The Pass-Through of Subsidies to Price

Abstract: Nations set countervailing duties equal to the amount of subsidy granted to the exporter, ignoring questions of the effects of the subsidy on import prices. The 2011 WTO Appellate Body decision in US – Antidumping and Countervailing Duties (China), followed by conforming changes in U.S. law in 2012, has brought a renewed focus on the pass-through of subsidies to price. This paper reconsiders the theory concerning subsidy pass-through, refining the existing literature and extending the theory to the important case of subsidized fixed factors of production. This allows an appraisal of the role and effectiveness of countervailing measures generally and of recent U.S. attempts to measure pass-through in particular.

Brian D. Kelly

1. INTRODUCTION

This article concerns the pass-through of subsidies to price. The specific context is the pass-through of subsidies to export prices for tradable goods. While always a background issue in international tensions and agreements concerning subsidies, pass-through has seen a revival of interest since a 2011 Appellate Body (AB) decision (World Trade Organization DS379 (2011)) concerning the interplay of countervailing and antidumping duties. This paper develops the economic analysis of subsidy pass-through, addressing some stylized and partially incorrect past approaches and providing the first analysis of the subsidization of fixed factors of production. It then analyzes from an economic perspective the pass-through approaches adopted by the United States in response to the AB decision.

International consensus allows countervailing measures to equal the full amount of a subsidy. Past theoretical criticism of this approach has argued that the subsidy pass-through rate to export price is necessarily bounded by zero and one and is likely well less than the full pass-through implied by countervailing measures. But the theory needs reconsideration, both because this central result is not entirely correct and because the quantification tools associated with it are inadequate. Further, existing theory ignores the subsidization of fixed costs as irrelevant to pass-through, yet countervailing measures routinely consider such subsidization. These elements are central to current U.S. attempts to measure pass-through, the narrow focus of this article. More broadly, they suggest that permitted responses to subsidies generally and countervailing duties in particular need more careful consideration.

1 Assistant Professor of Economics, Seattle University. I would like to thank Felix Munoz-Garcia, Michael Moore, other participants in the Western Economic Association International symposium on contingent protection in June 2013, and an anonymous referee for their comments, and Seattle University Law Librarian Robert Menanteaux for research assistance.
The WTO’s Agreement on Subsidies and Countervailing Measures (SCM Agreement) provides that government funds or services constitute a subsidy if they confer a benefit and are specific to certain enterprises. In general a benefit is defined relative to market alternatives. Subsidy analysis typically distinguishes export subsidies – received contingent upon exportation of a product – from “domestic” subsidies, a catch-all term for anything other than export subsidies. For this work our focus will lie primarily with the latter. Domestic subsidies provide a context that allows systematic exploration of the forms that subsidies take, including the subsidization of fixed factors of production. Further, the particular policy context of the AB decision and consequent U.S. actions concerns the overlay of antidumping and countervailing duties arising in the context of domestic subsidies. Finally, extensions to export subsidies are not difficult. My goals are to provide guidance to trade policy practitioners and a framework for future theoretical work on pass-through, and more specifically to evaluate the new U.S. government approach.

The remainder of this paper is organized as follows. Section 2 provides the institutional and policy background concerning the treatment of subsidies under WTO rules, with emphasis on the heightened importance of the pass-through issue consequent to the Appellate Body’s decision in US – Antidumping and Countervailing Duties (China)). Section 3 presents an economic analysis of the pass-through of domestic subsidies to price, incorporating and extending prior work. Section 4 assesses the analysis suggested by the Appellate Body and its implementation in U.S. trade law and practice. Section 5 concludes.

2. SUBSIDIES, PASS-THROUGH AND TRADE

2.1 Subsidies and the WTO

Concerns about the effects of subsidies and about national government reactions to subsidized imports led to the inclusion of the SCM Agreement in the WTO agreements of the Uruguay Round. The SCM Agreement is predicated on the belief that subsidies distort trade if they distort comparative advantage. Rather than leave to members the unbridled right to take counterveniences, however, the Agreement identifies prohibited and actionable subsidies and puts restrictions on the kinds of actions that can be taken with respect to such subsidies. Action can be pursued either through the WTO Dispute Settlement Mechanism (DSM) or

---

2 See the SCM Agreement at Articles 1.1, 1.2, 2.1. (Text at http://www.wto.org/english/docs_e/legal_e/24-scm_01_e.htm). (The last access date for all footnoted links is August 2013.) The United States Department of Commerce’s 1998 amendments to its countervailing duty regulations, available at http://www.wto.org/english/docs_e/legal_e/24-scm_01_e.htm, provide an extensive outline of the substance of CVD administration, including considerable commentary (19 CFR 351.501 through 351.527).

3 SCM Agreement, Parts II, III and V.
unilaterally at the national level through the imposition of countervailing duties, the latter being subject to review under the DSM if appealed.

DSM approaches include Article II proceedings against prohibited subsidies and Article III proceedings against actionable subsidies. Article II and III proceedings can involve pass-through issues in that the product at issue may be downstream from the actual application of the subsidy, notably where an input rather than the product subject to dispute is subsidized. This has not occurred in any Article II proceeding. Concerning Article III, however, pass-through issues have arisen in at least *US - Upland Cotton* and *US - Large Civil Aircraft (2nd complaint)* (see Shadikhodjaev (2012)). While these cases have considerable independent interest, they do not fully join the pass-through question, and our focus here will be Article V, the unilateral application of countervailing duties.

The SCM Agreement allows countervailing duties in response to the import of subsidized merchandise, a continuation of longstanding national practices and understandings under the General Agreements on Tariff and Trade. At the most optimistic, CVD’s act as an enforcement mechanism in a game played among nations: the expected punishment of a CVD leads all countries to lessen their use of subsidies. Perhaps more realistically, CVD’s act as an outlet for domestic political pressures and major WTO signatories were not willing to give them up. Historically, the idea of a countervailing duty is that it *countervails* – that is, offsets – the effects of the subsidy at the importing country’s border through the application of a tariff. The tariff is intended to offset the distortion to comparative advantage created by the subsidy. However, the SCM Agreement allows CVD’s to equal the level of subsidization, without separate measurement of trade distortion (WTO SCM Agreement (2013), Article 19.3). Countries have taken advantage of this routinely to set the CVD rate at that maximum. Consequently, national trade authorities have had little reason to calculate actual pass-through rates of subsidies to price until very recently.

2.2 Emergence of the pass-through issue

In 2007 the United States Department of Commerce began CVD investigations against imports from China for the first time. This led to appeals of several such cases both to U.S.

