International Discipline of Government Subsidies:
An Assessment of Current Rules and Possible Reforms

Gene M. Grossman
Alan O. Sykes[*]

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Long an issue in the agricultural area, subsidies in industrial sectors have proliferated dramatically in recent years. Their proliferation is accompanied by a widespread perception that existing international disciplines on subsidies – primarily those of the WTO – are inadequate and often ignored. This paper and the broader project of which it is a part are motivated by the question whether WTO rules on subsidies need strengthening and reform.

To assess the adequacy of existing WTO rules on subsidies, and to offer useful observations about possible reforms, one must begin by identifying the problem that international rules on subsidies are intended to solve. Our account of their purpose emphasizes the need to address international externalities attributable to subsidies. The modern economic literature on trade agreements posits that nations acting unilaterally will select policies to maximize their own perceived welfare, neglecting the impact of their choices on other countries. These parochial national choices result in non-cooperative equilibria exhibiting externalities that are inefficient from a global perspective, opening the door to constructive international cooperation to address the problem through trade agreements.[1]

Externalities may be harmful or beneficial to others. International legal rules limiting the use of subsidies, or authorizing countermeasures in response to them, presumably focus on harmful externalities, and they will receive the lion's share of our attention. But beneficial externalities are also relevant to the design of appropriate legal disciplines, as it is important to avoid rules that condemn or discourage government activities that benefit other countries.

Our emphasis on externalities as the rationale for subsidies disciplines rules out one possible, and oft-discussed, role for them. In particular, we reject the notion that subsidies disciplines arise for the purpose of preventing national governments from wasting money on imprudent subsidies that lower their own welfare. We feel confident, for example, that the United States is not concerned with Chinese subsidy practices because they may distort industrial development in China and lower China's long-term growth trajectory. More broadly, we see little reason for governments to engage in international negotiations to prevent governments from engaging in policies that damage their own national interest unless those policies also have harmful externalities abroad.[2]

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[*] Princeton University and Stanford University, respectively. We have received thoughtful comments from Annabel Gonzalez, Gary Horlick, Petros Mavroidis, Clarisse Morgan, Dan Trefler, and participants at the Expert Dialogue on Subsidies conference held at the IMF in June 2024.

[1] See, for example, Grossman and Helpman (1995), Bagwell and Staiger (2002), and the broader discussion in Grossman (2016) and Rodrik (2018).

[2] To elaborate, we agree that governments may wish to "tie their hands" at times due to time inconsistency problems. Our point is that there is little reason for other governments to assist in the absence of externalities. Moreover, even if rules were somehow negotiated for the purpose of 'hands-tying," no government would have any incentive to enforce them against a breaching party in the absence of externalities. And when we look at existing WTO rules regarding subsidies and other matters, legal claims indeed require a showing that the claimant has somehow been injured by the breach – in other words, some evidence of externality.

To say that our concern is with externalities, however, elides a crucial question – what exactly is meant by an "externality"? Economists often conceptualize externalities as effects on the aggregate economic welfare of other actors. That conception of externality can be useful in thinking about subsidies rules, and we will at times offer observations from this conventional efficiency perspective. But as explained below, we ultimately embrace a political economy perspective on the concept of an externality, both to understand international rules as a positive matter, and to illuminate possible directions for reform.

The WTO treaty system, and trade agreements in general, are contracts among governments. The heads of government that negotiate and accede to these contracts are political actors. Like parties to contracts in other contexts, they enter contracts to promote their joint welfare. We think it self-evident that aggregate national welfare, conventionally defined, is not the only concern of these political actors (although we suspect that it often receives important weight). They also have genuine concerns about the equity of the income distribution, and with how the actions of foreign actors affect their political self-interest. Subsidies disciplines will be devised with all these considerations in mind. The rules that emerge will thus respond to a broader set of concerns than simply the pursuit of aggregate global efficiency. Likewise, proposals for reform of existing disciplines will have no traction unless they move the rules toward a political Pareto frontier.

These observations leave us in a somewhat uncomfortable position, in as much as the goal of our analysis is to say something useful about the adequacy of existing WTO rules on subsidies and possible directions for reform. While economic analysis is often useful for elucidating the aggregate efficiency effects of policy and has made considerable progress in offering a positive account of certain broad aspects of trade agreements using political economy models, we question whether economics can identify the fine-grained characteristics of "politically optimal" rules on subsidies. Unlike conventional welfare effects, which can be crudely estimated using established techniques such as cost-benefit analysis, political welfare is private information, non-observable and non-verifiable. Nevertheless, in the sections to come, we hope to offer some useful guidance regarding general weaknesses in the current rules.

In so doing, we generally limit our focus to issues that specifically implicate subsidies and do not address broader aspects of the international trading system. Thus, with minor exception for a discussion of some subsidy-specific reform proposals, we take the basic enforcement and dispute settlement system of the WTO in general, and its application to the existing agreements on subsidies (principally, the Agreement on Subsidies and Countervailing Measures [SCMs] and the Agreement on Agriculture), as a given. Under those arrangements, only member governments have standing to complain of violations and initiate disputes – private parties have no legal standing. We further assume that disputes will be adjudicated by arbitral panels, perhaps with a revised appellate process at some point. We assume that the remedy for a violation will in the first instance be an "injunction" asking the violator to cease and desist violations within a specified time, and that lengthy recalcitrance will be followed by an opportunity for the violator to offer compensation for an ongoing violation, or for complaining nations to engage in proportional countermeasures. In that sense, enforcement ultimately takes the form of self-help on the part of aggrieved members, constrained by centralized oversight to ensure proportionality.

We further assume that that importing countries will retain an option under appropriate circumstances to "countervail" subsidies on imported goods as an alternative to challenging subsidies at the WTO. This avenue will tend to be preferred by countries that are primarily concerned about externalities from foreign subsidies associated with import competition in their own markets. Direct complaints to the WTO, by contrast, will be preferred by countries concerned about externalities that arise in other markets, whether in the market of a third country where competition with subsidized goods arises, or in the market of the subsidizing country.

Taking these remedial aspects of the system as fixed, our focus is instead on the substantive rules regarding subsidies. Here, the analysis will focus on several key questions. First, should the WTO rely on "rules of general applicability" that apply across most or all industries (at least in goods sectors), or is the problem of subsidies better addressed through negotiated rules that are industry- or sector-specific? The SCMs Agreement embodies the former approach, relying upon generally applicable definitions of "subsidy," "specificity," "prohibited," "actionable" and "countervailable" subsidies. The latter approach is found in the Agreement on Agriculture, in recent negotiations regarding fisheries subsidies, and to a degree in the Agreement on Civil Aircraft.

We also ask a range of conceptual questions concerning the identification and measurement of subsidies. Given our underlying concern for harmful externalities, what can be said about the types of government expenditures that tend to create important externalities and those that do not? What types of expenditures by governments, if any, should be insulated from legal scrutiny as "subsidies," and instead fall within some form of safe harbor? Where the applicability of some subsidies discipline turns on a showing that government has enhanced the competitive position of the recipient relative to some meaningful benchmark (such as the "free market"), is the relevant benchmark both observable and reliable? Does it provide a reasonable basis for measuring the magnitude of a subsidy when such a measurement is needed (as for computing the level of an allowable countervailing duty)?

Finally, we attend to an elephant in the room – how does one establish the existence of a "subsidy" or measure it with any accuracy in an economy infused with central planning, state-owned enterprises, and additional channels of government influence in the private sector such as China? Indeed, whatever the rules on subsidies for market economies, can they be applied at all to China or is a separate legal regime necessary?

I. Why do Governments Subsidize?

The economics literature suggests various reasons why governments might seek to promote specific economic activities. The international externalities generated by subsidies do not necessarily depend on the purpose for which these policies are introduced. Still, it may be helpful to review governments' motivations in using subsidies in order understand the circumstances in which they may arise.

In this section, we highlight four categories of subsidy use: (i) to correct market distortions; (ii) to assist domestic firms in their exploitation of global market power; (iii) to achieve non-economic or distributive objectives; and (iv) to curry political favor and support.

For the time being, we will not attempt to define what constitutes a "subsidy," as would be required in any legal document seeking to regulate their use. For our current discussion, it suffices to take a more abstract view of a subsidy as being any government expenditure that incentivizes a specific economic activity, be it production of some good, employment or investment in some industry, research and development, the use of particular (e.g., "clean") technologies, or others.

A. Correcting Market Distortions

The First Fundamental Theorem of Welfare Economics identifies conditions under which a *laissez-faire* market equilibrium generates Pareto efficient outcomes. In such circumstances, Adam Smith's "invisible hand" guides resource allocation to a point where it is not possible to make any economic agent better off without making at least one other agent worse off. The theorem requires that a market exists for every good (or "bad"), that prices are flexible, that agents believe that their actions cannot affect market prices, that agents are perfectly informed, and that agents behave "rationally" to serve their own interests.

Governments may or may not regard Pareto efficiency as a worthy objective. On the one hand, if an equilibrium is not Pareto efficient, then, by definition, the government can take actions to make some agents better off without harming any others. If we take a broad view of "better off," it is hard to imagine a reason why a government wouldn't want to do so. On the other hand, a Pareto efficient outcome that arises as a market equilibrium may fail to meet the government's distributive (or other) goals. If the instruments available to redistribute welfare are limited, it might be willing to sacrifice Pareto efficiency to redistribute resources to those that it regards as more worthy or in greater need; see section II.C below.

Let us suppose that a government sees Pareto efficiency as a desirable goal. Then a failure of any of the antecedents for the first welfare theorem provides a possible motivation for its use of a subsidy. It follows that subsidies might arise when markets are incomplete, when some prices are "sticky," when some agents are not price takers, when some agents face informational disadvantages, or when agents do not act in their own self-interest.

If markets are not complete, agents may confer externalities on one another. Whenever there are *positive* externalities, a subsidy may be used to induce each of them to take others' interests into account. For example, a firm may generate benefits for others when it creates knowledge via research and development. If the property rights for that knowledge are well defined and a market exists on which firms can sell the rights to the knowledge they create, then there is no need for the government to promote knowledge creation beyond what the firms will do on their own accord. But if a market for knowledge does not exist, either because ownership rights to ideas are difficult to define or because such rights cannot be enforced, then the free-market equilibrium will undersupply knowledge. There would then be an argument for the government to offer subsidies for knowledge creation, so that agents invest in knowledge creation to the point where the *aggregate* social benefits match their private marginal costs.

The existence of price rigidities provides another motivation for subsidies to promote efficiency. Many economists believe that wages are downwardly sticky; they do not fall to a level that ensures full employment. If profit-maximizing firms hire workers until the value created by the marginal employee matches the market wage, then a sticky wage can imply that some workers who

would happily offer their services at the going wage are not able to find a job. A subsidy to employment would encourage firms to hire more workers, and those hired would benefit by more than the amount paid.

When some firms have significant market shares, they may recognize that their actions affect prevailing prices. Firms that recognize their ability to influence prices may produce less output than is efficient to obtain better prices for what they sell. Similarly, firms that recognize their ability to affect compensation in local labor markets may restrain their labor demand to pay a lower wage to those that they hire. Monopolists tend to produce less than the efficient volume, because their marginal revenue is less than the price they receive, once they take account of the inverse relationship between quantity and price. Monopsonists tend to hire fewer workers than is efficient, because the marginal cost of labor is above the wage. In either case, a subsidy (to output, or to employment) can be used to generate benefits for consumers or workers that cause no harm to the firms.

Asymmetric information also can generate inefficient outcomes in the absence of government policies. For example, buyers may believe that sellers know more about the quality of a product than they do. If they recognize their informational disadvantage, they may be reluctant to purchase goods that in fact would be worth more to them than they are to the sellers. Ideally, the government would require transparency and full revelation of private information that affects the value of a trade. But when full information is not feasible, a subsidy to encourage additional trades can be Pareto improving.

Finally, subsidies can arise for paternalistic reasons. The government might believe that psychological factors prevent agents from acting "rationally"; that is, from taking actions that maximize their own well-being. For example, households may fail to save enough for retirement, because they overly discount the future in the face of short-term temptations. If the government believes that it knows better than the households about what is in their best interest, it may use subsidies to encourage additional savings.

