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Potential for International Rivalry as Governments Pursue Jobs

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ABSTRACT: For national and subnational governments, the pursuit of employment opportunities for their people constitutes a top imperative. Not only is the level of employment perhaps the foremost determinant of public sentiment about the health of an economy, but there is reason to think that employment policies may unleash positive externalities that would not be enjoyed without government involvement. In a world in which goods, services, capital, and sometimes labor all flow back and forth across borders, there is, however, a danger that one government’s policies will be taken amiss by other governments. This paper attempts to categorize the sorts of interventions one might see in attempts to create jobs and provides an analytical review of a number of relevant international trade literatures that have developed to address such concerns. It also looks at the rules that exist among existing institutions governing the pursuit of jobs and asks what additional institutions might be necessary. Finally, it attempts to characterize interventions by their potential for stirring conflict and to draw conclusions about how such conflict could best be avoided.
I. Introduction

Discussions about job creation often occur in isolation from discussions about international trade. This is not so true in popular discourse, where imports are often accused of destroying jobs. But in formal analysis, the two are often separate. Labor economists, looking at potential positive spillovers from formal employment, may focus primarily on local effects of national measures to promote job creation. International economists tend to rely heavily on general equilibrium models that tend to assume full employment.

Yet the measures that countries might deploy to create jobs can have important international ramifications. If measures such as subsidies, tax incentive packages, and regulatory accommodation are seen as luring mobile firms to one country at another’s expense, there is the potential for resentment, conflict, and retaliation. While the international economics literature has not generally focused on job creation, per se, it has paid ample attention to the impact these instruments might have and to where contests between countries using the instruments might lead. The relevant findings come from multiple strands of the international economics (and related) literature: economies of agglomeration, strategic trade, infant industries, and more. The principal purpose of this paper is to draw lessons from those literatures for those pursuing job creation at the national level.

A first challenge is to ascertain just what it means for a government to pursue a job creation strategy. The paper works from first principles to develop a taxonomy of potential approaches. An ensuing question is which of the policies are likely to have an effect on the welfare of other countries and potentially draw a response. Under what circumstances does it make sense to think of national jobs programs as part of an international competition?

After the initial section considering the potential nature of job programs, the next section provides a brief review of a number of literatures that offer insights into the question of jobs and international competition. Literatures that build off scale effects include work on economies of agglomeration, urbanization, and infant industry arguments. Literatures that revolve around subsidies include descriptive work on state aid and the strategic trade literature, featuring a role for government in altering the equilibria of imperfectly competitive markets. Finally, there is a literature on the benefits of foreign direct investment and about competitions to attract that investment.

Section 4, which follows, delves into international welfare considerations. It offers a framework for thinking about when one country’s actions will impinge on the well-being of other countries—a situation described as policy rivalry. In the absence of any bright-line rules distinguishing between policies that will or will not cause rivalry, Section 5 explores the question through a series of examples, setting up scenarios that attempt to illustrate some of the key theoretical questions while corresponding with practical concerns. It goes on to examine alternative frameworks for identifying which policies are likely to be
problematic. Section 6 describes both the existing set of institutions that govern such measures—effectively the global and European regimes to discipline subsidies—as well as prospect for new institutions that might be able to head off or manage international conflict in this area. Section 7 concludes with a review of the key arguments as well as some rough characteristics of policies that make international conflict less likely.

II. How does a government compete for a job?

There are numerous ways in which governments might act to spur job creation. There are even more government activities that, proponents will claim, produce new jobs. Rather than trying to sort out these claims and adjudicate the efficacy of each program, this section starts from first principles. This is done not so much to discover new opportunities for employment programs as to provide a means of classification for existing approaches.

For formal employment, one needs a willing employer and employee. This section assumes that there is ample labor supply and that job creation issues revolve entirely around labor demand. The focus will be on sectoral (microeconomic) policies rather than those targeting aggregate labor demand (macroeconomic).