---

4. The pass-through issue in these cases concerned whether a subsidized input provided a subsidy benefit to the exported product at issue. Rejecting an argument that this requires an exact measure of pass-through, the Appellate Body in *US - Upland Cotton* ruled that a conclusion of significant price suppression of the downstream product could be supported without actual measurement. WTO Dispute Settlement Mechanism (2013), DS 267.


federal court and to the WTO’s Dispute Settlement process. Among other issues, the Chinese appealed the simultaneous application of CVD’s and antidumping duties in these cases, claiming that the non-market economy methodology used for the latter led to a double-count with the CVDs. In the Dispute Settlement process, the Appellate Body agreed that a double-count in fact existed, but only to the extent that the subsidy affected the export price of the product, that is, to the extent that the subsidy passed through to export price. This had the effect of lessening the correction of the erroneous double-count and thereby increased the combined CVD and antidumping duty above the combined amounts of dumping and subsidization. However, the U.S. Court of Appeals for the Federal Circuit temporarily mooted the pass-through issue in December 2011, ruling that countervailing duties could not be applied to imports from non-market economies. This led the U.S. Congress to pass legislation in March 2012 that allowed CVDs to be applied to non-market economies and implemented the Appellate Body’s decision to measure pass-through in the double-count context, but did not change U.S. practice of setting the CVD equal to the amount of the subsidy, ensuring the over-collection of duties.

The Appellate Body decision and consequent U.S. legislation have created a renewed emphasis on pass-through, but in a sense pass-through plays a pervasive role in CVD practice. Countervailing duties are routinely set equal to the subsidy amount found on the exported product. A subsidy rate of 7% will result in a CVD of 7%, regardless of whether the subsidy has any price effect on the exported product. Since the duty, at least nominally, countervails the subsidy, the implicit assumption is that a tariff equal to the subsidy itself is necessary to accomplish that. In this respect, the new practice of investigating pass-through also serves to highlight the assumptions underlying Article 19.4 of the SCM Agreement, which permits the countervailing duty to equal the subsidy, and thus encourages a more thorough appraisal of the standard practice in all subsidy cases.

2.3 Practices concerning the calculation of CVDs

---


8 A small literature has grown up around this issue. Kelly (2008) demonstrates the existence of the double-count and Kelly (2011) shows that the double-count exists regardless of the degree of pass-through to export prices of the subsidy. Ahn and Lee (2011) provide a detailed legal history and analysis of the WTO appeal. Prusa and Vermulst (2013) provide a clear analysis of the AB decision itself and provide useful observations on the relationship between subsidy levels and price impacts.

9 See GPX Int’l Tire Corp. v. United States, 666 F.3d 732 (Fed. Cir. 2011).

While the SCM Agreement does not provide significant guidance on measuring pass-through, national practices have several features in common that are relevant to our inquiry. First, once a subsidy is linked to a recipient, the actual disposition of the funds is rarely, if ever, traced through the company’s financial operations. An untied grant, for example, is assumed to benefit the company’s operations by the amount of the grant, even if a corrupt board member absconds with the funds shortly after their receipt by the company; see U.S. Department of Commerce (1998). Second, transactional sales subsidies usually are taken at face value as benefiting the sales that give rise to the subsidies. Specific (that is, per unit) subsidies will often be converted to \textit{ad valorem} terms for ease in the customs administration of the resulting CVD. Third, input subsidies usually are associated with the products produced from those inputs, and occasionally the subsidy rate can vary across products sold depending on the intensity of their usage of the relevant inputs. Again, subsidies that create economic incentives as specific subsidies are often converted to an \textit{ad valorem} basis. Fourth, most other subsidies, such as grants, equity infusions, loans, and loan guarantees, are assigned to products from an organizational unit, often the company as a whole, and the benefit attributed to the subsidy is typically allocated to products based on the value of sales. Finally, subsidies not linked directly to inputs or outputs may be allocated over time through several methods; typically, a subsidized loan’s benefits are allocated over the life of the loan, while a grant may be allocated over several years, perhaps associated with the average useful life of capital equipment. Once the subsidy is allocated over time, the benefit in any given period reviewed is allocated to sales within that period.

The first assumption, that the actual disposition of the funds is not investigated, is more far-reaching than it might first appear and has implications for pass-through that will inform the analysis of this paper. The underlying assumption is that, absent the subsidy, the company would behave much as it actually did but would have to raise the funds associated with the subsidy. An extreme but important example concerns companies that have survived only because of subsidies; in these cases, the operations of the companies are accepted at face value and the subsidies are allocated over sales through one of the methods above. Effects on output quantities are also generally ignored; the objective of the calculation is to allocate the subsidy over a value or volume of sales that is taken as given.

To a considerable extent this \textit{ceteris paribus} assumption was adopted for administrative practicality, for it allowed the benefit of the subsidy to be computed quite mechanically. Combined with the legal requirement of most WTO signatories that the CVD be set equal to the full amount of the benefit, this greatly eased the burden of calculating a duty. But one result is that administering authorities have no machinery in place to implement subsidy pass-through measurement, so the United States and potentially other signatories find themselves starting afresh following the Appellate Body’s decision.
3. THE ANALYTICS OF SUBSIDY PASS-THROUGH TO PRICE

The analysis focuses initially on the case of a firm facing a single market. While this may seem odd in a work that is concerned with international trade, the single market example raises most of the issues associated with subsidy pass-through without the distraction of multiple demand functions. The case of separate markets can then be treated as a set of extensions of the single market case; we will see that the extensions do not greatly increase the complexity of the analysis.

The extent to which a company adjusts its prices in response to a subsidy depends on several factors. First, of course, is the nature of the subsidy itself: the method of payment, the availability of the subsidy to other firms and products, the incentives it creates, and so forth. Second is the market structure that surrounds the firm and especially whether the firm has any power to affect price. Third is the nature of demand, including the presence of substitutes and complements that may themselves be subsidized. Fourth is the cost structure of the firm, including the relative importance of fixed and variable costs, the presence of production complements and substitutes, and the behavior of marginal costs in different time frames. This listing imposes categories on a messy reality and could no doubt be constructed differently, but it covers the important influences on pass-through for present purposes.

In this work I assume competitive markets. The primary reason is that this allows a clear focus on the nature of the subsidy and firm cost structures, my chief concern. Certainly many industries will approximate the competitive condition of price equaling marginal cost at equilibrium, so the competitive markets approach has direct application. Moreover, the analysis provides a necessary base case before consideration of imperfect competition and the more general condition that marginal revenue equals marginal cost at equilibrium. Finally, the assessment of the Commerce approach to pass-through includes the question of whether theoretical a priori assumptions can be made; if they cannot be made in the competitive case, they will be impossible to justify.