In all of these cases with "market distortions," a subsidy policy may be justified on efficiency grounds. Of course, subsidies require tax financing and taxes generally create their own inefficiencies. If the cost of raising revenues to fund a subsidy exceeds the benefit from eliminating the perceived inefficiency, the market failure will not be worth fixing.

B. Strategic Subsidies

Subsidies can also arise when governments serve national or local interests while neglecting parties outside of their constituency. Consider, for example, an imperfectly-competitive world market that affords participants opportunities for monopoly profits. If a government were to represent all participants in the market, it might not care about the ultimate distribution of profits across firms. In reality, however, governments typically favor their own constituents, which are disproportionately or exclusively local or national firms.

Research by Brander and Spencer (1983) and others has identified situations in which national governments might have an incentive to subsidize domestic firms that are engaged in international oligopolistic competition. These "strategic" subsidies can be used to shift profits to

national firms at the expense of their foreign rivals. For example, if a single domestic and a single foreign firm compete for export sales to a third market and if the market structure is one of Cournot duopoly,[3] then a government policy to subsidize sales by the domestic firm can result in an expansion of its market share and an increase its profits. When a subsidy is introduced, the foreign firm anticipates a more aggressive competitor that will produce greater output than otherwise. The foreign firm then reduces its planned output, thereby ceding market share. The strategic subsidy benefits the domestic firm at the expense of its foreign rival even if it does not promote greater aggregate (net-of-subsidy) profits for the industry.

The parochial incentives for strategic subsidies become even more powerful if market circumstances are such that a national government can drive all foreign competitors out of a market. Such predatory policies would allow the home firms to capture all of industry profits rather than just an oligopolistic share.

The strategic motive for industrial subsidies does not presume the existence of a passive foreign government. Subsidies may emerge from policy competition between governments in a non-cooperative setting. Suppose for example that each of the national governments in the example above has the opportunity and willingness to subsidize its own competitor in the international duopolistic competition. No matter what policy the home government expects from its foreign counterpart, it will see a strategic incentive to subsidize the production and export sales of its national firm. Similarly, the foreign government will see reason to subsidize so as to shift profits to the foreign firm. In a Nash equilibrium of the policy game, both governments may engage in subsidies even if both would be better off with no subsidies at all. The inefficiency of the non-cooperative equilibrium results from the governments neglecting the international externalities from their unilateral policy choices.[4]

C. Distributional or Non-Economic Objectives

Governments may have other policy objectives besides efficiency and profit shifting that motivate their use of subsidies. For example, many governments care about the distribution of income in their jurisdiction. Such an objective may reflect the politicians' personal preference for equality or it may be that they bear a preference for certain ethnic groups, religious groups, or regions. They may use place-based policies or subsidies to favorite industries to achieve their distributive goals. Policies to support depressed regions and industries can be understood in this light. Subsidies are rarely the least-cost means to achieve redistribution, but political constraints may limit the use of more direct tools.

The government might use subsidies to further other, non-economic objectives. National security concerns come to mind, as governments often subsidize industries that supply goods, services, or knowhow to the military. Similarly, matters of public health may rationalize subsidies to the pharmaceutical or medical supplies industries. More recently, many governments have

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[3] A Cournot competition is one in which market participants simultaneously choose their output levels and then sell that output at whatever price the market will bear in the light of their collective strategies. More formally, it generates a Nash equilibrium in a simultaneous move game of quantity choices.

[4] Strategic subsidies might also generate positive spillovers for some countries. For example, when competing oligopolistic exporters serve mostly outside markets, the strategic subsidies that harm exporting countries will benefit consumers in the importing countries.

voiced unease about supply chain disruptions that arise for geopolitical or other reasons. Governments seem keen to promote home production of key inputs such as semiconductors and batteries in order to reduce dependence on certain trading partners or to mitigate risks to downstream industries. There may be some market distortions that render the market-determined supply chain vulnerabilities inefficient, but governments may view resilience and independence as desirable outcomes in their own right.

D. Political Economy

Finally, governments may feel political pressures to support certain industries or activities, even if the subsidies do not serve their own policy agenda. To remain in office, politicians require resources and votes. Subsidies can help to deliver both.

The political economy literature has emphasized the role that "contributions" play in policy formation; see, for example, Grossman and Helpman (1994). Contributions might refer to monetary gifts that politicians use to fund their campaigns, but the term can be interpreted more broadly to include labor for campaigning and public endorsements. Although explicit *quid pro quos* are rare in modern democracies, there may be an understanding that organized special interest groups will support candidates and political parties that further the group's policy goals. Politicians may well perceive that a subsidy to a particular industry will induce greater contributions of time and money from those that stand to benefit.

Politicians might also cater to certain industries to curry electoral support. Some countries allocate seats in the legislature according to votes by region. In the United States, seats in the Electoral College that chooses the president are also granted by region. Research by Dixit and Londregan (1996) and others shows that industries concentrated in geographic regions that are closely split between the two leading contenders often benefit from especially generous policy support. Politicians might use industrial subsidies as a means to woo these "swing voters."

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Often it will be difficult in practice to identify the real reason behind a given subsidy and, in particular, to distinguish whether the motivation is to correct a market distortion, to achieve distributional objectives, or to respond to political pressures. Indeed, all three of these considerations may come into play for the same policy as for example when a government subsidizes a depressed industry or region. In our discussion below, we will be wary of rules that tie the international legality of subsidies and their potential remedies to the underlying justification for their existence.

Having identified the motivations that government actors might have to enact subsidies that serve their country's economic interests and their own political interests, we turn now to the effects these policies might have on economic and political actors abroad.

II. International Spillover Effects of Subsidies

We have argued that the purpose of international rules on subsidies should be to address the international externalities that these policies generate. In Section I, we reviewed the various reasons

that governments might subsidize local producers, while emphasizing that the motivation for policy in one country does not necessarily inform us about the potential spillovers to others. Arguably, a well-functioning international trading system requires that governments consider international externalities no matter what the rationale for their policy choices. In this section, we outline the different types of international externalities that may occur when governments subsidize local economic activity. In Sections IIA, we describe policy spillovers that affect foreign economic welfare as conventionally defined. These may operate through the international terms of trade or via non-pecuniary channels, such as when environmental impacts or technological innovations cross international borders. We also recognize the possible damage that subsidies might do to public perceptions about the global system, which can reduce the viability of a liberal trading regime.

As we argued in in the introduction, international agreements are enacted and enforced by political actors, not benevolent dictators, and thus the externalities that are relevant for understanding subsidy rules are political in nature. Of course, conventional economic outcomes matter in politics, so the externalities described in IIA represent political externalities as well. In addition to these, national subsidy policies can affect the political fortunes of foreign governments beyond their impact on constituents' aggregate economic welfare. We discuss these additional channels for political spillovers in Section IIB, where we argue that they pose the most vexing challenges for institutional design.

A. Conventional Economic Externalities

i. Terms-of-Trade Externalities

The modern theory of *trade* agreements (e.g., Bagwell and Staiger, 2002) puts special emphasis on externalities that operate through world prices. When a country imposes a tariff on an import good, the resulting increase in *domestic* prices depresses local demand for the good while encouraging additional national supply. The combined effect on import demand induces a fall in the *world* price, to the detriment of countries that export the good. A multilateral agreement to reduce tariffs can raise welfare in all countries by mitigating the terms-of-trade externalities.

What are the terms-of-trade externalities that result from subsidies? If a country subsidizes production of a traded good, or employment in an industry that produces such a good, world supply of the good expands at the initial world price. The incipient excess supply induces a fall in the world price, which harms other countries that export the good while benefiting those that import it. Thus, subsidies generate terms-of-trade externalities analogous to those from trade policies. If subsidy rules are to generate a globally efficient outcome, the subsidizing countries must internalize the positive externalities from their actions as well as the negative ones. But it is difficult to imagine WTO subsidy rules that would require countries that enjoy terms-of-trade improvements to contribute to the compensation of losers.

ii. Non-Pecuniary Externalities

Subsidies promote activity in targeted sectors. The pecuniary effects of a subsidy reflect the induced changes in prices that result from the increased supplies of goods and services. But

expanded activity in certain sectors generates by-product externalities beyond the price effects, which may be harmful (or beneficial) to other countries.

One common cross-border externality reflects the environmental impacts of expanded activity in a given sector. If production in a sector generates harmful emissions and if the adverse effects of this pollution are not confined to the area near the production facility, then the subsidy creates a negative externality for neighboring or even distant trade partners. If, on the other hand, a subsidy promotes activities that reduce pollution or otherwise protect the environment, then partners will experience positive spillovers. An ideal set of subsidy rules would encourage governments to take account of international environmental externalities, be they positive or negative.

Subsidies might also encourage or impede international knowledge spillovers. It is easy to imagine positive externalities, such as when promotion of an industry spurs innovation and the knowledge diffuses globally. But negative externalities also are possible, if, for example, concentration of production activity in one country crowds out knowledge investments by others.

One can identify other non-pecuniary externalities that result from subsidies to some specific activities. For example, subsidies to fishing affect the fish population and, therefore, the productivity of producers in nearby countries that fish the same waters. Agricultural subsidies increase water use, with spillovers to farmers in countries that share rivers or water tables. International non-pecuniary externalities can arise whenever property rights are not well defined or not adequately enforced, so that subsidized firms do not have to pay fully for the environmental damage they cause, the water they use, or the populations they deplete.

iii. Systemic Externalities

For whatever reason, citizens regard competitive advantage gained by means of government subsidies differently from advantage that reflects different wage structures, different technological prowess, or other reasons for low-priced imports. Whereas import prices that reflect foreign national endowments or foreign innovation are often seen as a legitimate expressions of competitive forces, import competition that intensifies due to foreign subsidies is instead seen as "unfair."

This observation suggests another (economic) reason to regulate subsidies, namely for the negative impacts they may have on the openness of the world trading system. A liberal trading regime requires ongoing public support. To the extent that subsidies undermine support for trade, they impose external costs that go beyond their measurable impacts on prices, incomes, technologies, and the environment.

B. Political Externalities

To the extent that subsidies paid by some government affect the personal and professional welfare of politicians elsewhere, the policy makers will have a collective motivation to regulate their use. Constituents tend to reward political actors that provide good economic outcomes (e.g., by re-electing them), so the economic externalities described in Section IIIA are also a concern for foreign politicians. But the extent to which good economic outcomes benefit politicians varies with country and circumstances, so measuring the economic effects of a foreign subsidy tells us only so much about the magnitude of the political effects. Moreover, subsidies can generate political externalities that run counter to effects on conventional aggregate welfare, so that politicians may experience negative spillovers from subsidies in situations where the effects on aggregate economic welfare are positive.

The purely political externalities that result from subsidies may take many forms. First, to the extent that the politicians care about the distribution of income for ideological or other reasons, subsidies that impact foreign profits or foreign wages will affect the political welfare of the government officials there. For "political efficiency," subsidies should reflect not only the distributional concerns of the government that implements them, but also the distributional concerns of the governments in trading partners. Second, to the extent that governments receive contributions of time and money from special interest groups, an agreement must recognize that subsidies affect the contributions and support available to foreign politicians. Third, some political institutions make politicians especially attuned to the well-being of voters in closely contested states and regions. If a subsidy harms voters in swing districts in a foreign country, the foreign politicians will regard themselves as adversely affected.

If governments wish to write rules to internalize political externalities from subsidies, then the externalities must be observable and measurable by the actors that enforce the agreement. But this poses a vexing challenge for institutional design. Political pressures and political rewards are private information for those that experience them and are not reflected in market outcomes. It will always be in the interest of a politician to exaggerate the political harm they suffer from foreign subsidies, if the extent of compensation or other remedies is linked to what they report. Economists have developed methods for measuring aggregate *economic* welfare that, in principle, could be used to inform the compensation that a country would need to pay for introducing a harmful subsidy. But measuring *political* welfare seems much more difficult, if not impossible.

III. Options for Controlling Externalities

The economic literature on externality problems considers a range of possible solutions. The parties affected by externalities may be able to negotiate a mutually beneficial solution when an externality problem materializes. If such case-by-case negotiations are impractical, liability solutions involving *ex post* transfers to compensate for harm (or to reimburse for benefit) may offer a useful alternative. And if a system of *ex post* transfers is unrealistic, a "command and control" approach may be devised to regulate the behavior that produces externalities. This option too will generally require some form of *ex post* enforcement mechanism. This section considers these options, and some related issues, in relation to the externalities associated with subsidies in the WTO.