A. Modeling job creation

We start with a generic production function in a sector, i.

\[ Q_i = f_i(L, X) \] (2-1)

This states that the output, Q, will be a function of labor input, L, and a collection of additional complementary inputs, represented by the vector X. Typically, the list of complementary inputs might include capital, intellectual property, land, and physical infrastructure. One could either differentiate between types of labor (skilled and unskilled) or one could list the human capital skills as additional inputs (e.g. entrepreneurial ability). It is possible that there may be few or no complementary inputs, depending on the nature of the sector, but this form is an attempt to be inclusive and consider the full range of possibilities.

How, then does a government go about creating jobs? This functional form allows for three possibilities. First, the government can increase demand for the final product—an increase in Q. This could be done through direct purchases, as when governments engage in military procurement, or through subsidization, as when governments offer payouts to cut the net cost to consumers of electric cars. Whatever the path to boosting final demand, in general this will be expected to increase the derived demand for L.

A second possibility is that the government can increase the attractiveness of using labor relative to other inputs. Thus for any given level of Q and availability of X, L could increase. This might occur if the government cut a binding minimum wage, for example, or engaged
in a direct wage subsidy. In any of these cases, the industry $i$ could choose a more labor-intensive technique for producing any given quantity.

A third possibility is that a government could alter the availability—and thus the cost—of complementary inputs. This can have mixed effects. If we think of physical capital, lowering the cost could encourage substitution away from labor and toward capital. On the other hand, the reduction in cost could encourage expanded production. The balance will depend on the nature of the production technology and the role of the input in question. This category of complementary inputs would include public infrastructure, such as rail, canals, ports, and roads. Such inputs can cut costs but are relatively unlikely to serve as substitute inputs for labor in production.

For each of these possibilities for stimulating jobs, governments can apply standard tools. They can subsidize, alter taxes, or modify regulations. In each case, the policies the governments adopt can be narrowly directed (e.g. applicable only to sector $i$, as with the electric car subsidy) or they can be applicable to all sectors (as with minimum wage regulation). This final distinction between general and specific proves to be important in how interventions are treated by some existing international institutions (the more specific the intervention, the more likely to face a challenge).

As but one empirical illustration of how government policies and the availability of complementary inputs can play into job creation, Ghani, Kerr, and O’Connell (2011) equate job creation with the market entry of entrepreneurial firms. They discuss the impact of different determinants of entry in India. They find:

“Among general district traits, quality of physical infrastructure and workforce education are the strongest predictors of entry, with labor laws and household banking quality also playing important roles. There is evidence that strict labor regulations discourage formal sector entry, and better household banking environments encourage entry in the unorganized sector.” (p. 5, emphasis added)

The analysis of policies stemming from Equation 2-1 does very little to narrow the scope of the analysis. There are relatively few government economic policies that defy interpretation as having an effect on job creation under this definition. Instead of narrowing the scope, the intent here is to offer a taxonomy of jobs measures. All of these approaches—manipulating demand for the final product, the attractiveness of labor, the availability of complementary inputs—would apply in a closed economy. In the next section, we broaden our consideration of potential government policies to explicitly consider policies that affect other countries. This will set the stage for welfare analyses later in the paper.

### B. Modes of international competition

Except in rare circumstances, government jobs policies in one country will have repercussions in trading partners. In fact, it is easier to say when a policy will not have any international effect, such as a non-traded good with limited or no substitutability in consumption and limited income effects. The rest of the time, the international effects may
or may not cross some threshold of significance, but they are likely to be there. The implication for our purposes is that in the quest for domestic jobs programs that are immune from negative international response, it will be far more promising to think about permissible and impermissible measures than to focus on those measures that have no international effects.

1. **Direct and indirect forms of competition**

In the previous section, considering domestic measures, we distinguished between policies that were aimed at a single sector and those that applied to the economy more generally. In terms of international competition, there is an analogous distinction. Countries may compete directly when they are bidding over an input into the production process. The classic example is when national or subnational governments are competing to attract an investment, such as a new semiconductor manufacturing plant. Such investors are frequently seen as desirable because they offer the prospect of direct creation of “good jobs.” Governments may lure such firms through offers of tax holidays, new highways, port facilities, or other inducements. In a case of direct competition, by definition, these offers would only be available to particular target firms. Of course, a new highway that connects a construction site could be generally available, but it would only be built to order for the right firm.