A theoretical literature has explored the pass-through of subsidies to export prices.\footnote{A vastly larger empirical literature has concerned the pass-through of cost or exchange rate changes to prices of exported goods; Campa and Goldberg (2005) and the citations therein provide a starting point for this work.} One line grows from “neoclassical models of trade”, to use the Journal of Economic Literature term (\textit{JEL code} F11); Corden (1974) provides an extensive analysis, and Francois (1993) focuses on the effects of CVDs in particular. A more recent literature considers the effects of imperfect competition (\textit{JEL code} F12), with Brander and Spencer (1985) being an early, influential contribution. This paper lies in the former tradition. The effects of subsidies on prices are most simply modeled without market power and strategic concerns. The competitive model
provides a base case for understanding the possible impacts of subsidies, which is especially useful here since the pass-through of fixed factor subsidies has not been analyzed previously.

My focus is purely partial equilibrium. Among the thousands of products involved in subsidy proceedings, the vast majority play a small role in any national economy. Further, countervailable subsidies must be “specific to an enterprise or industry or group of enterprises or industries” (WTO SCM Agreement, Article 2.1), lessening the likelihood that they create significant economy-wide feedback effects. Finally, general equilibrium concerns may be relevant in some cases but simply lie beyond the scope of this article.

3.1 Subsidization of marginal cost

For simplicity, assume a homogeneous good sold at a single price. Further assume a competitive market in which no buyer or seller can materially affect price. This does not require that all firms face identical cost structures, only that capacity limitations prevent more efficient firms from gaining pricing power.\textsuperscript{12} Initially assume downward sloping market demand and upward sloping market supply curves meeting in competitive market equilibrium.

The mathematical setting for analyzing transactional subsidies is familiar, as is the graphical presentation of Figure 1. A specific (constant per unit) subsidy\textsuperscript{13} inserts a wedge between the price paid by the buyer and the unit revenue received by the seller equal to the amount of the subsidy. While the gap between the price paid and unit revenue received equals the subsidy, the incidence of the subsidy - its distribution between buyer and seller relative to the unsubsidized outcome - depends on the relative responsiveness of demand and supply to price changes.

Mathematically, a specific transaction subsidy $\sigma$ implies that the price received by suppliers, $P_S$, will exceed the price paid by consumers, $P_D$, by $\sigma$:

$$P_S - P_D = \sigma$$

(1)  

Equilibrium occurs when demand $D(\cdot)$ equals supply $S(\cdot)$:

\textsuperscript{12}Supply curves may slope upwards for several reasons that are compatible with competitive markets. First, as noted in the text, cost structures may vary among firms; as long as capacity limitations prevent the smaller firms from dominating the market, one has a Ricardian model with upward sloping supply curve. Second, even if the industry has constant returns in the very long run, relevant time scales may involve increasing returns. Third, external diseconomies of scale may lead to upward sloping supply even if the firms are identical. For a discussion, see Nicholson and Snyder (2012), at Chapter 12. In Section 3.1, I will use an upward sloping supply curve due to its broad applicability. The new results of Section 3.3 are presented initially using a horizontal (perfectly elastic) supply curve for simplicity.

\textsuperscript{13}“Specific subsidy” will mean a per-unit subsidy throughout this paper, rather than its alternative meaning, as a subsidy bestowed on a limited range of companies or industries.
(2) \[ D(P_D) = S(P_S) = S(P_D + \sigma) \]

To determine the effects of a marginal change in the subsidy rate on equilibrium, differentiate with respect to \( \sigma \) through application of the chain rule:

(3) \[ D_P \frac{dP_D}{d\sigma} = S_P \frac{dP_D}{d\sigma} + S_P \]

\( D_P \) indicates the derivative of demand with respect to \( P \), \( S_P \) the derivative of supply. To determine the pass-through of the marginal change in the subsidy to the price paid by consumers, isolate the rate of change of that price with respect to the subsidy \( \sigma \), \( \frac{dP_D}{d\sigma} \):

(4) \[ \frac{dP_D}{d\sigma} = \frac{S_P}{D_P - S_P} = \frac{\varepsilon_S}{\varepsilon_D - \varepsilon_S} = \frac{1}{\varepsilon_D / \varepsilon_S - 1} \]

The slope form \( \frac{S_P}{D_P - S_P} \) indicates that the introduction of an infinitesimal subsidy leads to a divergence in prices (the \( D_P - S_P \) denominator) apportioned to consumers by the ratio \( \frac{S_P}{D_P - S_P} \).

Since \( D_P < 0 \) and \( S_P > 0 \), the ratio is negative (the price paid by the consumer falls) and its absolute value lies between zero and one. The derivative form \( \frac{S_P}{D_P - S_P} \) is converted to the elasticity form \( \frac{\varepsilon_S}{\varepsilon_D - \varepsilon_S} \) by multiplying numerator and denominator by \( P/Q \); from the equilibrium starting point, the ratio of the proportionate changes is the same as the ratio of the absolute changes represented by the derivatives. The final term provides a version often used for calculations; note that \( \varepsilon_D < 0 \). Equation 4 differs from the standard tax pass-through formula only in the order of the terms in the denominator.

Figure 1 provides a graphical interpretation. Supply and demand curves meet at an unsubsidized competitive market equilibrium with price \( P^* \). Introducing the specific subsidy creates a difference between the price received by the supplier and the price paid by the consumer equal to \( P_S - P_D \). The relative slopes of the supply and demand curves lead to a fall in consumer prices equal to \( P^* - P_D \) and an increase in receipts for the producer of \( P_S - P^* \).
Figure 1: Specific Subsidies in Competitive Markets

Notes: The subsidy creates a wedge $\sigma$ between the price paid by consumers $P_D$ and the net price received by suppliers $P_S$. If the subsidy is a simple per unit subsidy, this applies to all units sold, including those to the left of the non-subsidized equilibrium point. The absolute amount of the pass-through per unit is $P^* - P_D$. The subsidy increases the quantity sold from the original equilibrium to $q$.

The standard results are typically phrased in terms of elasticity. If the demand elasticity is negative (downward sloping demand) and the supply elasticity positive (upward sloping supply), the pass-through rate will lie between zero and one. If supply is perfectly elastic (horizontal supply), firms will compete away the subsidy and the pass-through rate will be negative one, indicating full pass-through of the subsidy to consumer price. If demand is perfectly elastic, $\varepsilon_D$ is infinite and the pass-through rate is zero. No firm has an incentive to lower price, since it can sell as much as it wishes at the prevailing market price. If demand is perfectly inelastic, $\varepsilon_D$ is zero and the pass-through rate is negative one, indicating full pass-through of the subsidy to the price paid by consumers. Between these extremes, the widespread rule of thumb is that the more inelastic side of the market enjoys a greater share of the subsidy.

Despite its familiarity and apparent simplicity, this analysis of transactional subsidies is often subject to misinterpretations, some of which have become embedded in the trade policy literature.