A. Case-by-Case Negotiation

Ronald Coase provides our point of departure. As he observed long ago, negotiations can achieve the Pareto frontier if transaction costs are low enough, which implies among other things that negotiations occur in an environment of reasonably clear property rights. As a classic example, suppose that a farmer's crops can be damaged by wandering cattle on the open range, and suppose that the efficient solution is to limit the number of cattle. If the rancher has a clear right to permit the cattle to roam, the farmer can compensate the rancher for reducing the size of the herd to the efficient level. If the farmer has a right to be free of crop damage from cattle, the rancher will be directly incentivized to reduce the size of the herd cost effectively. Either way, the farmer and the rancher can achieve an efficient resolution.[5]

Coase develops such insights under the implicit assumption that a government exists to establish property rights in the first instance and to enforce any negotiated bargain. In the WTO, by contrast, the members themselves must create property rights, and coercive enforcement is lacking aside from various forms of self-help.

The Coasean analogue for the WTO thus involves a two-stage process. In the first, the members agree on a basic property rights framework. The subsidies disciplines contained in treaty instruments such as the SCMs Agreement and the Agreement on Agriculture can be viewed as creating such a framework. In the second stage, members can negotiate in the shadow of this framework to address important externality problems as they arise. This approach to addressing conflict within the WTO system was broadly envisioned by the WTO dispute settlement understanding (DSU), pursuant to which a mutually satisfactory negotiation is the preferred option for resolving disputes.

A further lesson from Coase is that negotiations in the shadow of property rights will be facilitated by clear rules. Vague and ambiguous rules will yield disputes among parties as to who has acted lawfully or unlawfully, reducing the chances of mutually satisfactory negotiations, at least until further negotiations or litigation clarifies the background rights.

Accordingly, one might argue that WTO members should place a premium on clarity in subsidies disciplines to facilitate negotiation. But although greater clarity is a virtue, other things being equal, other things may not be. For example, one clear rule is that members can use subsidies to their hearts' content, and members harmed by subsidies must offer compensation to curtail them. But if serious externalities are commonplace and often excessive from a global (political efficiency) perspective, such a system may require numerous costly negotiations that might be avoided by a different initial allocation of property rights.

The broader point is that initial property rights must be designed with an eye on the second stage process of negotiation or litigation in their shadow. Other things being equal, members will benefit from property rights that minimize the need for *ex post* negotiation and litigation. One useful principle in that regard is that if the efficient solution to an externality problem can be anticipated, property rights may be allocated to avoid the need for negotiation where possible. To

[5] To be sure, the allocation of property rights will have wealth effects and can affect which point on the Pareto frontier the parties choose.

return to the example of the rancher and the farmer plagued by wandering cattle, if the efficient solution is usually for the farmer to build a fence around particularly valuable crops, it may be best to give the rancher immunity from liability so that the farmer is encouraged to fence plantings cost-effectively without the need for a negotiation.

B. "Liability Rules" and the Role of *Ex Post* Transfers

As Coase also observed, transaction costs may make it difficult to resolve externality problems through negotiations in the shadow of property rights. Accordingly, much of *The Problem of Social Cost* was focused on the Pigouvian alternative – a tax on harmful externalities, which Coase imagined would take the form of liability payments to injured parties. This approach does not eliminate the need for property rights, of course, but simply specifies that injured parties have the right to be compensated for harm after it occurs. This "liability rule" stands in contrast to the "property rule" alternative, whereby activities that create externalities must negotiate *ex ante* for permission to proceed, or the activities harmed by externalities must negotiate *ex ante* to prevent them.

The familiar "polluter pays" principle in environmental law is an example of *ex post* Pigouvian taxation aimed at ameliorating externalities. The logic rests on the notion that if actors internalize the social costs of harms caused by their behavior, they will tend to behave in a socially optimal fashion. Pigouvian taxation is also informationally parsimonious compared to alternatives such as command and control regulation, which dictates the amount of an externality-generating activity that can occur or the technology for abating an externality. The taxing authority (or court) need simply measure the social harm per unit of the externality and possess a technology for monitoring its output.

In theory, one might imagine a similar system to address externality problems caused by subsidies – subsidizing countries would be obliged to offer compensation (whether monetary or something else such as trade compensation) for harms associated with any policy that constitutes a "subsidy." But once again the WTO exhibits a stark institutional difference from typical settings that involve Pigouvian taxes – it has no regulatory agency or adjudicator to establish the tax rate. Without a central authority to perform this function, the effect of a "liability rule" is simply to promote negotiation between the affected parties over the proper compensation, and there is little meaningful difference between a liability rule and a property rule aside perhaps from the nominal timing of negotiations.

Moreover, for several reasons, we do not think it realistically possible to address subsidy externalities with a system akin to Pigouvian taxes even if the WTO had a central authority with the power to impose compensation requirements. First, subsidies are ubiquitous in modern economies, and the number of instances in which externalities arise is no doubt enormous. If all harmful externalities gave rise to an entitlement for compensation pursuant to a liability rule, the administrative costs of the system would be staggering.

Second, subsidies produce both positive and negative externalities. A subsidy by country A on goods sold in country B may harm competing producers of the good from country C, yet confer a benefit on the consumers of country B. If country A must compensate for the harm to country C but receives no compensation for the benefit bestowed on country B, the incentives of country A

will not be aligned with global optimality – subsidies will be underprovided. We are not aware of any mechanism in international law to ensure that the beneficiaries of positive externalities must pay for them.

Third, as Coase emphasized, if the "victims" of externalities are compensated for harm, a reverse externality can arise because they may overinvest in activities that may suffer harm from externalities or otherwise diminish their efforts to protect themselves against externalities, essentially a form of moral hazard. We are agnostic as to whether this problem is important in a system like the WTO where any "compensation" is payable to foreign governments rather than to the private sector, but we cannot rule out the possibility that a prospect of compensation may distort the political calculus of "victim" states.

Finally, as we stated in the introduction, we believe that "externalities" in the WTO must be understood in political terms. Our view is bolstered by the fact that if all harmful externalities took the form of conventional efficiency costs, many features of WTO law would be inexplicable. Why would importing nations routinely undertake to counteract price discrimination in their favor under the antidumping laws, for example, and why would they not invariably welcome an improvement in their terms of trade due to foreign subsidies with a "thank you note to the embassy?" Yet, the political externalities that drive important aspects of membership behavior are not measurable or verifiable. As a practical matter, only negotiations among the affected parties can reveal much about efficient levels of subsidization, and even then, transaction costs may stand in the way of agreement. There is simply no reliable basis for a central authority to determine the appropriate Pigouvian "tax rate."

C. "Command and Control" Approaches

Having ruled out the use of a general "liability rule" approach to subsidies externalities, we think that WTO members have no alternative but to craft subsidy disciplines that rely mainly on *ex ante* "command and control" principles. These principles will determine what "subsidies" are permissible or impermissible, and what countermeasures may be taken against subsidies. Thus, subsidy disciplines will in a sense distinguish between "good" and "bad" subsidies, although those assessments will be driven by political welfare considerations that may deviate significantly from conventional efficiency considerations.

The basic design principle for these rules is to select obligations that correspond reasonably well to politically efficient behavior. The idealized "complete contingent contract," specifying exactly what subsidy measures and countermeasures are allowed in every possible scenario, is not a realistic goal. One can only hope for a more parsimonious set of rules that addresses most issues well most of the time. In the cases where the rules misfire, *ex post* negotiation among the affected parties may address the resulting deficiencies. And, as noted earlier, the greater the clarity of the rules, the less room for disputes about their meaning and the lower will be the costs of *ex post* litigation.

Returning to the observation that WTO treaty instruments on subsidies may be viewed as the "property rights" backdrop for later negotiations, we note an important tradeoff between the initial costs of negotiating subsidy disciplines and the subsequent costs of negotiation and litigation in their shadow. Plainly, the greater the degree to which the basic treaty disciplines approach what

would be achieved by a complete contingent contract, the less the need for *ex post* negotiation to circumvent inefficient rules and the less the need for litigation when the rules are unclear. But greater completeness in the initial rules is inevitably more costly to negotiate.

The last observation suggests another key point about the structure of initial negotiations on subsidy disciplines. One option is to negotiate a set of rules that applies across the board to all sectors and industries, what we term "rules of general applicability." An alternative is to negotiate separate rules for different sectors or industries, which we term "sector-specific rules." To an extent, as noted in the introduction, existing WTO rules embody both approaches, with rules of general applicability found in the SCMs Agreement, and sector-specific rules in the Agriculture Agreement.

Both approaches have advantages and disadvantages. On the one hand, we suspect that sector-specific rules can come closer to what might be achieved by a complete contingent contract. The subtleties of the negative and positive externalities in each sector and their political welfare implications are more easily identified and addressed by negotiations that focus on the narrower class of subsidy practices in just one or a few industries.

On the other hand, sector-specific negotiations are much more expensive if the ultimate goal is to devise rules that cover all sectors. Further, negotiations regarding rules of general applicability may have embedded issue linkages that facilitate agreement – a principle that disadvantages a member in one sector may confer an offsetting advantage in another. Negotiations over rules of general applicability may thus have some advantage in getting to yes.

Plausibly, a hybrid approach makes sense in the face of these tradeoffs. For sectors where subsidy externalities are acute, rules of general applicability may prove too crude to resolve them adequately, and a sector-specific negotiation may be best. In sectors where subsidy externalities are modest, more general rules may suffice. These observations may have some purchase in explaining why agriculture was singled out for sector-specific negotiations during the Uruguay Round.

We turn in the next section to a brief overview of the legal structure found in current rules. We will then proceed to address why those rules have come to be seen as deficient.

IV. An Overview of Current WTO Rules

The advent of the WTO dramatically expanded the limited legal disciplines on subsidies that existed under GATT. The important developments were contained in two new agreements, the Agreement on Subsidies and Countervailing Measures (SCMs) and the Agreement on Agriculture (AG Agreement). In this section, we offer a brief overview of GATT principles that remain pertinent in the WTO and the core principles found in the newer WTO agreements.[6]

A. Subsidies in the Original GATT

Subsides were a matter of concern to the drafters of the original GATT, but the restrictions on the use of subsidies were minimal. Incremental additional obligations were developed over

[6] A more complete survey may be found in Sykes (2023).

time, particularly in relation to the use of export subsidies, culminating in a plurilateral agreement known as the Subsidies Code during the Tokyo Round of negotiations in the 1970s. We focus here only on the original GATT principles, as subsequent GATT developments have been supplanted by the newer WTO Agreements.

A central obligation under GATT is "national treatment," which requires *inter alia* that imported products be treated no less favorably than "like" domestic products with respect to all laws, regulations and requirements affecting their internal sale (GATT Art. III(4)). Subsidies to domestic producers of products that are "like" imported goods would violate this principle, except for an exception contained in Article III(8)(b) for "the payment of subsidies exclusively to domestic producers," including payments "derived from the proceeds of [non-discriminatory] internal taxes," and subsidies "effected through governmental purchases of domestic products."

An early GATT dispute involving Italian payments to the *purchasers* of domestically produced farm equipment raised the question whether this exception extended to cases in which the subsidy is formally bestowed on purchasers of domestic goods rather than producers. The dispute panel ruled that subsidies for purchasers are not permitted under the exception, even though their economic effects on imported products may be much the same as the effect of producer subsidies.

The exception for subsidies in Article III(8)(b) on its face creates a glaring "loophole" for subsidy programs that can replicate the effects of tariffs. Imagine a non-discriminatory excise tax on domestic and imported "like products," with the proceeds then given to domestic producers of those products as a per unit output subsidy. Such an arrangement is equivalent to a tariff on the imported goods and might easily undermine a negotiated GATT tariff commitment. To avert such chicanery, GATT quickly developed the rule that a *new* subsidy bestowed on goods that compete with imported goods subject to a tariff commitment is actionable as a "non-violation" complaint.