By way of contrast, indirect competition occurs when a country is not targeting internationally mobile factor of productions, but is instead taking actions that are generally appealing to all mobile factors, whether of domestic or foreign origin. This could involve investment in an educated workforce, regulatory streamlining, or a new airport.

While the direct vs. indirect contrast may be analogous to the specific vs. general distinction above, they do not align perfectly. A government could extend a tax holiday offer to foreign direct investors in a broad range of sectors. Such a policy would be direct competition, but general. Alternatively, a government could offer subsidies to any producers in a particular favored sector, whether of foreign or domestic origin. This would be a specific, indirect policy.

Directly or indirectly, we are interested in policies countries adopt that make investment and job creation more attractive in one country than another. Below we classify some of the policies that could thus tilt the scales. The classification is meant to set the stage for a review of existing international trade literatures that describe the implications of their use and rules governing them. The literatures do not match perfectly with the classification. The literatures themselves frequently emerge from a particular insight about a type of economic interaction, such as duopolistic competition; they were generally not oriented to questions of job creation. But that is the potential virtue of the approach: the mismatches often reveal where there are additional interesting questions to be asked.
2. **Policies affecting costs**

Returning to the production function approach to considering job creation possibilities, only now in an explicitly international context, we can look at a class of policies that can affect the costs of production. The presumption is that lowering the cost of production, for a given level of demand, will result in increased output and, in turn, increased derived demand for labor.

*(1) Payoffs tied to capital movement*

An example was given above of policies to attract foreign direct investment. The specific example of a new factory, financed from abroad and hiring teams of new workers, is particularly easy to grasp. More generally, we can think of foreign capital as requiring a particular after-tax rate of return. The government can make this threshold easier to meet either by lowering required tax payments or by providing a direct subsidy. While the two different approaches can have equivalent effect, tax concessions can be more appealing, in that they do not require any immediate budgetary outlay. The upshot is that new capital will be drawn in to pair with waiting labor. So long as the lowered cost of capital does not induce a shift toward labor-saving techniques of production, this should have the desired effect. Because the capital is flowing internationally, however, these policies are particularly susceptible to being perceived as hostile. The capital had to come from somewhere. While the world capital stock is not necessarily fixed, there is particular suspicion that when a celebrated manufacturer is lured to one locale by explicit incentives, that country or region is acquiring its new jobs at the expense of those regions that lost out in the competition.

*(2) Payoffs to complementary human capital*

Oddly enough, while one could make arguments about human capital that would closely parallel those of physical or financial capital, these arguments seem to have less resonance in actual policy discourse. When a multinational manufacturer invests in a new locale, it is generally bringing not only machines and financing, but also managerial know-how and intellectual property describing production processes. One classic example of this was Helpman’s (1984) explanation of vertical FDI, in which multinational enterprises supply ‘headquarter services.’ There are some parallels in the reaction of those countries who see human capital departing – the subject of concern of the “brain drain” in the developing world. Yet the reception in the attracting countries can be less enthusiastic. This may be because of a belief that immigrant labor substitutes for domestic labor, thus limiting job creation. Or it may reflect general ambivalence about immigration.

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1 See survey by Commander, Kangasniema, and Winters (2004).
2 This concern may reflect a failure to distinguish between different types of labor, assuming a substitutability that often does not exist.
Policies to cut the cost of inputs and raw materials

The previous two possibilities for government intervention involved luring inputs, whether physical or human capital, into a country to contribute to a production process that would generate jobs. Alternatively, a government could take actions that affect costs of inputs without necessarily drawing any resources across borders. One such type of action is to subsidize key purchases for a domestic industry; for example, by charging below-market rents for land or buildings. Such subsidization has been a frequent point of international contention, particularly when non-market economies were involved. These interventions could take the form of subsidies directly applied, or broader market interventions that have the effect of distorting prices. In the latter category, for another example, there have been trade disputes over measures to restrict the export of key ingredients in high-tech manufacturing—“rare earths.” If a government hinders or completely blocks the export of these key ingredients, the domestic price of the ingredients should fall below the world price, thus providing an incentive for firms dependent on the ingredients to relocate their manufacturing to the country with cheap supplies—and bring the accompanying high-tech jobs along with them. One could also include in this broad category policies that strengthen or, more commonly weaken protection for intellectual property. Such policies can dramatically reduce the costs of local production for goods such as pharmaceuticals, electronics, or recorded entertainment.