---

14 The assumption of competitive markets means that completely inelastic supply is not a possibility.
Reasoning from infinitesimal to discrete changes. Equation 4 employs derivatives and so represents effects at the infinitesimal margin. In elasticity form, the equation relies on point elasticities, which are (infinitesimal) proportional changes relative to a price and quantity pair. Inference from the marginal effects to the discrete changes represented by actual subsidies presents problems. Typically the slopes of the supply and demand curves will change as one moves away from equilibrium quantity, as will the elasticities. Trade policy analysis often works with elasticity forms (see next point, below) and relies on an assumption of constant demand and supply elasticities (Francois, 1993) to generalize results beyond the subsidy-free equilibrium point. The immediate difficulty is that this is an extraordinarily strong assumption that cannot be imposed without empirical support. Consequently, an empirical estimate of the point elasticities, or the slopes, at equilibrium does not predict behavior in response to a non-infinitesimal subsidy.

Applying elasticities incorrectly. The rule of thumb, that the less elastic side of the market has a greater per unit benefit from the subsidy, is of course subject to the preceding caveat, but has additional difficulties as well. As a casual inspection of Figure 1 reveals, the split of the subsidy between money retained by the producer versus that passed through to the consumer is based on the relative slopes of the supply and demand curves and the portion passed through to consumer price diminishes as the subsidy increases. However, as drawn the curves approximate constant elasticities of supply and of demand, so that the rule of thumb seemingly suggests that the pass-through rate, as a proportion of the subsidy, should not change. The difficulty ultimately is not in the nature of elasticities, but in their application and the language that surrounds them.

Specific versus ad valorem calculations. Equation 4 applies to specific subsidies, but the preceding caveats apply to ad valorem subsidies as well. While beyond the scope of this paper, we note that most production subsidies do not create incentives that are ad valorem relative to finished goods prices; the familiar percentages of countervailing duty proceedings appear largely for reasons of administrative convenience. Empirical estimation of pass-through needs to consider the incentive effects of a given subsidy program, not its expression in a CVD finding.

Despite these caveats, the basic competitive analysis holds important lessons. Under the assumptions of the model, pass-through will lie between zero and one; full pass-through occurs only if demand is perfectly inelastic or supply perfectly elastic. The relative slopes of the supply and demand curves over the range of the subsidy determine the pass-through of a subsidy to consumer price. Subsidy incidence will likely change as the subsidy rate changes.15

---

15 One might object that domestic subsidies often are expressed as lower input prices rather than a bounty paid upon sale. However, this does not affect the principles of this section. If marginal costs are lowered, some portion of that decrease will be passed on in price, per the analysis. While there is a single price observed in the market, the producer benefits to the extent that it retains a portion of the benefit. Graphically, one can interpret
This section has considered a subsidy that lowers marginal costs or, equivalently, raises marginal revenues. Before turning to subsidization of fixed factors, we will relax the assumption that industry marginal costs do not decline with scale and allow downward sloping supply.

3.2 Downward-sloping supply

Industry supply curves may have negative slopes if marginal costs decline with industry scale. This can occur at the individual firm level or for the industry as a whole. At the individual firm level, declining marginal costs tend to be associated with market power, since greater size is correlated with lower costs. At the market level, declining marginal costs may occur for reasons external to any single firm, allowing competitive market outcomes.\textsuperscript{16} The implications for pass-through to prices can be quickly drawn. If an industry faces downward sloping supply, a subsidy that expands overall industry production will lower individual firm production costs, at the margin and on average. The effects of a subsidy are shown in Figure 2 both for upward sloping and downward sloping supply, against the same demand curve. The subsidy is the same per unit amount in both cases. With downward sloping supply, pass-through to consumer prices exceeds the subsidy amount; in terms of equation 4, the negative supply slope leaves $\frac{SP}{D_p - SP}$ greater than one in absolute value.\textsuperscript{17} The shape of the supply curve is of course an empirical matter and also depends in part on the time frame considered; however, the standard upward slope is the standard for the good reason that upward sloping supply is likely far more widespread in at least shorter time frames.

\textsuperscript{16} These are textbook topics; see Nicholson and Snyder (2012), Chapters 12, 14. For a survey of the application of these approaches in international trade, see Krugman (1995).

\textsuperscript{17} Pass-through of marginal cost subsidies in excess of 100\% is not limited to downward sloping supply. An earlier version of this paper, presented at the June 2013 Western Economic Association International conference, showed that pass-through rates greater than one can occur naturally in a monopoly model as well, even with increasing marginal costs. The equivalent result for taxes is well-known.
Figure 2: Comparison of Subsidies under Upward and Downward Sloping Supply

Notes: The figure compares the effects of a subsidy, given upward sloping supply and downward sloping supply. The amount of the subsidy is the same in both cases and is shown by the thick vertical line. The pass-through of the subsidy to price is shown by the bracketed vertical distance between the original price and the new price to the consumer. The case with upward sloping supply shows the familiar pattern of pass-through being less than the full amount of the subsidy. The case with downward sloping supply shows that pass-through to price exceeds the amount of the subsidy.

3.3 Subsidization of “fixed” costs

The base case considered a subsidy that lowers marginal costs by the amount of the subsidy. The sum of marginal costs over some range of production equals the total variable costs over that range. Fixed costs, by contrast, do not vary with the level of output during the time period under consideration. Generally academic analyses of subsidies or taxes ignore fixed costs as being irrelevant by definition: since they do not vary, they cannot affect or be affected by choices concerning quantity and price. However, this approach is at best too narrow and for policy purposes is highly misleading, for several reasons.

18 Indeed, as far as I have been able to discern, fixed costs are completely ignored in international trade subsidy analysis. Usually this is implicit – they are truly ignored – but Kaplan and Francois (2013) provide the rationale explicitly: “Subsidies that do not affect marginal costs over the relevant period, such as lump-sum subsidies, do not increase supply, do not change the profit maximizing level of production, and consequently, do not change the export price. Since these subsidies do not change the export price, no analysis of pass-through is necessary.”
First, fixed costs are those that do not vary with level of output *within a time frame* under consideration, but that time frame must be defined appropriately for the policy context. Consider a subsidy that lowers the cost of a machine, which then has an economically useful life of a decade. This lowers the cost for the company’s production for that decade and consequently can affect price and quantity decisions; this is unremarkable if one adopts the time frame of a decade. But if one looked at only a single year within that decade, the costs of the machinery, and the subsidies received for its purchase, would be considered sunk and irrelevant to current decision-making. However, the past costs of the machine, lowered by subsidies, shaped the current field on which the managers play, affecting the choices available to them. We present a basic model below that demonstrates this.