Beyond these limited constraints on the use of subsidies, the GATT drafters confronted the fact that some members of the original GATT treated subsidized imports as "unfair" and employed countermeasures against them known as countervailing duties. GATT Article VI permits the use of countervailing duties, and GATT Article II provides that such duties do not count as tariffs that are subject to negotiated tariff ceilings. But Article VI adds important constraints. First, the amount of the countervailing duty on an imported good cannot exceed the "estimated bounty or subsidy" bestowed "directly or indirectly" on the "manufacture, production or export" of the good. No effort was made in GATT, however, to define the terms "bounty" or "subsidy." Second, countervailing duties cannot be imposed unless an injury test has been satisfied, which requires actual or threatened "material injury" to a domestic industry. Third, the exemption of exports from domestic consumption taxes, and the exemption for exported goods from taxes and import duties on input products used to produce them, is not to be treated as a "subsidy." And finally, while subsidies on exports may result in export prices that amount to "dumping" and give rise to antidumping duties, importing nations cannot impose both antidumping duties and countervailing duties for the same situation.

B. The SCMs Agreement

Subsidy-related obligations under GATT continued to evolve over its 47-year history, but later developments were supplanted by the new WTO treaty instruments. The most important

instrument, with applicability to all industries and sectors (with a proviso for agriculture as noted below), is the SCMs Agreement.

The SCMs Agreement has eleven "parts," five of which warrant a mention here. Part I represents an effort to define the concept of a "subsidy," and further to limit the categories of "subsidies" that are subject to discipline. In particular, Article 1 of the SCMs Agreement provides that a "subsidy shall be deemed to exist if (a) there is a financial contribution by a government or any public body within the territory of a Member (referred to in this Agreement as "government") …or there is any form of income or price support in the sense of Article XVI of GATT and (b) a benefit is thereby conferred." Article 1 also lists four ways in which a "financial contribution" may arise:

> "(i) a government practice involves a direct transfer of funds (e.g. grants, loans, and equity infusion), potential direct transfers of funds or liabilities (e.g. loan guarantees);
>
> (ii) government revenue that is otherwise due is foregone or not collected (e.g. fiscal incentives such as tax credits);
>
> (iii) a government provides goods or services other than general infrastructure, or purchases goods;
>
> (iv) a government makes payments to a funding mechanism, or entrusts or directs a private body to carry out one or more of the type of functions illustrated in (i) to (iii) above which would normally be vested in the government and the practice, in no real sense, differs from practices normally followed by governments."

The requirement of a "benefit" is understood to require some counterfactual benchmark to assess what position the recipient would have enjoyed absent the "financial contribution," such as a market interest rate to compare to the interest rate charged in a government loan. The choice of the proper benchmark is not always straightforward, however, as we shall see.

Although a financial contribution and a benefit are enough to create a "subsidy," none of the subsidy disciplines in the Agreement apply unless the subsidy is also "specific." Article 2 contains the test to determine whether a subsidy under Article 1 is "specific" to "an enterprise or industry or group of enterprises or industries" ("certain enterprises" for ease of reference). The concept of specificity is essentially a notion of industrial targeting. Does the government program benefit firms in many industries – such as public education or interstate highways – or are its benefits confined to a narrow set of firms or industries?

In contrast to the effort in Article 1 to define 'subsidy," however, Article 2 does not undertake to define "certain enterprises." It does indicate that specificity can arise *de jure* or *de facto*. *De jure* specificity exists when the granting authority or legislation explicitly limits the benefits to "certain enterprises." Conversely, when the benefits are distributed in accordance with "objective criteria or conditions" – defined as criteria that "do not favor certain enterprises over others, and that are "economic in nature and horizontal in application" – specificity does not exist. Examples of such

criteria are programs open to all firms with a certain number of employees or certain size of enterprise (e.g., low-cost small business loans).

In the absence of *de jure* specificity, *de facto* specificity may arise from factors such as the "use of a subsidy program by a limited number of certain enterprises, predominant use by certain enterprises, the granting of disproportionately large subsidy to certain enterprises, and the manner in which discretion has been exercised by the granting authority in the decision to grant a subsidy."

Article 2 also contains a notion of geographic specificity, as when a subsidy is limited to "certain enterprises located within a designated geographical region within the jurisdiction of the granting authority." Finally, subsidies that fall into the "prohibited" categories addressed in Part II of the SCMs Agreement are automatically deemed to be specific.

Turning to Part II, two types of subsidies are prohibited – export subsidies and import substitution subsidies. SCMs Article 3.1(a) defines export subsidies as those "contingent, in law or in fact, whether solely or as one of several other conditions, upon export performance, including those illustrated in Annex I." Thus, an export subsidy confers a benefit that encourages recipients to increase exports. In contrast, a domestic subsidy may encourage production generally, but does favor production for export over production for domestic sales.

Export contingency can arise *de jure* or *de facto*. *De facto* contingency arises when a subsidy does not formally require exportation as a condition of receipt but is "in fact tied to actual or anticipated exportation or export earnings." It cannot be based solely on the fact that a subsidy is given to a firm engaged in export trade, however, or that a firm's exports increased after the receipt of the subsidy. Instead, it must cause an increase in the proportion of goods that are exported relative to the proportion that would arise without the subsidy.

The illustrative list of export subsidies in SCMs Annex I offers further insight into some of the government policies that may confer export contingent subsidies. It also provides useful elaboration on the principle in GATT Article VI(4) that certain tax exemptions or rebates for exported goods shall *not* be deemed subsidies.

The other category of prohibited subsidies under SCMs Article 3 is "import substitution subsidies." These are defined as "subsidies contingent, whether solely or as one of several other conditions, upon the use of domestic over imported goods."

The reader may recall the earlier reference to a case involving Italian subsidies to purchasers of domestically produced farm equipment. Italy argued that its program was within the GATT Article III(8)(b) exception for domestic subsidies, but the panel ruled otherwise because Italy made payments to the *purchasers* rather than the *producers* of farm machinery. The subsidy in that case is a classic example of an import substitution subsidy.

Part III of the SCMs Agreement concerns "actionable subsidies." If a government program meets the definition of "subsidy" and is "specific," but does not fall into the prohibited categories of SCMs Article 3, it is nonetheless actionable in the WTO dispute process when it causes "adverse effects" to other members. Article 5 delineates three types of adverse effects:

“(a) injury to the domestic industry of another Member;

(b) nullification or impairment of benefits accruing directly or indirectly to other Members under GATT 1994 in particular the benefits of concessions bound under Article II of GATT 1994;

(c) serious prejudice to the interests of another Member.”

Article. 5 also provides that subsidies maintained consistently with Article 13 of the Agriculture Agreement are not actionable.

With regard to item (a), when subsidies cause or threaten “material injury” to an import-competing industry, the importing member can choose between a countervailing duty remedy under domestic law, or a challenge to the subsidy program at the WTO. The former is almost certainly the more attractive option – it avoids the need to make a case before an international tribunal, and it captures revenue for the national treasury.

Item (b), which pertains to the nullification or impairment of benefits under tariff bindings, captures the longstanding notion that new and unexpected subsidies to import-competing firms will impair negotiated market access expectations. The reader may recall that such subsidies gave rise to a non-violation claim under GATT Article XXIII. Thus, item (b) simply converts what would have been a successful non-violation claim under GATT into a violation claim under the SCMs Agreement.

Item (c), on “serious prejudice,” is of considerably greater significance. Article 6.3 provides that serious prejudice “may arise in any case where one or several of the following apply:

(a) the effect of the subsidy is to displace or impede the imports of a like product of another Member into the market of the subsidizing Member;

(b) the effect of the subsidy is to displace or impede the exports of a like product of another Member from a third country market;

(c) the effect of the subsidy is a significant price undercutting by the subsidized product as compared with the price of a like product of another Member in the same market or significant price suppression, price depression or lost sales in the same market;

(d) the effect of the subsidy is an increase in the world market share of the subsidizing Member in a particular subsidized primary product or commodity as compared to the average share it had during the previous period of three years and this increase follows a consistent trend over a period when subsidies have been granted.”

Item (a) permits an action when the subsidy displaces the imports of another member into the market of the subsidizing country. Such actions were permitted under GATT pursuant to the non-violation doctrine as noted, but only in cases where a negotiated tariff binding was impaired. Here, a tariff binding is not needed as a predicate for an action, and the complaining member need not make the case that the subsidy was unexpected in relation to a prior market access negotiation.

Item (b) affords a type of action that did not exist under GATT. Subsidies may disadvantage exporters seeking to sell into third country markets in competition with exports from the subsidizing country. Article 6.3(b) makes such displacement actionable.

Item (c) offers a roadmap for identifying serious prejudice. Price undercutting by the subsidized like product is a marker for serious prejudice, as are "price suppression, price depression or lost sales."

Finally, item (d) revives an idea first introduced in GATT involving the concern that subsidies may allow the producers of primary products to gain a more than equitable share of world trade, measured against a recent year baseline. Here, for primary products and commodities, the question is whether subsidies are accompanied by a consistent upward trend in the market share of the subsidizing country relative to its average during the previous three years.

Part IV of the SCMs Agreement, now expired in accordance with a five-year sunset provision, created a safe harbor for certain government programs that confer "subsidies" within the meaning of SCMs Article 1 and are "specific" within the meaning of Article 2 yet were nevertheless deemed desirable by the SCMs negotiators.

The requirements to qualify as "non-actionable" under Part IV were elaborate and their details need not detain us as they are no longer applicable. In broad brush, however, Part IV insulated the three categories of subsidies from discipline: certain subsidies for research and development (R&D), certain subsidies to disadvantaged regions, and certain subsidies to firms for compliance with new environmental regulations.

Finally, Part V of the SCMs Agreement concerns the use of countervailing duties under domestic law. Many of the provisions in Part V concern procedural matters relating to the initiation and conduct of investigations by national authorities, the collection of evidence, notice and transparency, and a requirement for judicial review. Other provisions concern the quantification of subsidies in relation to the benefit to recipients, and the required analysis in an injury investigation.

An important difference between a countervailing duty action under domestic law, and a challenge to a subsidy before the WTO, is the need in the former setting to measure the value of the subsidy. No countervailing duty can be levied "in excess of the amount of the subsidy found to exist, calculated in terms of subsidization per unit of the subsidized and exported product" (SCMs Article 19.4). Duties are typically imposed on a countrywide basis, although individual exporters can avoid duties through settlement arrangements with national authorities, and exporters subject to a countrywide duty otherwise can ask for individual rates to be established. National authorities must adjust or remove duties if the need for them lapses, and countervailing duties are subject to "sunset review" after five years.

C. The Agriculture Agreement

The Uruguay Round negotiators determined that the challenge of introducing greater discipline into agricultural subsidy programs warranted a separate negotiating group, which was tasked with developing the WTO Agreement on Agriculture (AG Agreement). In important respects,

the AG Agreement takes a different approach to subsidies disciplines than the SCMs Agreement, an approach that bears some resemblance to the GATT Article II tariff bindings. For both export subsidies and domestic subsidies, participating members agreed to quantify their subsidy programs, and reduce their magnitude over a "period of implementation."

With respect to export subsidies, members agreed to a phased reduction in their magnitude over a period of years – they were not altogether "prohibited" as under the SCMs Agreement. At the Nairobi Ministerial Conference in 2015, developed country members agreed to eliminate export subsidies altogether, while developing country and least developed country members were given an extended time frame depending on their development status.

With respect to domestic subsidies, the Agreement devised three categories of such subsidies, colloquially known as the "green box," "blue box" and "amber box." Green box programs involve government assistance that is believed to cause little or no distortion of trade, such as government research and extension services, aid to farmers affected by natural disasters, food security programs to create emergency stockpiles, and so on. Members are free to provide such support to whatever extent they wish.

Blue box programs involve certain payments to producers that are accompanied by conditions requiring them directly or indirectly to reduce or limit production. Even though such payments add to producer incomes and might be expected to attract more economic activity into the subsidized agricultural sector, their overall impact is to reduce output and increase prices, which ordinarily benefits rather than harms competing producers of the same products in other countries. These types of programs are also exempted from reduction commitments.