An important challenge for international institutions overseeing such competition is to draw a distinction between this sort of aid, which has often been deemed illegitimate, and other aid, such as the provision of infrastructure or education of the domestic workforce. In each of those latter cases, there is a similar economic effect—a relative lowering of costs for a firm thinking about establishing itself in a country. As detailed later in this paper, the distinctions that have traditionally been drawn sometimes comport well with economic analysis—as with distinctions between policies that are general as opposed to industry-specific—and sometimes do not.

It is also interesting to note that controversial government policies do not only work to lower the costs of potential employers; there are other common practices that raise costs (but remain, nonetheless, controversial). An undervalued exchange rate would serve to increase the price of any imported raw materials or intermediate goods. Explicit trade barriers can raise the price of imported intermediates, as can measures mandating domestic content requirements or distortions in production processes. In such cases, of course, governments have a clear path available to boost domestic hiring while avoiding international conflict, simply by removing the offending and counterproductive policies.

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3 Prominently, the European Union alleges that the People’s Republic of China subsidizes its telecommunications sector. See Chaffin (2012).
5 For one study of the welfare considerations surrounding patent enforcement in pharmaceuticals, see Chaudhuri, Goldberg, and Jia (2006).
3. Policies affecting output and profits

The remaining arrows in a standard government quiver target the profitability and production of a sector. The measures affecting inputs discussed above obviously play into a sector’s profitability and output, but perhaps less directly. In this final category we may include regulations on the production or use of products, tax measures that affect the profitability of a sector, or trade policies directed at the final product. Regulatory measures are a frequent subject of concern in discussions of competition for jobs. There is a persistent concern that, in the pursuit of industries, governments will be tempted toward laxity in regulation. Labor and environmental measures are commonly thought to be candidates for such a “race to the bottom.” There can be similar concerns about tax measures. Here we are thinking about general pressures to maintain lower taxes, as opposed to the sort of targeted measures discussed earlier. There are literatures (discussed below) that focus on the possibility that factor mobility will result in inefficiently low taxation. Even if a country is not engaged in targeted offers to attract foreign capital, it may be wary of losing mobile domestic firms responding to foreign offers.

Trade policies on final goods can range from export subsidies (expanding sales, but often transgressing against global rules) to import barriers. The latter, effectively, have a production subsidy component and the tariff as a whole can serve as an incentive for “tariff jumping” foreign direct investment, wherein multinational enterprises relocate at least the final stage of production near the target market so as to avoid paying duties on imports.

This section has categorized broad types of potential jobs policies in an open economy setting, in which countries may be worried either about drawing resources from other nations or avoiding having their own job creators drawn away. The next section delves into a number of existing literatures that explore particular types of international competition and draws out the implications for job rivalry.

III. Literature Review

The literatures surveyed in this section generally do not take job creation as the objective of government policy. Far more common is to think about policies that may augment national welfare. To the extent that job creation is considered, there is most likely a presumption that there will be a strong positive correlation across policies that increase standard welfare measures, those that increase output, and those that increase employment. While it is certainly possible to imagine circumstances in which policies advance one such goal while not advancing another, the literatures described below provide the most relevant and thorough considerations available of the impacts that the various tools might have. They offer insights into whether measures will achieve their intended ends (welfare enhancement) and, in describing the process, can also depict the role for employment. Further, a number of the literatures have given careful consideration to spillovers, both domestic and international, of the sort that can also motivate job creation discussions. Finally, the literatures are also valuable for their consideration of the
potential international conflicts that may stem from these types of policies and their descriptions of the institutions that have been established to try to limit such conflicts.

This review groups the sometimes-overlapping literatures into three broad categories. The results of the first group are driven by scale economies, either static or dynamic. This includes the literature on economies of agglomeration and related results in studies of urbanization; infant industry arguments that have played an important role in development economics and international trade; and considerations of dynamic comparative advantage and industrial policy. The second group deals with the role of subsidies and state aid more generally. This includes discussions about motivations for state aid and also the strategic trade literature, which envisions a role for subsidies in an imperfectly competitive setting. The final section looks at work on foreign direct investment and the policy competition that can emerge among states to try to attract it.