Next, existing analyses focus on marginal costs that respond smoothly to changes in output. This accords with the idea taught in basic economics, that the “margin” represents the cost or revenues of one more unit, or the differential equivalent. However, even within short time frames the margin may be quite lumpy; a chemical plant, for example, may have a minimum efficient scale of production and cannot adjust production seamlessly in response to price changes. If a firm is large in the market or if such effects are systematic, the smooth marginal cost and supply curves may not capture reality.

Moving beyond the single firm and its decisions, fixed costs affect industry structure. In the example above, as existing machines wear out over time, firms will adopt the subsidized machine, leading to a profile of lower cost firms competing with each other. This in turn will affect, among many other variables, the price and quantity of output.

Finally, the institutional context matters. Accounting reports have to observe time frames created for reasons other than productive useful lives. This can lead to distinctions such as variable versus fixed overhead. But subsidies that are tied to costs classified for accounting purposes as “fixed” do affect behavior, by altering production and pricing decisions directly and also by changing the company’s cost of funds. The accounting labels and treatment do not change this.

I present here two models that analyze two types of fixed costs and the associated effects of subsidies on prices. In the first, fixed costs must be incurred to allow subsequent production but do not otherwise affect the production capabilities of the firm. I call these “entry fee” costs; examples would include payments for fixed factors with no choice in scale, license fees, some forms of training, etc. Even with an indefinitely extended time frame, these do not affect marginal production costs except in an on/off sense. The second model will involve fixed costs that do affect the company’s subsequent production capabilities and thereby the optimal scale of production; these will lead to a shift in the marginal cost schedules. Figure 3 provides a graphical representation of both models.

Assume a competitive industry, with many identical small firms. In each period a given firm has to incur a fixed cost $F$ to participate in the market and subsequently incurs variable
costs that depend on its actual production during that period, $VC(q)$. Marginal costs are defined as the rate of change in total costs with respect to output. These variables yield the average and marginal cost functions routinely presented in economics principles texts for individual firm cost structure:

\[
(8) \quad C(q) = F + VC(q) \quad \text{Total single firm costs for one period}
\]

\[\Rightarrow\]

\[
C(q)/q = F/q + VC(q)/q \quad \text{Average costs (AC) = average fixed costs (AFC) + average variable costs (AVC)}
\]

\[
C'(q) = VC'(q) \quad \text{Marginal costs (MC)}
\]

Making the simplifying assumption that all firms have identical cost structures, and the competitive market assumption that firm marginal costs increase above some small scale, we have the textbook diagram shown at the top of Figure 3, where the cost structure of the firms (right side) and the downward sloping market demand curve on the left yield an equilibrium price corresponding to the low point on the average cost curve of the representative firm. The market quantity shown on the left side is the sum of the individual firm quantities. A higher price implies individual firm profits (the $MC = p$ point will lie above $AC$), leading to entry and the dissipation of those profits; a lower price leads to losses, consequent exit, and the dissipation of those losses. Thus in this simple case the long-run supply curve is horizontal.\(^{19}\)

Assume that the firm pays entry fee costs $F$ each period and introduce a subsidy that decreases them by $\sigma_{F}$. The companies that contemplate production in the forthcoming period will now face fixed costs of $F - \sigma_{F}$. The effect is shown in the upper pair of graphs in Figure 3. The $MC$ curve is unchanged. The $AFC$ curve falls by the amount of the subsidy divided by $q$. However, the overall effect is to shift the $AC$ curve not only down but to the left, since the effect of rising $VC(q)$ dominates the falling average fixed costs at a lower level of $q$ than in the unsubsidized case.\(^{20}\) Arithmetically, there are three effects: the low point on the $AC$ curve will fall by $\sigma_{F}/q*$, the low point on the $AC$ will increase due to a smaller production quantity, and the low point on the $AC$ will fall due to lower average variable costs at the lower scale of production. If average variable costs are increasing, the first and third effects will strictly exceed the second, meaning that the low point on the $AC$ curve falls by more than $\sigma_{F}/q*$. Since all firms are identical, equilibrium price will settle at the new $AC$ low point, meaning that the *subsidy to fixed costs will be passed through to price at more than 100% of its unit value*. The

\(^{19}\) If we relax the assumptions of identical firms but require that each has upward sloping marginal costs at a “small” scale, we reach the same results but with an upward sloping supply curve.

\(^{20}\) Alternatively, one can note that since the marginal cost curve does not move, the downward shift in average costs must be accompanied by a leftward movement so that marginal costs still cut the low point of the average cost curve.
firm’s costs and revenues will decline by more than $F$. This effect would not be apparent in considering a firm in isolation; it is driven by market dynamics as well as firm cost structure.

For the second model, suppose that the level of fixed investment does affect scale and thereby the quantity produced. Once chosen, however, fixed investment cannot be altered. Using the familiar long-run producer choice model\(^ {21} \) with variables $K$ (quantity of the “fixed” factor) and $L$ (quantity of the variable factor), profit maximization leads the firm to an initial choice of $K$ based on the condition that the marginal cost of an additional dollar spent equals its marginal value; the same is true for the choice of the $L$. The optimal choice of $K$ and $L$ will lie on the production expansion path identified by constrained optimization. If the cost of the fixed factor falls due to a subsidy, then the firm will favor $K$ over $L$ compared to the subsidy-free world; in constrained optimization, this is just an outward rotation of the budget line in favor of $K$, leading to a more $K$-intensive expansion path. The total costs associated with each level of output per period will fall, a downward shift in the long-run average cost curve. The costs of input $L$ associated with each $q$ will also fall due to a substitution effect, leading to a downward shift of the short-run marginal cost curve. Finally, the subsidy results in an increase in the level of $K$, but the effects on $L$ are ambiguous.

Once $K$ is selected, however, one has the short-run production function $q = q(L)$, given $K$. This is the perspective of the “only marginal costs matter” approach of the existing, literature, which considers a slice of time after $K$ is chosen. In this context, the subsidy lowers average fixed costs, as in the “entry fee” example, but also will affect short-run marginal costs. The choice of $K$ in effect implies the choice of a short run marginal cost schedule that lies below the unsubsidized case. True, the manager no longer needs to make a choice concerning $K$ once production begins, but the past choice now determines his menu of choices available using only $L$ as a choice variable.

\(^ {21} \) For this model generally, see Nicholson & Snyder (2012), Chapters 9 – 11.
Figure 3: Subsidies to Fixed Factors: Short-Run Views

Entry Fee Fixed Costs

Notes: The diagram at right shows the long-run average cost and average fixed costs curves before (case 1) and after (case 2) the imposition of a subsidy; they reflect equilibrium outcomes. The marginal cost curve does not change. Firm output falls. The decrease in fixed costs due to the subsidy $\sigma_F$ results in a downward shift of the AFC curve, with vertical distance $\sigma_F/q^*$ at initial quantity $q^*$. But the law point on the average cost curve falls by a greater amount due to the actions of average variable costs (not shown), so that the pass-through to consumer price exceeds the unit amount of the subsidy.