Amber box programs are those that may be expected to encourage production and thus to affect (reduce) prices on world markets. These subsidies are quantified product-by-product to determine whether they exceed the *de minimis* threshold (5% of the value of production for developed countries). All amber box subsidies exceeding the *de minimis* level of support are then added together to generate the "Total Aggregate Measurement of Support" for each member nation. Members with support exceeding the *de minimis* threshold then agreed to phase down (but not eliminate) their total level of support over the implementation period.

Thus, the Agriculture Agreement seeks directly to distinguish classes of subsidy programs with cross-border effects from those that are likely to have little or no such effect. Programs likely to cause detriment to agricultural producers elsewhere (including export subsidies) became subject to aggregate support limits, while programs that do not have material cross-border effects are unconstrained and insulated from legal challenge.

One might wonder how this approach can co-exist with the SCMs Agreement, and its provisions such as Article 3, which prohibits all export subsidies, and Article 5, which makes other subsidies "actionable." The initial answer was contained in Article 13 of the Agriculture Agreement (cross-referenced in Articles 3 and 5 of the SCMs Agreement), which came to be known as the "peace clause." Article 13 provided that green box domestic subsidies would be exempted from countervailing duties and the "actionable" subsidies provisions of Part III of the SCMs Agreement. Blue box and amber box domestic subsidies in compliance with the Agriculture Agreement, as well as export subsidies in conformity with negotiated commitments, would also be exempted from

actions under the SCMs Agreement, and "due restraint" was to be exercised before bringing a countervailing duty action involving such subsidies under domestic law.

The "peace clause" remained in effect for nine years after the formation of the WTO and is now expired. Its expiration opened the door to challenges under the SCMs Agreement to subsidies that are allowable under the Agriculture Agreement. The expiration of the peace clause has not unleashed a flurry of new cases, however, perhaps because many of the potential complainants have their own potentially vulnerable agricultural programs.

It is instructive to compare the approach of the AG Agreement and the SCMs Agreement to constraining subsidies that cause externalities on the one hand, and to avoiding constraints on subsidies that cause minimal externalities on the other. The AG agreement focuses on the characteristics of the subsidy program and its propensity to cause cross-border effects. Subsidies with cross-border effects are not prohibited but are subject to negotiated support limits (including export subsidies prior to the developments in Nairobi). Subsidies with few externalities are not subject to limits and are substantially protected from litigation risk.

The SCMS approach, by contrast, prohibits export and import-substitution subsidies, and leaves all others to the "actionable" category after the expiration of SCMs Part IV. Accordingly, all "subsidies" are potentially vulnerable to a WTO complaint seeking their withdrawal, or to a countervailing duty investigation. But outside of the prohibited categories, the complaining nation must demonstrate some "adverse effect" or "injury" to succeed, and this injury filter serves in principle to protect subsidies without externalities from successful attack. When a case is brought, however, costly litigation is required to address this issue and, as we will note later, its accuracy is open to some question. A risk arises that benign subsidies will be condemned or (more likely) countervailed. But on the other side of the ledger, non-prohibited subsidies that produce harmful externalities are not subject to any discipline unless another member is willing to bear the costs of pursuing a case.

V. Perceived Deficiencies in Existing Rules and Possible Reforms

The disciplines in the SCMs and the AG Agreement were the product of lengthy negotiations during the Uruguay Round. We presume that they were roughly optimal from a political perspective when they were negotiated given the transaction costs of further negotiations. But in the intervening thirty years, the rules have come under increasing criticism, and it is beyond dispute that industrial subsidies are proliferating globally in various sectors. In this section, we synthesize what seem to be the key concerns about the current rules and consider some possible directions for reform.

Bear in mind that deficiencies in the rules are in the eyes of the beholder. What the United States views as a deficiency may not be viewed as such by China or India, for example, and vice versa. We do not wish to take sides on controversial issues and seek only to enumerate the important areas of concern voiced by prominent players in the WTO system.

We also reiterate that international treaties generally, and the WTO agreements in particular, are compacts among political actors who presumably seek to attain a "political" Pareto frontier. We have little basis for opining on what may be politically optimal, other than to observe that economic efficiency, conventionally defined, is plainly not the sole touchstone for political optimality.

Subsidies that appear to confer positive net economic externalities on other nations, for example, are targets of political opprobrium with some regularity. Thus, although we can offer commentary on possible directions for reform, typically from a conventional efficiency perspective, we must leave it to others to assess how these observations comport with or clash with overriding political concerns.

We reiterate finally that we take the dispute settlement and enforcement features of the WTO as given, save for a few observations below about possible subsidy-specific procedural or remedial reforms. It is beyond our scope to address the Appellate Body impasse and the reform of the dispute settlement system more broadly. We shall assume that any new rules on subsidies would be respected and enforced in some suitable manner.

The discussion to follow is divided into five sections. The first outlines some broad approaches to reform, and the remaining sections turn to more specific and detailed proposals. The second section relates to the definition of a subsidy. The third section considers proposals that would impose greater restrictions on, or create safe harbors for, certain categories of subsidies. The fourth section addresses legal procedural and remedial changes that would apply exclusively to subsidies disputes. The final section addresses special issues relating to China and state-owned enterprises.

A. Broad Approaches

At one extreme, the members of the WTO might give up entirely on international regulation of subsidies. This comes close to the position advocated by Rodrik and Stiglitz (2024) for a minimalist approach to many issues of global governance, as well as the case for *laissez faire* policy suggested in Sykes (2010), which questions the capacity of the international community to formulate rules that usefully discriminate among desirable and undesirable subsidies. A minimalist approach might be indicated by the complexity of the issues surrounding subsidies and by recognizing that limitations on the use of subsidies inevitably infringe on national sovereignty. Inasmuch as governments use subsidies to further their most cherished objectives, any proposed restrictions are bound to meet fierce resistance. And, as Rodrik and Stiglitz further point out, the *real politik* of the international economy suggests that negotiations to reform subsidy treatment under the WTO, much like other international negotiations, are likely to serve disproportionately the interests of the rich countries, simply because these countries wield greater economic power. Better, perhaps, to "do no harm" than to embark on negotiations that might further the current imbalances in the world economy.

A further argument for a hands-off approach to subsidies reflects the fact that governments can incentivize their private actors in myriad ways and might well be able to circumvent any restrictions that are agreed. Any attempts to define and restrict subsidies might be doomed from the start. Moreover, the fact that subsidies impose fiscal burdens suggests a mechanism for self-regulation: governments will not be able to finance all manner of subsidies and so may restrict their use to the purposes that are most important to them. If the goal of an international agreement is to maximize joint *political* welfare, as we have argued, and if the political pressures that one government faces are not observable to others, a treatment that induces them to reveal which sectors and industries are most politically important to them can contribute to a more efficient, political outcome.

Even if the WTO members were to adopt a *laissez-faire* approach to subsidies, however, they would need to exclude from hands-off treatment any new subsidies that undermine market access afforded by prior trade agreements. If not, the prospective use of subsidies would undermine international economic cooperation in general, and trade liberalization in particular. This issue has long been recognized as we noted in Section III -- infringement on previously agreed market access commitments was treated as the basis for a non-violation complaint under GATT and is now an enumerated "adverse effect" that can support an actionable subsidy complaint under SCMs Part III.

Although we are sympathetic to some of the arguments for a minimalist approach to rules on subsidies, there are reasonable arguments against the *laissez-faire* approach. For one thing, the fact that reform of subsidy rules has become a leading priority in the WTO suggests that governments perceive that subsidies create strong international externalities. If governments were in fact limiting their use of subsidies to their highest domestic priorities, and if these national concerns typically outweighed adverse effects on others, we would not be seeing subsidies as such a fraught issue in global politics. Also, as we noted in Section II, the unregulated use of subsidies undermines support for an open trading regime because citizens view them as an unfair source of competitive advantage. A liberal trading system without any restraints on the use of subsidies would likely be unstable in the face of public claims of illegitimacy.

Likewise, we do not see imbalances in world power as a valid argument against international agreements. We agree that negotiation might result in an agreement that favors countries with the greatest economic clout. But we would point to the special and differential treatment for developing countries in the current WTO agreement to suggest that the interests are for the poor countries are not completely ignored. Moreover, the WTO has seen few legal cases against the poorer countries, and virtually none where subsidies are concerned. Also, we should recognize that noncooperation also generates unequal outcomes that favor the most powerful countries. Even if one takes global social justice to be the most important objective for the design of international institutions---as Rodrik and Stiglitz (2024) apparently do---their argument for minimal international regulation of subsidies rests on the dubious assumption that poor and weak countries would fare better in a world without rules than in one which rules are the result of international negotiations, however unequal those negotiations may be.

As an alternative to *laissez faire*, the WTO members might opt to focus narrowly on regulating subsidies in a limited number of priority industries and give up on efforts to reform the SCMs Agreement or to negotiate an alternative agreement with rules of general applicability. We touched on this choice in Section III. Considering the many forms that subsidies can take in different industries, and the many and varied motivations that governments have for introducing them, one might conclude that any broadly applicable rules must inevitably remain vague, leading to disputes and considerable transaction costs. Industry- and sector-specific agreements have the potential for greater ex post clarity.

However, industry-specific agreements impose up-front negotiation costs. As we observed in Section III, narrow negotiations can become more contentious because parties cannot see their potential losses in some sectors compensated by potential gains in others. We have seen in the recent fisheries negotiations, for example, that agreement can be difficult even on narrow issues. An agreement containing rules of general applicability might conserve on overall transactions costs despite its lesser clarity.

Ultimately, we believe that the best option might be a middle ground, which in broad brush reflects the system that we now have. In sectors where subsidies are extensive and particularly problematic, more complete contracts are valuable and justify the negotiation costs. Agriculture and fisheries are examples. For other sectors, rules of general applicability might suffice, assuming that they can plausibly distinguish subsidies that are usually beneficial from those that are usually harmful and those that fall into a middle ground. We discuss in Section IV.C some proposals that have been made for new rules in this regard.

Before leaving this section, we flag a general principle that features in the Technical Barriers to Trade (TBT) Agreement, the Sanitary and Phytosanitary Measures (SPS) Agreement, and the necessity test found in several of the general exceptions contained in GATT Article XX, and that might sensibly be extended to a multilateral subsidies agreement. Article 2.3 of the TBT Agreement stipulates that whenever a government uses technical regulations to pursue some "legitimate" aim, the measures used must be the least trade restricting among those reasonably available to achieve that aim. Similarly, Article 5.6 of the SPS Agreement requires that members should not use measures more restrictive than are required to achieve the appropriate level of sanitary or phytosanitary protection. By requiring members to design measures that are least trade restricting, members can achieve their objectives with the smallest negative externalities on their trade partners. If countries can agree on what are legitimate versus illegitimate aims of subsidy policies, they could include a similar provision to exclude policies that generate larger negative externalities than is necessary. Such a provision might, for example, sanction the use of subsidies to encourage purchases of electric vehicles, but outlaw domestic content requirements to qualify for those subsidies.

B. Definition of a Subsidy

Any subsidy agreement must begin, of course, by defining what is considered to be a subsidy. As we noted in Section V, the SCM defines a subsidy to be any financial contribution, income, or price support paid by a government or other public body that confers a benefit to a private entity. A contribution may arise when the government makes a direct transfer of funds or a potential transfer of funds or liabilities, when tax liabilities are waived, or when the government provides goods or services other than general infrastructure. The contribution must be "specific" in the sense that it must benefit "an enterprise or industry or group of enterprises or industries," but not many or all enterprises or industries.

From an economic perspective, this definition is essentially arbitrary, as will be any definition of "subsidy." Almost all economic policies affect firms and industries differently and thus have the capacity to steer resources from some uses to others, whether this is their intended motivation or not. If the goal of an international agreement is to limit international externalities, then there are no meaningful limits to what constitutes a subsidy and what does not. For example, a government payment for the production of a certain chemical would be considered to be a subsidy under the SCM definition, whereas a government program to cover tuition for the training of chemical engineers would not. Clearly, these two policies can have similar effects of steering resources to the chemicals industry and can generate similar international externalities. Even if an agreement defined a subsidy to include payments for human capital in a particular occupation that is employed intensively in some industry, a broader program of payments for higher education

could have similar effects. Broad macroeconomic policies that affect interest rates also create bigger benefits for some industries (e.g., construction) than others and so encourage resources to shift to these industries. In short, there is no natural boundary that distinguishes between a "subsidy" and other economic policies.