None of these reviews offer more than a glimpse into the relevant literatures, some of which are quite extensive. They are intended simply to highlight some of the findings and points of entry for consideration of related work. The key areas of interest are 1. Whether policies of the sort that might be used to spur job creation have been shown to be effective; and 2. What effects those policies might have on other countries.

A. Economies of scale

Formal arguments for active government intervention to promote job creation generally revolve around some form of externality to explain why private agents, left unassisted, reach a sub-optimal outcome. The argument is so basic that it pervades all of the literatures reviewed in this paper. This subsection takes on the most central arguments, in which a locale or a sector offers unrealized benefits and governments may act to encourage a better equilibrium.

1. Economies of Agglomeration and Urbanization

Conventional international trade analysis usually assumes constant returns to scale and perfect competition. This has enormous benefits in terms of tractability, but Krugman (1997) argues that it neglects the possibilities of local positive externalities leading to economies of agglomeration. There is strong suggestive evidence that such economies of agglomeration occur, in particular in the concentration of production in cities and the concentration of particular industries in specific areas (e.g. technology in Silicon Valley, finance in New York, etc.). Given that cities offer more expensive real estate than rural locations and the aforementioned industry centers are particularly expensive, there are presumably benefits to clustering together that outweigh these costs.

Allowing for economies of agglomeration can result in very different results in open economy models. As described in Andersson (2003), economic integration under such conditions may lead to increased concentration of production. Further, such models can display hysteresis in the location of industry: “once production had agglomerated in a

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6 This literature is also sometimes known as “the new economic geography.”
region, it tended to get stuck there because of supply and demand linkages.” That meant that mobile factors may not respond to marginal changes in incentives.

If industries have positive local spillovers, that raises the possibility of ‘good’ and ‘less good’ industries—the former defined as those more generous in their local spillovers. There could be an obvious incentive for polities—whether cities or countries—to try to attract the ‘good’ industries, particularly if those industries, once attracted, tend to stay put and keep churning out positive spillovers. Of course, the features that make such industries attractive to one polity will appeal to other polities as well. Herein lies the potential for rivalry. The very nature of economies of agglomeration is that they will tend toward concentration in a single (or limited number) of countries, rather than a diffuse spread across all countries that may want them. Thus, the measures that a country takes to induce such an industry to come will, if successful, deprive rival countries of the industry's benefits.

There are such close parallels between the international considerations spurred by economies of agglomeration and those that emerge in urban and regional economics that the lessons from those literatures can be useful as well. There is some narrow evidence that policies can be successfully used to promote development in particular areas or zones, such as Busso and Kline (2007). However, Gottlieb and Glaeser (2008) offer a skeptical take on the broader potential for “place-making” policies. They note that one does observe higher productivity levels in densely populated areas, and that concentrations of educated people increase the level and growth of productivity. But they argue that this does not provide easy terrain for policy intervention. They describe a medium- to long-run model of spatial equilibrium, in which higher incomes are offset by higher prices and there is little incentive for movement.

“...an exogenous increase in area-level productivity or amenities will impact population, wages, and prices. In urban research all three outcomes must be used to understand the impact of an intervention...In this model, agglomeration economies do not change the optimal policies for local governments.”

They do describe model variants in which it is possible to have productive policy interventions, but conclude that the difficulty of identifying the nature of agglomeration or congestion externalities “does not reassure us that the current situation is a Pareto optimum, but it does suggest that it is not obvious which way government policy should deviate from the status quo. For us, this degree of ignorance suggests that explicit spatial policies are as likely to do harm as good.”

Gottlieb and Glaeser are discussing regional analyses. Thus, their welfare analysis deals with questions like whether the United States could be better off with policies that favored the big cities of the Northeast over the rural Midwest (or vice versa). To translate the conclusions to an international setting, the question becomes whether global welfare can be raised by favoring one country over another. Even if it was possible to do so—and their principal finding is that it is very difficult—it does not guarantee a Pareto improvement.
One country’s gain may exceed another’s loss, but that will be small consolation to the losing country.