Generalized Fixed Costs

Notes: With the firm free to adjust the level of its fixed investment in response to the subsidy, firm scale increases and a new marginal cost curve is generated. Pass-through results are indeterminate; as drawn, pass-through is less than 100%.
Figure 3 shows the results from the perspective of the short run. Average fixed costs, done properly, are $K$ divided by total production over the life of the fixed assets, with a similar allocation for the subsidy; here we assume that the fixed costs and subsidy apply for a single period for simplicity. The average fixed cost curve falls by $\sigma_i/q$ as a result of the subsidy. Marginal costs fall at each level of $q$. In the competitive markets context, the lower costs will lead to greater entry and prices will fall. With identical firms, entry and exit will eliminate profits or losses and the equilibrium will eventually settle at the low point of the new average cost curve. The left diagram shows the market impact. With the rightward shift in the low point on the representative AC curve shown in the diagram, rising average variable costs will tend to cause the low point on the new AC curve decreasing less than $\sigma_i/q^*$, resulting in less than 100% pass-through of the subsidy to price ($p_1 - p_2 < \sigma_i/q^*$). However, this result is sensitive to the changes in the marginal cost schedule and pass-through rates could exceed 100%.

If we relax the identical firm assumption and allow that individual firms use their assets with varying efficiencies, the supply curve will be upward sloping in both of the preceding models. More of the subsidy will be retained on the production side and less passed on to consumer prices, relative to the case of horizontal supply. Whether this would lead to less than 100% pass-through in the first model depends on parameter values; the excess pass-through result does not rest upon the identical firms assumption.

The results are robust to variation in the subsidy rates among firms. With identical firms, the upward sloping marginal cost curves imply economic capacity constraints for the subsidized firms, meaning that they would not necessarily dominate the market. Allowing for a Ricardian market structure as in the previous paragraph, firms have different efficiencies to begin with; different subsidy rates could broaden or narrow the existing differences. However, industry structure could be sensitive to variation in subsidy rates in some circumstances: a large enough subsidy might lead some industries to move from a competitive structure to one in which price exceeds industry marginal cost and of course could imply the demise of firms receiving no subsidies.

The examples show that the economist’s focus on the “margin” has to be interpreted intelligently. At times the margin may be a very small change in current production, corresponding to the idea of the cost of “one more unit”. However, at times the margin may concern overall project feasibility, or project scale, or the choice of technology. Subsidies can affect these decisions. The idea of equating costs and benefits at the margin requires that the margin be appropriately defined for the decision at hand. The importance in the current

---

22 In practice fixed costs are often allocated over time independently of production, with the period amounts then allocated over whatever production happens to occur in the particular period. This does not undercut the analysis of the narrative, which provides a short-run expression of the firm’s long run decision, but does point to a source of distortion in unit subsidy calculations.
context is that while economic theory might incorporate short-run fixed costs into its marginal analysis through appropriate choice of time frame, accounting reports treat flow variables such as costs in short intervals, typically aggregating to no more than a single year. A subsidy analysis that starts with accounting reports will find some variables clearly affecting and affected by current period production, such as raw material costs, while others appear unaffected, such as depreciation amounts for past purchases or fixed long-term lease expenses. Such an analysis may quite naturally view past subsidies associated with capital expenditures as not affecting current prices, but that would be incorrect.

3.4 Subsidies with Separable Markets

The analysis to this point has pertained to a single market, in which the subsidized producers sell to the set of consumers represented by the single demand curve. We have seen that this will lead to partial pass-through of a subsidy to price in the widespread situation of upward sloping supply, but that pass-through may be zero in cases of elastic demand or greater than one with downward sloping supply. Further, the subsidization of “fixed” inputs does affect price and can also lead to a wide range of pass-through outcomes.

The trade policy literature normally treats domestic subsidies under the additional assumptions that there are multiple markets with different demand curves; this allows the examination of different subsidy impacts across markets. However, pass-through to price is a relatively simple matter and most of the interesting analysis of domestic subsidies with competitive markets can be done with a single market. Brief consideration of the multiple market case is useful to demonstrate this assertion, to relate this work more closely to earlier work, and to allow an easier application of the single market principles to subsidy rates that vary across markets.

A producer facing multiple demand curves will equate marginal revenue across the markets; otherwise, it could shift sales to the higher marginal revenue market and increase profits. This fact allows the results of the single market to carry over to multiple markets with surprising ease. Consider two markets, which one can think of as a single domestic and a single export market. In the competitive case, each firm treats the market price as given in each market. Firms will equate the net marginal revenues (price less marginal costs) that they receive across markets, not the prices paid by consumers. However, since unit revenues received exceed consumer prices by the same subsidy amount in the two markets, this indirectly equates the prices paid by consumers. Therefore each firm will sell to the market with the higher price, which of course tends to equilibrate the prices across markets. 

---

23 This section maintains the assumption of competitive markets, applicable to all markets involved. As noted by Prusa and Vermulst (2013), “Even weak forms of the ‘law of one price,’ which follows from an assumption
Figure 4 provides the basic setting: demand functions in the two markets sum to the aggregate demand shown at the right. The intersection of that aggregate demand with supply represents the equilibrium price, applicable to each of the markets due to the equality of marginal revenue across markets. Initially suppose that the subsidizing country is the sole supplier and a specific “domestic” subsidy of $\sigma$ is provided. As in the analysis of section 3.1, this opens a gap of $\sigma$ between the unit revenues received by the suppliers and the price paid by the consumers. The rate of pass-through is determined by the relative sensitivity of supply and aggregate demand, subject to the explanations and caveats of section 3.1. Pass-through is identical in the two markets; it does not depend on their relative demand elasticities, which have their effects only through the shape of aggregate demand.24

Figure 4: Subsidies with Multiple Demand Curves

As drawn in Figure 4, the subsidy pass-through to consumers will lie between zero and one; however, external economies could well create a price change greater than one. Equation 4 can again be applied to calculate the pass-through amount to consumer prices at the margin,

---

24 The effects on quantities in the two markets may be very different, of course, and also the effects on welfare. Many analyses in the trade context have welfare analysis as an important objective, leading to a focus on the different surplus areas created by a subsidy in different markets. Many analyses are also concerned with autarky versus free trade comparisons, which are not of interest here. The consideration of price effects alone allows a relatively simple approach.