Not surprisingly, then, the definition of subsidy has been subject to interpretation and dispute, and several proposals aim to modify or extend the definition. One proposal, for example, would extend the definition to include implicit subsidies that do not fit the current requirement for a "financial contribution," such as export restrictions or taxes on inputs. If firms are discouraged or prohibiting from exporting inputs, output will be diverted to the domestic market, with resulting downward pressures on prices. A fall in input prices benefit downstream producers much as would a direct payment to defray part of the cost of purchasing inputs. Both policies stand to harm competing producers abroad. It is difficult to argue that they should be treated differently under a treaty intended to mitigate such harmful externalities.

Many countries implement a value added tax (VAT) according to a "destination principle." Under this administration, goods are taxed according to their destination, i.e., where they are consumed. This means that a country charges the national tax on goods that are imported, but excuses the tax on goods that are exported. Does this constitute a contribution under Article 1.ii of the SCM under which a subsidy is deemed to take place when "government revenue that is otherwise due is foregone or not collected"? Annex I of the SCMs Agreement states that it does not, and this is in keeping with the economic analysis in Grossman (1981), which shows that a VAT with a uniform rate for all goods applied consistently using a destination principle has no effect on trade flows or international prices. The conclusion does not change if goods embody produced inputs, yet the administration of the destination principle often gives the appearance of a "financial contribution" inasmuch when a government rebates VAT taxes paid on incorporated inputs when a downstream good is subsequently exported.

However, many countries apply different VAT rates to certain categories of goods. Without uniform rates, the neutrality proposition established by Grossman (1981) and others does not apply. In such circumstances, the administration of the VAT does affect resource allocation and the rebate of tax on goods subject to high rates of taxation can function similar to an export subsidy. It might then be appropriate to include such rebates under the purview of a subsidies agreement.

Ultimately, the definition of subsidy in an international agreement must be based on pragmatic rather than economic considerations. If the agreement cannot and does not induce governments to take account of the international externalities from *all* of their policies, then it should focus on those policies that are commonly used and that generate the greatest harm to producers abroad. Moreover, the policies and their external effects must be identifiable and reasonably easy to measure. Countries will have to live with the fact that some policies not covered by the agreement have very similar effects to those that are regulated, and that policy substitution is bound to occur. Our view is that the definition of a subsidy in a subsidies agreement ought to include any economic policy that induces resource reallocation and that generates negative international externalities at a scale that justifies the transactions costs associated with negotiation and enforcement.

C. New "Categorical" Rules

As we have emphasized throughout this paper, we view the problems associated with subsidies as externality problems. As argued in Section III, certain traditional approaches to the control of externalities --- such as case-by-case negotiation in the shadow of property rules, or case-by-case liability payments *ex post*, are impractical in the WTO setting. The membership has turned to an alternative approach that relies, among other things, on efforts to define and discourage worrisome subsidies through general or sector-specific rules and categories.

Under existing WTO agreements, this approach is implemented by delineating categories of subsidies that one might term "problematic,' "non-problematic" and "potentially problematic." This categorical approach is implemented across-the-board through rules of general applicability in the SCMs Agreement, for a large sector such as agriculture as in the AG Agreement, and for a narrower sector under the pending Agreement on Fisheries Subsidies.

The "problematic" category involves subsidies that the membership views as significantly harmful to other members without sufficient offsetting benefits to the subsidizing member, followed by either a prohibition on such subsidies (as in Part II of the SCMs Agreement) or negotiated limits on such subsidies (as with the "amber box" subsidies under the Agriculture Agreement). We also observe this structure in the newer Agreement on Fisheries Subsidies (see the rules regarding subsidies for illegal, unreported and unregulated fishing and subsidies for fishing an overfished stock).[7]

The "non-problematic" category involves subsidies that are typically harmless to other members or confer benefits to others. Subsidies falling into this category may be given a "safe harbor" or otherwise exempted from subsidies rules. This approach was taken in the now-expired Part IV of the SCMs Agreement regarding certain subsidies for R&D, environmental compliance, and depressed regions. It is also found in the Agriculture Agreement in the exemption of "green box" and "blue box" subsidies from the negotiated support ceilings.

The "potentially problematic" category involves subsidies that *may* cause harm to other members, but not with such regularity as to require prohibition or other limitations across the board. Here, the rules allow members claiming harm to take legal action based on evidence of harm. This is the approach found in Part III of the SCMs Agreement, allowing complaints to the WTO regarding subsidies that cause "adverse effects," as well as Part V of the SCMs Agreement, which authorizes the use of countervailing duties in cases where subsidies cause "material injury" to the competing industry in an importing member.

Many of the reform proposals offered by commentators to date involve changes to the coverage of the three categories delineated above. Some call for an expansion of prohibited subsidies; some call for the revival and expansion of safe harbor rules for harmless or beneficial subsidies; and some call for new approaches to the discipline of potentially problematic subsidies, such as negotiated support limits for industrial subsidies akin to the limits on amber box subsidies in agriculture.

[7] This Agreement will take effect on the acceptance of two-thirds of the membership -- 47 nations have deposited instruments of acceptance at this writing.

1. New “Prohibited” Subsidies

As noted, a prohibited subsidy category can be implemented across-the-board through rules of general applicability, or more narrowly in sector-specific agreements. From a conventional efficiency perspective, we are broadly skeptical of creating additional prohibited subsidies under rules of general applicability. Consider the two categories that are presently prohibited under Part II of the SCMs Agreement – export subsidies and import substitution subsidies. It is well known that export subsidies can be globally efficient (in the conventional sense) if the volume of trade is initially “too small” due to tariffs or other trade barriers. Likewise, import substitution subsidies (which reward domestic firms for purchasing domestic products) have economic consequences that are much the same as subsidies to domestic producers that lower their costs and prices, yet these producer subsidies are not prohibited. There are no doubt political explanations for the hostility to these two types of subsidies, but the economic case for singling them out for prohibition seems weak.

Likewise, proposals for broadening the set of prohibited policies strike us as dubious. For example, at a 2020 Trilateral meeting of US, EU and Japanese trade ministers, a proposal was put forward to extend the prohibited category in the SCMs Agreement to encompass:

a. “unlimited guarantees;

b. subsidies to an insolvent or ailing enterprise in the absence of a credible restructuring plan;

c. subsidies to enterprises unable to obtain long-term financing or investment from independent commercial sources operating in sectors or industries in overcapacity;

d. certain direct forgiveness of debt.”

We do not doubt that some subsidies in these categories cause harmful externalities and are accompanied by economic inefficiency. But it is also plausible, for example, that these subsidies may respond to acute political pressures for relief to distressed industries or regions, and that they may do so at a lower cost than likely alternatives. By way of comparison, safeguard measures in the WTO can provide several years of tariff or other protection to distressed industries. Likewise, GATT tariff renegotiations can result in permanent tariff increases in those settings. Subsidies can address industrial distress and dislocation more efficiently by avoiding the deadweight burden on consumers from trade protection.

The creation of new prohibited categories on a sector-specific basis, however, seems more promising. Under the new Fisheries Agreement, for example, subsidies that encourage fishing in fisheries that are already declining due to overfishing offers a clear case of global inefficiency. If political pressures create a need to assist struggling fishermen, other forms of income assistance will likely be preferable from an economic standpoint. Similar observations apply to subsidies that encourage fossil fuel consumption in the face of climate change.

Likewise, we suspect that problems of chronic overcapacity in certain sectors are best addressed through sectoral measures. To take the case of steel, the existence of global overcapacity is evident and a global agreement to curtail steel subsidies may make good sense. But a blanket rule prohibiting subsidies to industries exhibiting overcapacity seems overbroad and may foreclose the cheapest option for addressing political pressure to assist troubled industries. We also suspect that it

is easier to agree industry-by-industry on the existence of overcapacity than to craft a legal definition of “overcapacity” in general.

2. Revival, Expansion and Clarification of Programmatic “Safe Harbors”

As we argued in Section III, subsidies can have positive externalities as well as negative externalities (and potentially no externalities). In recent years, a concern has arisen that WTO disciplines may discourage subsidies that are on balance desirable or harmless from a global perspective.

a. Programmatic Safe Harbor Categories

Sources of positive externalities are well known. Subsidies for the abatement of non-pecuniary environmental externalities associated with carbon emissions and other pollutants, and subsidies that produce knowledge spillovers when intellectual property rights are incomplete, are obvious examples. We might add the possibility that subsidies for certain industries that are essential to national security may be justified by concerns relating to the theory of public goods. Recent analyses of supply chain security suggest a possible role for subsidies to address the externalities that arise when firms in the supply chain neglect the ways that unstable supplies may harm other firms. See Grossman et al. (2024).

Further, subsidies may produce net economic benefits by stimulating output in imperfectly competitive industries and may be especially useful when competition policy solutions are lacking. It is noteworthy that the most complex and expensive subsidy dispute in the history of the WTO involved Boeing and Airbus, two national champions that operate in an industry viewed as a paradigm example of one in which scale economies are so large that a small numbers oligopoly is inevitable. Output-expanding subsidies in that setting may well have enhanced global welfare notwithstanding each competitor’s distaste for subsidized competition with the other.

Finally, going beyond conventional efficiency considerations, we have already mentioned the possibility that subsidies to distressed industries or regions may be the least cost option to address political pressure for redistribution. The alternative is often some form of trade protection that induces additional distortions at the consumer level and imposes greater cost on foreign exporters.

These observations were not lost on the Uruguay Round negotiators, who created the safe harbor rules of SCMs Part IV respecting certain R&D subsidies, environmental compliance subsidies, and subsidies to disadvantaged regions. The supply chain issue was not addressed at the time, however, and the SCMs Agreement did not include a national security exception or any attention to imperfectly competitive settings. Moreover, as noted earlier, Part IV contained a sunset clause, and its provisions were allowed to expire.

We are broadly supportive of renewed efforts to create safe harbors for socially constructive subsidies. Existing rules potentially condemn these subsidies or allow countervailing measures against them following complaints from disadvantaged competitors. To be sure, hammering out the details of these safe harbors will not be easy, as a look at the complex rules in the now-expired SCMs Part IV will establish. One can also worry that the enforcement of safe harbor rules will be difficult. Members may assert compliance with safe harbor provisions under circumstances where

transparency is limited, and other members face a serious free rider problem with regard to challenging dubious assertions of compliance. Recent developments at the WTO suggest that dubious assertions of compliance may be particularly worrisome under national security exceptions, and we take no position on the wisdom of including a specific security exception in subsidy agreements.

Because of the compliance issues, we suspect that some central oversight of safe harbor claims would be helpful if new safe harbor principles are negotiated. Such oversight might be imbedded in the WTO trade policy review mechanism. It would also be wise to require members invoking a safe harbor category to adhere to the principle that their subsidy measures are the least trade distorting option reasonably available to achieve their legitimate objectives.

b. A Broader Safe Harbor: Subsidies without Cross-Border Effect

The AG Agreement, as explained in Section V, exempted certain apparently constructive subsidies from its support commitments (the "green box'). These exemptions include matters such as agricultural research and training subsidies and subsidies to respond to natural disasters. In this respect, the AG Agreement parallels the limited exceptions found in SCMs Part IV. But it went beyond Part IV of the SCMs Agreement in an effort to exempt all subsidy programs that are unlikely to have a material impact on domestic agricultural output, and thus on the prices that prevail in world markets. Income support for farmers, if coupled with requirements for those farmers to curtail production, is an example of this kind of subsidy (this in the "blue box").

In lieu of exempting subsidies without cross-border effects altogether, the SCMs Agreement implicitly shields them from legal attack by requiring a complaining member to establish that the subsidy causes "adverse effects" to its competing firms in some market, whether the complainant's market, the subsidizing country's market, or a third-country market. In practice, however, the analysis of the causal connection between subsidies and these adverse effects is flawed. Particularly in cases involving unilateral countervailing duties, importing countries tend to assign causal responsibility for injury to subsidies if subsidized imports have risen in volume or market share contemporaneously with indicia of injury such as declining output, prices, or employment. Thus, subsidies are often deemed to be a cause of injury when the volume or share of subsidized goods is increasing in the relevant market and these developments are negatively correlated with diminished economic conditions for competitors. Correlation, of course, is not causation. Likewise, typical causal analyses may find causation when subsidized goods are less expensive than the competition, even if the price differential reflects imperfect substitutability rather than any effect of subsidies.