2. **Infant Industry and Dynamic Comparative Advantage**

In the economies of agglomeration literature, there are external returns to scale that drive costs lower when a large number of participants cluster together. A different economy of scale drives the infant industry and dynamic comparative advantage literatures. The classic infant industry story is a partial equilibrium one, in which, through learning by doing, an industry that is initially uncompetitive can lower its costs and become globally competitive. Theoretically, this provided an opening for government intervention. In an infant industry situation, the argument went, the simple pursuit of a policy of free trade or *laissez faire* could prevent a country from ever realizing its potential in a sector. The initial cost advantage enjoyed by trading partners would never be overcome, since initial investors in the infant industry would only observe the high starting cost of production, not the low potential cost.

In practice, this reasoning was frequently used to justify trade protection, since temporary protection could afford the infant industry a period in which it could overcome its cost disadvantage and achieve its potential. However, a tariff achieves this by coupling a production subsidy with a consumption tax. The latter does not play any role in the argument, so the infant industry proposition is really an argument in favor of subsidizing an industry from which positive externalities (lower future costs) are expected to flow.

The argument has been generalized as “dynamic comparative advantage.” Whereas Ricardian comparative advantage took relative costs as exogenously determined, dynamic comparative advantage treats them as malleable. Redding (1999) explores the topic in a general equilibrium context. He describes a mechanism whereby

“while producing output in a given sector, agents acquire productivity-enhancing production experience...For example, through trial and error, new methods of manufacture or new ways of organising existing processes are discovered.”

He finds that

“a selective trade and industrial policy that is welfare improving for one economy may also be welfare improving for its trade partner. This possibility arises because of the way in which selective intervention facilitates a more efficient world allocation of resources, by internalising differences in potential rates of productivity growth across sectors and economies.”

To this point, the literature seems to offer encouraging lessons for anyone contemplating positive externalities from employment as a rationale for government intervention. But experience with these policies offers cautions as well. Krueger (1990) describes how infant

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7 For a thorough discussion of infant industry arguments and problems with them, see Panagariya (2011).
industry protection often exceeded theoretically-supported levels and rarely went away. The informational requirements for governments are very high—it needs to be able to accurately assess future cost structures for home industries and international competitors (to determine prospective comparative advantage).

Harrison and Rodríguez-Clare (2012) classify such infant industry approaches as one variant of industrial policy. After reviewing the relevant empirical literature, they conclude:

“we find little evidence that countries benefit from "hard" interventions that distort prices to deal with Marshallian externalities, learning-by-exporting, and knowledge spillovers from FDI.”

They describe two different tests, both of which a successful intervention ought to pass:

“the Mill test is that the protected sector can eventually survive international competition without protection, whereas the Bastable test is more stringent in requiring also that the discounted future benefits compensate the present costs of protection.”

Harrison and Rodríguez note that, while these are the appropriate tests for welfare-enhancing intervention, they found very few studies of industrial policy that examined whether industries passed them. Further, though Redding showed that there were conditions in which intervention could be Pareto improving, those conditions would be more stringent still.

**B. State Aid and Strategic Trade**

1. **State Aid**

Whereas the literatures in the previous section concentrated on theoretical rationales for government intervention, there is a substantial literature that focuses on subsidy or “state aid” practice. ‘State aid’ is the term of art in the European Union for assistance granted by a government.⁸ To a large extent, this literature deals with institutional constraints on government action, a topic which will be taken up later in the paper. However, the exceptions that are carved into general rules and the discussions that surround the usage of state aid provide some insight into the rationales that commonly justify government intervention.

In some of these, there is ample overlap with the reasoning of the previous section. Besley, Seabright, Rockett, and Sørensen (1999) cite the economic geography literature and positive externalities in justifying EU state aid policies.

“In our context, factor and product market linkages are an important source of such externalities, as when a firm locates and thereby affects the market for skilled labour. Even though these are pecuniary externalities, government action (by taxes, subsidies

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⁸ For a comprehensive review of EU state aid governance, see Rubini (2010).
or other means) can be justified if the economy is not otherwise first best, as when there is imperfect competition or unemployment."

“Why are these insights important? They provide a reason why the distribution of economic activity across geographical space has consequences for efficiency as well as for equity, and why the profit-seeking decisions of private firms will not necessarily realize efficient outcomes. If a way can be found to alter firms’ incentives so that they internalize the externalities associated with their location and production decisions, the spatial distribution of economic activity will be more efficient than if they continue to ignore these externalities.”