---

of symmetric pass-through, are rejected in empirical study after empirical study.” [Footnote omitted, which lists several such studies.] There are many reasons that the marginal revenue realized by a producer could differ by market, not least those associated with market power. But by focusing on the competitive markets case with costless trade, we are able to provide the intended critique and extension of existing theory under the simplest possible circumstances.
keeping in mind that aggregate demand must be used for $D$. Since the derivative of aggregate demand is the sum of the derivatives of individual demand, we also can write equation 4 as:

$$
\frac{dP_D}{d\sigma} = \frac{S_p}{(D_{p1} + D_{p2}) - S_p}
$$

Note that the elasticity form is not separable in the same way: in general the elasticity of $f + g$ does not equal the elasticity of $f$ plus the elasticity of $g$.

If some suppliers are subsidized, and some are not, the pass-through of the subsidy to price will be lessened relative to the case where all suppliers are subsidized. The gap between the marginal revenue received by the subsidized producers and price will remain $\sigma$. Assuming competitive conditions but differing firm efficiencies, entry and exit will lead to growth in subsidized production relative to unsubsidized production. The presence of unsubsidized firms may be important empirically in many situations, lessening pass-through substantially.

A subsidy might be paid on sales to one market but not the other; the leading case is an export subsidy. The WTO’s Antidumping Agreement provides for a correction for the double-count of CVD’s and antidumping duties in this circumstance, so export subsidies are not the focus of this paper, but a comment is necessary to correct a common view that could be seen as contradicting the preceding analysis. This paper has considered pass-through of a subsidy to price as being a comparison of prices without the subsidy to those after the subsidy is in place. This is standard in the literature and is reflected in the SCM Agreement’s focus on benefit to the recipient. If one instead compares the price paid by the consumer to the unit marginal revenue received by the producer, the gap equals the amount of the subsidy. Discussions of the effects of export subsidies sometimes conclude from this that the export subsidy is passed on in full to export price. But if one instead compares export price before and after the subsidy, full pass-through is the exception rather than the rule.\textsuperscript{25} Upward sloping supply and downward sloping demand in the export market will lead to the subsidy being split between suppliers and consumers. The higher net revenue available on export sales will also lead to higher prices in the domestic market, assuming upward sloping supply and downward sloping domestic demand. (This is not new; see Viner (1923) at pages 126-128.) The full pass-through conclusion for export subsidies in fact rests on an assumption of perfectly elastic supply, the same situation that can lead to full pass-through of a domestic subsidy.\textsuperscript{26}

\textsuperscript{25} The double-count will occur even if an export subsidy is passed through to export price only partially; this follows directly from the algebra in Kelly (2011). Consequently, the existing correction to the antidumping calculation remains appropriate even in cases of less than full pass-through of an export subsidy.

\textsuperscript{26} Francois (1993) points out that the price effect in the export market will be greater for a targeted export subsidy than for a domestic subsidy of equal magnitude. In terms of Figure 4, the export subsidy can be visualized as applying to (for example) just Market 2; the steeper demand curve would imply greater pass-through to price than in the case of the aggregate market.
4. ASSESSMENT OF THE U.S. APPROACH

In *US – Antidumping and Countervailing Duties (China)*, the Appellate Body required “... that an investigating authority, in both the countervailing and anti-dumping calculations, take the necessary steps to account for the extent that domestic subsidies have lowered the export price.” (WTO DS 379 (2011) at paragraph 599.) In response, the Congress enacted with remarkable speed and bipartisan support H.R. 4105, which directed that adjustments be made to correct the remedy double-count only when “a countervailable subsidy has been demonstrated to reduce the average price of imports ...”. (19 U.S.C. 1677f-1(f), accessed from Cornell University Law School (2013).)

The U.S. Department of Commerce has implemented this in the four sets of CVD and AD proceedings included in DS379; the results are currently before the Appellate Body for consideration. Commendably, the Department has stressed that the issues it faces are new and its responses may need to evolve over time (U.S. Department of Commerce (2012a)). Also, Commerce repeatedly cited the compressed time frame that it faced and the incomplete nature of the record in explaining its decisions (U.S. Department of Commerce (2012a)). All this suggests that Commerce's policies and approaches are in flux. But we can identify the main themes of the Commerce analysis to date from its questionnaires, issued to the Chinese government, and from its public explanations of its reasoning.

In its questionnaire, Commerce asked for industry-level information on (U.S. Department of Commerce (2012a)):

“(1) production cost accounting for pricing purposes and how such accounting is impacted by various types of subsidies; (2) conditions in the export market and the extent of intra-industry price competition; (3) the relevant period for cost recovery; and (4) the extent of supply responsiveness.” (Footnotes omitted).

The questions concern demand and supply conditions, as well as the methods of accounting for subsidies. The purpose of the cost recovery question is not clear, but the eventual Commerce decision suggests that it sees a fundamental distinction between a long and a short term; the question may have been aimed at putting a time frame on the latter. In any case, Commerce did not consider information on long-run pricing or cost recovery, but instead based its decision on a “variable cost-(short-run) price link”. It quantified this link based on a national average comparison between changes in input costs and changes in price, with a one year lag. The report on which Commerce relied considered only changes in variable costs. After calculating the ratio of changes in variable costs to changes in prices, Commerce applied that ratio to only those subsidies “that are likely to have impacted variable costs, and the extent of cost pass-through has been used as proxy for the extent of subsidy pass-through.” (U.S. Department of
Commerce (2012a)); in fact, the ratio was applied only to subsidies to material costs (U.S. Department of Commerce (2012b)). Commerce concluded that about 63% of the value of domestic subsidies that affected "variable" costs was passed through to price during the investigation period, while there was no pass-through of other subsidies. The impact on the overall dumping margin varied widely across the cases depending on the proportion of the subsidy that had to do with variable costs.

Commerce drew a basic distinction: some subsidies are more likely to have price effects than others. In the event, the former group included only those that affected variable input costs, and in particular material costs. The reason is not clear. The analysis of Section 3 showed that a variable/fixed cost distinction has no a priori bearing on the degree of pass-through. Fixed cost subsidies will affect consumer prices in later periods, both through input choice and through the effects of market structure. Indeed, one path for this effect is through shifts in short-run marginal cost schedules, and thus in variable cost schedules. With the appropriate time frame, “fixed” costs are correctly seen as marginal and affect prices through the application of an economist’s standard tools. The Department’s reasons for ignoring fixed cost subsidies are not apparent from the public record, but the implications of developing only a short run cost linkage to price, then applying that only to subsidies considered to relate to variable costs of production, are disturbing.  

Economics considers rational firm behavior to include balancing marginal costs of decisions against marginal revenues. This underlies the standard analyses of Section 3.1 above. However, the Department used variable costs, without explanation, not marginal costs. Given the accounting records that circumscribe their efforts, as well as the evidentiary problems associated with a compressed time schedule, this assumption may be defensible in the present context. If adopting use of variable rather than marginal costs as a general rule, Commerce would need to apply the rule explicitly as an evidentiary second-best that could admit exceptions if record evidence allows recovery of marginal cost data.