These issues arose, for example, in the long-running softwood lumber dispute between the United States and Canada, where Canada argued forcefully (relying on expert testimony from William Nordhaus and F.M. Scherer) that the pricing of timber rights by Canadian provinces simply affected the division of economic rents between the government and logging firms without affecting the quantity of logs harvested. That argument was not seriously engaged by either the United States or the WTO (although it did resonate for one binational NAFTA panel).

Given the weaknesses of causation analysis in subsidies cases, the WTO membership might consider embracing the approach of the AG Agreement and create a general exemption for subsidies that can be shown to have no cross-border impact. The burden of proof in that regard might be placed

on the subsidizing member, but where that burden can be carried, the absence of any apparent externality should insulate the subsidy program from attack. The protection should extend to both "actionable subsidies" cases before the WTO and unilateral countervailing duty proceedings, mirroring the effect of the safe harbor rules in the now expired Part IV of the SCMs Agreement.

3. Create Actionable "Non-specific" Subsidies

The specificity test in SCMs Article 2 is potentially overinclusive by including targeted subsidies that are socially constructive or that have no material externalities, thus leading to a need for revived and expanded safe harbors as discussed above. But the specificity test may also be underinclusive of problematic subsidies. Consider, for example, a government program that provides below market loans, or energy at below market prices, to a substantial collection of industries. Such programs may be non-specific (not limited to "certain enterprises" in the language of SCMs Article 2) and beyond the reach of existing disciplines even if they cause serious harmful externalities.

We concur that this possibility exists, but doubt that the problem can be solved through rules of general applicability. The specificity test, crude as it is, seeks to distinguish common and acceptable activities of governments from "subsidies" that are subject to international constraint. A readily implementable alternative that better captures the existence of serious externalities is by no means obvious. And a vague standard that made all manner of subsidies subject to challenge based on alleged adverse effects abroad could foment extensive litigation and a vast proliferation of countervailing duties.

Instead, we suggest that sectoral rules are the best option for dealing with problematic subsidies that are now insulated from challenge by the specificity test. When a consensus arises that subsidies within a particular sector have become problematic, direct negotiation to curtail or eliminate subsidization can address the problem without the need to fall back on what we suspect would inevitably be vague and inconclusive alternatives to specificity.

4. Support Limits for Industrial Subsidies

Some commentators, such as Hillman and Manak (2023), have advocated that the approach of the AG Agreement to amber box subsidies be extended to industrial subsidies. They suggest that support limits be negotiated for industrial subsidies in the aggregate, with the possibility of additional sector-specific support limits in sectors where subsidization is especially extensive. These limits for each country would be a function of the size of the national economy or its industrial sectors.

We are skeptical of support limits for industrial subsidies in the aggregate. Even if a carve-out for socially constructive subsidies or non-trade distorting subsidies were included, the nature and extent of the externalities associated with covered industrial subsidies are likely to be highly variable across industries and countries, and aggregate support limits are an exceedingly crude instrument for controlling these externalities.

Support limits on a sectoral basis, however, focused on industries where subsidization is extensive and a consensus exists that subsidization has become especially problematic, seem more promising. The nature and extent of the externalities associated with subsidies within an industrial sector are likely similar across countries. And in contrast to the current approach of the SCMs

Agreement which requires costly complaints by other members that must show some form of adverse effects, negotiated support limits constrain subsidization by all members whether or not another member is willing to incur the cost of a complaint. Accordingly, they overcome some of the hurdles to consistent enforcement of subsidies rules that we address in the next section.

D. Subsidy-Specific Changes to Dispute Resolution and Enforcement Rules

In this section, we address three additional issues relating to procedural and remedial aspects of the SCMs Agreement. The first concerns the problem of limited information about subsidies and the failure of many members to take their notification requirements seriously. The second concerns the litigation costs and free rider problems that may limit challenges to harmful subsidies. The third pertains to the remedy for a successful challenge, and the concern that the usual prospective remedies in WTO law are particularly inadequate for subsidies disputes.

Regarding transparency and notification, GATT Article XVI and Article 25 of the SCMs Agreement contain requirements for members to notify their subsidies to the WTO Secretariat. These notification requirements are subject to limited oversight by the Secretariat, and a widespread perception exists that they are often ignored.

This lack of diligent compliance with notification obligations is unsurprising. The notification requirements instruct members, for example, to provide notice of subsidies that satisfy the definition of "subsidy" in SCMs Article 1 and that are "specific" under Article 2. Yet, these legal provisions are ambiguous in many respects, particularly as to the concept of specificity. Moreover, official notification of programs that make a "financial contribution," confer a "benefit," and are "specific" amount to an engraved invitation to legal challenges, and can be tantamount to admissions against interest on legally controversial issues. Likewise, while members might in principle bring legal complaints against other members that have violated their notification obligations, it is hard to imagine that such complaints would be worth their cost.

One proposal to enhance compliance with notification requirements is to allow members to "notify" the subsidies of other members, and upon such notification by another member, the subsidies become prohibited, accompanied by an immediate obligation to withdraw them. We question the wisdom of such a system, however, given the ambiguities and uncertainties in determining whether policies meet the definition of "subsidy" and "specificity." Further, failure to notify subsidies may result not from a desire to conceal them but from limited compliance capacity. A rule that treats all failures to notify as a predicate for a prohibited subsidy finding, without regard to the nature of the subsidy or its externalities, might easily do more harm than good. The better approach, in our view, is to create greater oversight of notification practices as part of the WTO's trade policy review mechanism.

Another common complaint about existing procedures under the SCMs Agreement is that challenges to "actionable subsidies" before the WTO are expensive and difficult to win. For subsidies in the "actionable" category, a complainant has the burden of proving (a) that a "subsidy" has been bestowed; (b) that the complainant has experienced "adverse effects," usually in the category of "serious prejudice" such as a loss of market share in a foreign market; and (c) that the adverse effects were caused by the subsidy. The data and other evidence to make this showing are not always easily obtainable. The problem is exacerbated by the fact that the adverse effects of a subsidy may be

widely diffused among the membership, and serious free rider problems can arise whereby members hope that others will bear the costs of litigating. The result is that many potentially "actionable" subsidies go unchallenged, and subsidies disciplines are enforced in the breach rather than systematically.

One proposal to alleviate this problem is to shift the burden of proof to the respondent on items (b) and (c) above in actionable subsidies cases – the respondent would have to show that its subsidies are not causing adverse effects. Another proposal entails the creation of some central enforcement authority, akin to a public prosecutor, to bring cases to the WTO rather than relying on aggrieved members to incur the cost of complaints.

We question the wisdom of these proposals. The underenforcement problem, to the degree that it exists, is generic and not limited to matters involving subsidies. With respect to most of the obligations in WTO agreements, cases may arise in which it is difficult for a potential complainant to carry its burden of proof due to difficulties in obtaining evidence or otherwise. It is not at all clear to us why the subsidies area offers any unique case for altering the burden of proof to create, in effect, a rebuttable presumption of a violation. Our view is strengthened by the fact that the "adverse effects" or "serious prejudice" inquiries focus in practice on the question whether competitors of the subsidized firms or industry have experienced commercial injury because of the subsidy. The fact that a subsidy may have caused commercial injury to a competitor is a weak marker for a subsidy that is economically counterproductive from a conventional efficiency perspective, even if it may often capture attendant political pressures.

As for the idea of a central enforcer or prosecutor, we worry further that the bureaucratic agenda of such an entity can readily become unmoored from what is optimal for the membership. One can argue that the current Appellate Body crisis results precisely from the failure of the Appellate Body to appreciate the political realities of its decisions on key issues such as zeroing, "public bodies" and the requirements for safeguard measures. Leaving the initiation of dispute proceedings to members offers some protection against the pursuit of a litigation agenda that does not serve the broad interests on the membership. The WTO dispute system is sensibly designed, in our view, to encourage potential disputants to negotiate and settle possible disputes without formal proceedings, a feature that could be lost if the decision to pursue a case were left to a bureaucrat whose legitimacy may be open to question by some members. And again, the potential underenforcement problem is generic across many types of obligations, and we are not persuaded that it is so acute in the subsidies area as to require a special entity to initiate cases.

An alternative path for reform – which might be applied to the dispute settlement mechanism generally -- relates to the extent of "discovery" in WTO litigation. Although WTO panels have the authority to seek information from appropriate sources, and to propound questions to the parties in a dispute and require written responses, the parties themselves have exceedingly limited capacity to secure information from an adverse party that does not wish to supply it. The membership might wish to consider a new approach that allows disputants to file a motion with a panel to compel production of information by another disputant, with the possibility of an adverse inference to be drawn if good faith compliance with a panel's request is not forthcoming.

We turn finally to an issue that does raise some special concern in the subsidies area, which pertains to the remedy in the event of a successful challenge to a subsidy program. Broadly speaking,

remedies in the WTO are prospective – after a violation has been identified and adjudicated, the violator is asked to bring its behavior into conformity with its obligations and is given a 'reasonable time" to do so. Only after that time has elapsed is there any obligation to provide compensation for the violation or the possibility of retaliation by the complainant. This process is accelerated to a degree in cases involving "prohibited subsidies," but still requires a substantial period of litigation. And although one early case involving export subsidies to Australian producers of automotive leather suggested that the recipient had an obligation to repay the subsidy, "retroactive remedies" along those lines have never taken hold more broadly.

Consequently, subsidies can persist for some time before any obligation to withdraw them arises. The productive capacity that may have been built with a subsidy, or the learning by doing that results from a subsidy, may be completed well before the subsidy program is discontinued. Thus, harmful externalities due to the subsidy may arise and remain ongoing even if the subsidy program is discontinued following an adverse ruling (or is abandoned prior to a ruling). The current prospective remedy offered by the WTO dispute process may then be no remedy at all. Although problems due to the absence of retrospective remedies are not unique to subsidies cases,[8] they are less serious in many other settings where the discontinuation of the illegal measure (such as an illegal tariff or quota) will provide future market access opportunities for the complainant.

The most common suggestion for reform in this area is to modify the SCMs Agreement to require that recipients of prohibited subsidies, and actionable subsidies that have produced adverse effects, be required to repay the subsidy. Even if such a reform had political support (which we doubt given the negative reaction of many members to the Australia – Automotive Leather decision), we question its feasibility. Private firms are not bound by WTO law, and a repayment requirement would need to be enforced through the domestic legal system of the member that violated WTO rules. It could clash with bankruptcy laws, and private entities might structure themselves to be judgment proof. Further, given the uncertainties about what constitutes an impermissible subsidy under WTO law, a repayment obligation would introduce risk into government subsidy programs that could increase their cost and potentially reduce their efficacy at promoting socially constructive objectives.

A more modest remedial change, in our view, seems somewhat more promising. The current dispute settlement system imposes a requirement of compensation, or an alternative of permitted countermeasures, when a violator fails to cure the violation within a reasonable period of time. But on the case of a subsidy where the learning by doing has already occurred or the fixed cost of new capacity has already been sunk, the cessation of future subsidy payments does not alleviate the ongoing externalities due to the subsidy as noted. Thus, even under a strictly prospective remedy system, the complainant might be given a right to compensation for the ongoing harm due to an illegal subsidy in a prior period, coupled with an option for proportional countermeasures if negotiations over compensation are unsuccessful.

E. China and State-Owned Enterprises (SOEs)

[8] As another example, a case involving government procurement for a toll road in Norway ruled that Norway had improperly denied opportunities for foreign companies to bid on the project. But the government contract had already been awarded, and no ongoing measure existed that could be discontinued to provide a meaningful remedy.

Much of the renewed concern about subsidies in the WTO, especially in industrial sectors, relates to the rise of China as an industrial power. China has unabashedly undertaken national industrial policy, memorialized in initiatives such as Made in China 2025, in pursuit of competitive parity or superiority in various sectors. See generally Mavroidis & Sapir (2021).