The European Union presumes that state aids distorts competition and warns that it may be incompatible with the common market, yet it allows for a number of explicit exceptions. These include economic development of areas with low living standards or underemployment, fostering cultural heritage, and response to shocks.⁹

2. Strategic Trade

The state aid measures discussed above often presented a looser coupling between theoretical foundations and state desires to provide assistance. The strategic trade literature presented a far tighter linkage, though a restrictive one. It also moves from the realm of generally supporting a local industry to explicit international competition, manipulated by government intervention.

Prior to the 1980s, the general interpretation of government-provided export subsidies was that they reflected the political pull of the subsidized industries. It was still a bit of a puzzle why governments would not choose a more efficient form of assistance, but the decision presumably stemmed from some institutional constraint.

In a seminal paper, however, Brander and Spencer (1985) showed that in a particular imperfectly competitive setting, a government could increase national welfare by subsidizing exports and altering a firm’s strategy in a game—hence, “strategic trade.” In a Cournot duopoly in which each producer was located in a different country and sold into a third market, a government that offered its firm an export subsidy (equivalent to a production subsidy in the absence of domestic consumption) would shift that firm’s reaction function in the Cournot game. If done judiciously, it could let the firm act as a Stackelberg leader. The result would be that the domestic firm would accrue a greater share of available rents, while the profits of its foreign competitor would decline. Since overall production would increase, the total rents available to the duopolists would also shrink. Thus, this was certainly an instance of policy rivalry.

⁹ Rubini (2010), p. 74. There was a similar list of permissible subsidies in the WTO, known as the “green box.” The provision has since expired, but included environmental measures as well (WTO 2006, p. 200).
This seemed to offer a sophisticated rationale for pre-existing subsidy programs. However, the findings were shown to be very sensitive to the setting of the game.\textsuperscript{10} If competition were Bertrand, rather than Cournot, the policy prescription reversed: a tax, rather than a subsidy, would be the optimal policy. When the interests of consumers were included, the situation became more complicated still; consumers, for example, would welcome the joint increased output and a price that moved toward a competitive level. This dissipation of duopoly rents became even more likely if the other country retaliated against the initial subsidy.

With the theoretical predictions for strategic trade depending heavily on which assumptions were adopted, attention turned to empirical investigations. Paul Krugman (1994) summarized the results of these studies:

“...over the course of the last ten years a massive international research program has explored the prospects for strategic trade policy. Two broad conclusions emerge. First, to identify which industries should receive strategic promotion or the appropriate form and level of promotion is very difficult. Second, the payoffs of even a successful strategic trade policy are likely to be very modest...”

Thus, the strategic trade literature provides a prominent example of subsidies to industry that can be theoretically justified, under certain circumstances, but certainly provoke international policy rivalry.

C. Tax Competition and Foreign Direct Investment

In the economic geography literature, factors of production would certainly move between regions, but the focus of attention was usually on a comparison of equilibria, rather than the particular factor movements that would lead to those equilibria.

A final literature for review focuses on the possibility of luring direct capital investment from abroad. It considers the potential benefits that foreign direct investment (FDI) might bring, and the potential costs of the policy measures countries could employ to attract it.

1. Spillover benefits from FDI

In a standard trade model, such as that of Heckscher and Ohlin, foreign and domestic capital are assumed to be equivalent. With factor price equalization, there would be no additional benefit to attracting capital from abroad.

This has frequently not been the view of the development literature. As Crespo and Fontoura (2007, p. 410) note:

“In most countries, foreign direct investment (FDI) is considered to be an important component of development strategy and policies are designed accordingly in order to

\textsuperscript{10} Eaton and Grossman (1986).
stimulate inward flows. A strong motivation for this interest is the possible existence of FDI productivity spillovers,"

They describe five main channels for such spillovers.