Commerce excluded subsidies other than those on physical production inputs. This makes little sense. As Commerce’s own benefit calculations recognize, many subsidies lower the cost of financing. Loans may be offered at less than commercial rates, equity may be invested with insufficient likelihood of an adequate return. Further, a lump sum subsidy, such as an untied grant, removes the need for financing an equivalent amount and thereby lowers financial costs. The analysis of Section 3 applies fully to these subsidies.

As shown above, pass-through is not capped at 100%. Commerce is prohibited by law from applying greater than 100% pass-through to resolve the double-count, however, and in

---

27 An immediate improvement would be to apply the pass-through proportion, however calculated, to all subsidies, not just those related to variable costs. Again, Section 3 showed that there is no theoretical basis in even a simple competitive model to distinguish price effects based solely on the type of subsidy.
fact this makes sense given the nature of the double-count problem.  But empirical results pertaining to pass-through, such as those observed by Commerce in these proceedings, will contain fluctuations unrelated to the actual amount of pass-through; if these drive the pass-through rate above 100%, they will be ignored, whereas if they lower the pass-through rate from, say, 90% to 75%, they will be included. This will create a sort of ratchet effect that over time would bias pass-through rates downwards. The Department’s methodology in the Section 179 proceedings would be especially prone to this error, since rates of change in input and output costs may follow quite different patterns in short time intervals. This could most immediately be addressed by adopting longer time periods.

In Section 3.1, I outlined some difficulties inherent in using elasticities, which to some extent arise from elasticities being proportional (or percentage) changes against a base. The Commerce determination appeared to compare percentage changes in two indexes, input prices and output prices. This hints at the same problem that can trip up elasticity analysis: if the bases against which percentages are calculated are different, it may be misleading to compare those percentages to each other. (While this possibility was raised in a comment, Commerce did not join the issue in its response; see U.S. Department of Commerce (2012b), Comment 3B.) The widespread use of percentages in subsidy results and of elasticities in economic discussion does not in itself create problems, but can very quickly lead to them if not handled properly.

Commerce’s Section 129 outcomes are disturbing if they anticipate settled policies. Fixed costs in fact do affect prices; marginal costs and variable costs are closely related but are not the same thing; subsidies not tied to production will affect prices; capping pass-through at 100% while working with short time frames may well worsen the double-count problem; comparison of index numbers from different bases may create incorrect measurements. The lessons of Section 3 are that generalization based on fragmentary economic analysis can greatly distort the outcomes of a pass-through methodology. Commerce, in its stated willingness to “evolve with the benefit of time and experience” (U.S. Department of Commerce (2012a)) should take these considerations to heart.

The variation in possible theoretical outcomes demonstrates that empirical approaches will be necessary, case by base. Measuring pass-through will occasionally be very easy: in the investigation of Biodiesel from the United States, for example, the European Commission found that the essentially 100% of the main subsidy, the “blenders’ credit” of $1/gallon, was passed on to the purchaser due to the nature of the subsidy program. (European Union (2009)).

---

28 The double-count equals the smaller of the antidumping or countervailing duty; see Kelly (2011). Therefore a pass-through rate of greater than 100% against a CVD that is smaller than the AD would overstate the double-count if fully offset against the latter.

29 For example, an input price increase near the end of one period might be realized in output prices only after the period Commerce examines for effects. This will lower pass-through rates in the earlier period and raise them in the later relative to a longer average.
But often empirical estimation of pass-through will be difficult, which suggests some modesty in adopting rigid policies or in applying stylized empirical results. As an initial matter, Commerce will have to decide, perhaps case by case rather than permanently, whether to use purely empirical approaches or instead - or also - to attempt to reason forward from possible economic correlates of pass-through, such as industry concentration. The time frame presents an important question: if a subsidy program does not move an industry to a permanently higher level of profits, is there any rationale for considering pass-through to be other than 100%, given the ceteris paribus assumption of the basic subsidy calculation? Further, while Commerce or other administering authorities use methods of their own device to assign subsidies to particular products, a company or industry may have a quite different perspective, leading Commerce and the company to have different views on how much subsidy is available for pass-through to price. No matter how methodologically sound Commerce’s approach might be in theory, it is the company’s perspective and actions that will determine the actual pass-through amount.

The empirical situation is less dire than that faced by economists seeking elasticity or curvature estimates from public data, for trade authorities typically have access to a great deal of confidential company data. This not only allows development of subsidy amounts, but also cost and price data to allow “event” studies. Clearly, and leaving the economic realm, documentary and other evidence of actual pricing decisions could play a role. Commerce’s ability to develop the subsidy and antidumping calculations that create the double-count implies the ability to solve that problem.

5. CONCLUSION

The Appellate Body decision and subsequent changes to U.S. law and practice opened an area that had largely been ignored due to the institutional practice of setting CVD rates equal to the amount of the subsidy. Trade authorities and interested parties have to join the previously avoided topic of measuring pass-through as long as non-market treatment of some countries continues. More generally, a clear look at pass-through is necessary as WTO signatories grapple with appropriate approaches to subsidies generally.

The analysis of Section 3 shows that a priori rules will not succeed in this measurement. Even within the competitive models outlined, the rate of pass-through varied depending on a variety of parameters, particularly the curvature of demand and of industry supply. The status of a cost as “fixed” or “variable” was shown not to provide definitive guidance on pass-through. One need not have recourse to the greater complexity and indefinitely large variety of outcomes of market power models to conclude that the approach adopted by Commerce will likely fail to measure pass-through correctly in many cases. This suggests that empirical
approaches should be case specific, with the framework of Section 3 providing some of the relevant considerations for those approaches. While empirical estimates will often present great difficulties, they often will not, and in any case responsible administration requires that they be done.

A recent article by Debra Steger (Steger (2010)) takes a broad view the SCM Agreement to argue that Doha Round negotiators have failed to confront major recent issues to focus instead on clarifications, including with respect to pass-through. The pass-through question with respect to non-market economies, despite the very large amounts of money and extensive trade tensions at stake, will fade in a few years. However, pass-through raises the most fundamental issues possible concerning countervailing duties and thus is a major issue. Trade negotiators will indeed earn their keep if they can meaningfully address the idea that countervailing duties should countervail – address with equal, offsetting force – rather than be set at a seemingly arbitrary level; this will require wrestling with the question of pass-through.

REFERENCES


Cornell University Law School (2013), U.S. Code Collection – Title 19 – Customs Duties, Chapter 4, Subtitle IV, Part IV; Legal Information Institute, electronic resource last accessed August 2013: http://www.law.cornell.edu/uscode/text/19/chapter-4/subtitle-IV.


