the effects of several key factors were used.¹ However, another analysis found that imports of pig meat had affected pig saleyard prices significantly. For example, one study found that an additional 1 000 tonnes of imports of pig meat would push down producer prices by just under 11 c/kg.

8. Non-attribution analysis: establishing that injury is the result of the import surge only

Examine the role of other factors – factors that affect the demand for pork and factors that affect the domestic supply of pork:

Demand – consumer tastes, other meat prices, export demand

Supply – domestic production, productivity, input costs

Other – exchange rates, market power of user industries.

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¹ See Granger (1988); Sims (1980); and Conforti and Rapsomanikis (2005).

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