Fundamental questions arise as to the meaning of "subsidies" in a non-market economy (NME) or sector. Subsidies are usually conceptualized as government payments that affect costs and thereby market outcomes relative to the market outcomes that would arise absent the subsidy. How does one identify how market outcomes have been distorted when there is no market outcome in the first place? If resources are allocated by fiat rather than by the price system, "subsidies" need not have any predictable effects on outcomes even if they can be identified and measured in some plausible way. Moreover, if something labeled a "subsidy" becomes subject to a legal constraint, a command-and-control government can abandon it and still fiat its desired outcomes through other means.

Accordingly, countries such as the United States for many years maintained that its anti-subsidy legislation – U.S. countervailing duty law – did not apply to NMEs. It instead employed a modified type of antidumping law that computed the "cost" of goods imported from non-market economies using prices drawn from market economies and applied antidumping duties to sales below "cost.". But the United States reversed course in a 2006 case involving imports of paper from China. Although its subsequent approach to identifying and measuring subsidies in NMEs is open to considerable criticism, the application of anti-subsidy rules to NMEs is now common in the United States and has been accepted in the WTO. Although the basis for measuring NME subsidies in these cases is often highly dubious, these assessments are arguably no more dubious than the approach to computing NME "costs" under antidumping law.

Following the decision to apply countervailing duties to NMEs, however, a further problem arose with respect to China. Many of the Chinese policies alleged to confer or reflect "subsidies" are carried out by SOEs. In some cases, the SOEs produce final goods, and in other cases they provide financing and other inputs at prices that Western countries believe to be below fair market prices. Although the SCMs Agreement allows that a subsidy may be bestowed by a "public body," the WTO Appellate Body ruled that state ownership or control is not enough for an entity to qualify as a "public body" – such an entity must be engaged in some type of "governmental function." In the view of the United States and others, this ruling was erroneous and placed important Chinese subsidies beyond the reach of the SCMs disciplines. This problem can arise with any of the types of subsidies covered by WTO rules, whether "prohibited," "actionable" or those subject to unilateral countervailing duties.

Accordingly, many commentators argue for reversal of the Appellate Body ruling limiting the scope of the "public body" concept. This outcome might be achieved through new negotiations among the members, or through a revived appellate court with the ability to reverse prior Appellate Body rulings.

We concur that the Appellate Body ruling on "public bodies" is problematic for reasons that go beyond concerns about concerns about China. When a government owns or controls an entity, it has the capacity to direct that entity to behave in ways inconsistent with private market activity, including the provision of goods, services, or capital at below market rates. The fact that the entity is not engaged in a traditional function of government makes no difference in this regard. Under the

Appellate Body ruling, governments can circumvent constraints on direct government subsidies by establishing government owned entities that do not engage in "governmental activity," and that provide financial assistance to private actors with effects identical to those of direct subsidies. If one believes that legal constraints on subsidies are useful at all, it makes little sense to exempt government owned or controlled entities from their scope simply because their activities are not "governmental."

A broader conception of "public body" applied to Chinese SOEs, however, returns us to another class of problems. Because SOEs play such a large role in China, especially in certain sectors, private market benchmarks for "non-subsidized" prices may not exist or may be distorted. If a borrower can obtain a low interest rate loan from the Bank of China, for example, private lenders must match the rate to compete. The "benefit" test for the existence of a subsidy compares the price paid by a recipient to a fair "market" price, but what is to be done when local market benchmarks are lacking? The typical solution has been to use various out of country market benchmarks, but the accuracy of such alternatives is often questionable, and the choice is subject to manipulation. Disputes over the proper benchmark go to the existence of a subsidy in the first instance, as well as to the measurement of the subsidy when that becomes necessary (as for computing a proper countervailing duty).[9]

We see no simple solution here within the conventional trade remedies framework. NME trading partners have understandable concerns that a command-and-control government can manipulate apparent "prices" and "costs" to avoid findings of subsidization or dumping under the rules applicable to market economies, leading trading partners to turn to various out-of-country benchmarks for subsidy and dumping calculations.[10] But these benchmarks are highly manipulable by national authorities in importing countries, and often border on arbitrary, rendering assessments of subsidization and dumping highly questionable. Still, we sympathize with the argument that countries such as China should not be exempted from the body of rules applicable to market economies and given a free hand. Such an outcome seems clearly intolerable as a political matter, and a potential source of serious distortions as an economic matter.

One approach to addressing the problem in part is to create, either multilaterally or plurilaterally, an agreement on the conduct of SOEs to which China would accede. An elaborate agreement in that regard is part of the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP). It requires SOEs broadly to act in accordance with "commercial considerations" and non-discrimination principles, and further provides that governments should not cause "adverse effects" to other members though "non-commercial assistance" (essentially, subsidies) given to SOEs. The latter rules bear striking similarity to the rules governing actionable subsidies in the SCMs Agreement. China has applied to join the CPTPP, suggesting that it is willing to accept such SOE rules *de jure*. It remains to be seen how effectively such principles can be implemented and enforced in practice, however, and they might well founder on many of the same problems that have plagued the SCMs Agreement.

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[9] To be sure, the absence of reliable in-country market benchmarks also necessitates reliance on external benchmarks when China's trading partners undertake to identify and measure direct government subsidies that do not flow through an SOE. And they have long raised vexatious issues under antidumping law when "costs" in a country like China are calculated using prices from market economies.

[10] The claimed inadequacy of in-country market benchmarks is not unique to NMEs, of course, as the US-Canada softwood lumber dispute again illustrates, but it is considerably more acute with NMEs.

As an alternative, we are somewhat drawn to the view that the best approach to issues raised by China's rapid rise and massive presence on world markets may be some form of managed trade. This approach is not unprecedented. When Soviet bloc republics such as Poland acceded to GATT at a time when their governments remained communist, their accession agreements focused not on traditional market access commitments such as tariff reductions, but on purchase commitments in the form of targets for the growth rate of imports. In the case of China and its industrial policies, a managed trade approach today might focus on the growth rate of Chinese exports to achieve politically tolerable import penetration in China's trading partners, ideally coupled with an eye on competition policy principles to prevent undesirable accretion of monopoly power by Chinese exporters.

A managed trade approach has the further virtue that it does not require consensus-based revision of existing treaty instruments such as the SCMs Agreement. Any WTO member can in principle block consensus on any treaty modifications, and any meaningful changes in the rules must secure Chinese approval. Short of movement toward plurilateral agreements on subsidies rules that exclude China, direct negotiation with China regarding its export levels – preferably on a multilateral basis – might offer a promising route to an agreement that can better control worrisome externalities generated by China's extensive industrial policies and rapid export growth.

Conclusion

Subsidies pose an inordinate challenge to the world trading system. On the one hand, governments use subsidies to further many legitimate aims, including some of their most cherished objectives relating to the correction of market failures and the pursuit of distributive justice. On the other hand, subsidies are sometimes used for mercantilist reasons when trade and other policies are unavailable for this purpose. And even the most high-minded subsidies can impose substantial negative externalities on trading partners. Without international regulation of subsidy practices, there is nothing to induce governments to take into account foreign interests.

Subsidies now occupy a priority position on the WTO agenda due to a widespread perception that they are rapidly proliferating and are used regularly by governments without regard for their negative impacts on foreign workers and firms. Because government support is viewed by citizens in many countries as an "unfair" source of competitive advantage, their extensive use by many countries, and especially China, has undermined support for a liberal international economic order.

The main obstacle to international regulation of subsidies arises from the political nature of the attendant externalities. Only governments can conclude an international subsidies agreement, and it is the interests of political officials that matter the most in devising the rules. As we have emphasized, global efficiency in the conventional sense is not a satisfactory metric for political welfare, and there is no point in advocating reforms that would not serve the interests of the various governments who are needed to negotiate and enforce an agreement.

Because the *political* welfare of parties to a subsidies agreement is not observable to others, subsidy disciplines cannot be directly conditioned on the occurrence and magnitude of negative political spillovers – an idealized "Pigouvian taxation" solution of sorts cannot be implemented. The fact that subsidies create heterogeneous externalities for different trading

partners—some positive and some negative—further complicates the problem of formulating rules to encourage governments to internalize political externalities, especially since the governments that benefit from a foreign subsidy can rarely be compelled to pay for benefits they may enjoy.

In the light of these considerations and other factors that we have emphasized, we are rather skeptical about the usefulness of restrictions on the use of subsidies grounded in rules that apply to many or all sectors and industries. The set of policies that can be used to promote particular economic activities—and that thus constitute "subsidies," at least in an economic sense—vary greatly across industries and sectors. So too does the relative prevalence of negative and positive externalities. Restrictions of general applicability will inevitably become both over-inclusive and under-inclusive of scenarios that warrant discipline and have also proven vague, leaving much to *ex post* adjudication. The disputes that arise impose considerable transaction costs and generate ill-will between governments.

We are particularly wary of proposals to expand the list of prohibited subsidies within any generally applicable agreement. We recognize that governments often use subsidies to respond to intense (but unobservable) political pressures. Well-directed subsidies may be a relatively efficient way of doing so and may allow governments to achieve their political aims at lesser cost to foreign interests than feasible alternatives.

We do support a revival of some form of the now-expired, Part IV of the SCMs agreement that would eliminate restrictions on subsidies in areas where there is general consensus regarding a predominance of positive international externalities. Subsidies to promote the development and use of clean technologies, to promote the creation and spread of knowledge, and to encourage defenses against future global pandemics might fall in this category. By creating safe harbors, countries can mitigate the transactions costs associated with disputes and avoid the potential "chill" on constructive subsidies that may otherwise result from restrictions of general applicability.

Notwithstanding these observations, we are mindful of the fact that an agreement with general applicability can economize on the costs of negotiating subsidies disciplines and may function adequately if crudely in relation to industries where international spillovers from subsidies are not pervasive. Such an agreement could retain general principles found in the SCMs Agreement and might usefully add an obligation to utilize the least trade-distorting policy that is reasonably available to achieve their domestic aims. If, for example, a government wishes to encourage greater use of a clean input, a policy that directly subsidizes the use of that input distorts trade less—and thus confers a smaller internationality externality—than an alternative policy that subsidizes output using the clean input.

We are more optimistic about the potential role for sector-specific agreements that can be well tailored to circumstances that arise in specific industries where subsidies externalities are viewed as serious and widespread. Our sense is that the Agriculture Agreement has been helpful in this regard to ameliorate negative externalities from pervasive subsidies in that sector and to moderate inter-governmental tensions in the area. The pending Fisheries Agreement is another example of a sectoral negotiation that tackles the most egregious subsidy problems in the sector. Further negotiations following these models might be undertaken in other areas -- for example,

WTO members might prioritize an agreement for the *steel industry* that would coordinate the retirement of excess global productive capacity, an agreement for the *semiconductor indust*ry that would address concerns about supply chain resilience while avoiding a wasteful subsidies race, and an agreement for the *electric vehicle industry* that allows for government action to promote the transition away from carbon-emitting automobiles while avoiding the questionable protectionist features of some recent subsidy policies.

Finally, the frustrations associated with efforts to address Chinese policies within the framework of existing subsidies rules is undoubtedly a prime cause of widespread dissatisfaction with those rules. Non-market elements of the Chinese economic system pose challenging problems for any potential reform of subsidy rules. As difficult as it is to define (let alone measure) what constitutes a subsidy in economies with a preponderance of private enterprises, this task is virtually impossible for an economy with extensive state-owned and controlled enterprises. Efforts to apply the conventional rules to China lead, among other things, to dubious out of country benchmarks for the "fair market" reference point on which existing rules generally rely for both identification and measurement of subsidies, leading quickly to a political and often protectionist charade. A new agreement with China on the conduct of its SOEs, along the lines of the SOE chapter in the CPTPP, might provide a partial solution to the problem, although we fear that its implementation and enforcement might be as difficult in the case of China as has been the implementation and enforcement of existing rules under the SCMs Agreement. Alternatively, WTO members might address Chinese industrial policies using an entirely different approach, perhaps borrowing from the history of managed trade agreements between GATT members and acceding non-market economies. Even if the (non-China) membership sought such approach, however, the question of how to persuade China to go along with it remains, as would difficult questions regarding who would participate in and lead the negotiating process.

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