- Demonstration/imitation—a technologically advanced firm from abroad can reveal its techniques to domestic industry.
- Labor mobility—workers can acquire skills when employed by the foreign firm, then take those skills with them.
- Export capacity—to the extent there are costs associated with establishing distribution networks, the foreign invested enterprise is likely to have already overcome them.
- Competition—the foreign entrant spurs domestic firms to work harder.
- Forward and backward linkages—the foreign enterprise may provide demand for locally produced inputs (backward linkage) or may provide higher quality inputs for local producers of final goods (forward linkage).

The possibility of reaping such benefits has inspired countries to actively seek out foreign investors. Blomstrom and Kokko (2003, 5) report estimates that over 100 countries provided FDI incentives in the 1990s, a number that later grew. While one would observe subsidies in more developed countries, it was more common to see tax breaks offered in less developed countries, since they do not require funds up front. Blomstrom and Kokko note the paucity of data available on such measures:

“For obvious reasons, there are no reliable calculations of how costly these programs are: it is almost impossible to determine the quantity of FDI that would have flowed to each country in the absence of incentives.”

So how can one perform a cost-benefit analysis on programs to lure FDI? Blomstrom and Kokko write that, although the rationale of the programs is to correct for unrecognized positive FDI spillovers,

“it should be noted that neither policy making nor formal theory have focused much effort on matching the size of subsidies to the amount of expected spillover benefits: instead, it is assumed that the spillover benefits are sufficiently large to justify investment incentives.” (p. 9).

2. **Race to the bottom**

A common concern is that countries will get carried away in their efforts to attract desirable FDI.
“When most governments compete actively for FDI, it is difficult for any individual country to stay out of bidding contests, which effectively shift profits from the host country to multinational enterprises. One reason is of course that strong promotion efforts show that the government is actively doing something to strengthen employment, productivity, growth, or some other policy objective (whether or not they get any FDI). Another reason is that some of the perceived benefits (in particular, the jobs created by FDI) are easily observable while some of the costs (particularly related to tax breaks and other fiscal incentives) are distributed over long periods of time and hard to measure. Consequently, there is a tendency to overbid and the subsidies may very well surpass the level of spillover benefits, with welfare losses as a result.” Blomstrom and Kokko (2003, 17)

In an OECD review of policy competition for FDI, Oman (1999) describes both the nature of the concern and a possible, more optimistic, alternative interpretation:

“The main concern is that global “bidding wars” to attract FDI may be producing an uncontrolled upward spiral in costly “investment incentives” that weaken public finances while introducing market distortions in the allocation of real investment, and/or that such “wars” are putting excessive downward pressure on global standards of protection of the environment and/or of workers’ rights (the so-called “race to the bottom”).

Intensifying global competition among governments to attract FDI could also, however, produce beneficial effects. These effects may include inducing governments to strengthen their economies’ “fundamentals” (e.g., by pursuing policies to enhance the supply of modern infrastructure and appropriately trained workers, by achieving greater macroeconomic and political stability, by improving long-term economic growth perspectives) which should in turn promote economic development —almost independently of their impact on FDI flows per se. Another effect may be to increase the global supply of FDI, to the benefit of investors and host economies alike.”

There is a closely related literature on tax competition that parallels this argument. Wilson and Wildasin (2004) describe a common concern that tax competition to attract investment will lead to excessively low tax rates. The underlying presumption is that governments start from efficient levels of taxation and are then driven, by competition for capital, to lower levels. However, they note an alternative view (“Government as Leviathan”) in which tax competition serves to temper the excesses of bloated government. They note that it is difficult to distinguish between these models empirically, since both predict that tax competition will decrease the size of government.

The FDI and tax competition literatures deal explicitly with the concern that countries, in the pursuit of positive spillovers, will both face stiff challenges in matching the appropriate policies to the difficult-to-observe positive spillovers and will provoke international rivalry in the process.
IV. International welfare considerations

The trade and investment literatures surveyed in the previous section explored a number of types of interaction or competition that could occur between countries. As a rule, they were not directly addressing the question of jobs policies, though in competitions like the struggle to attract investment from a large multinational enterprise, the question of job creation is not very far removed. The main reason that jobs themselves play a peripheral role in these literatures is that most trade models start with the assumption of full employment. Nonetheless, those literatures can provide examples and insights for an employment-oriented analysis of when policies are likely to stir up international confrontations. This will be the subject of the rest of the paper.

Before considering such questions, an obstacle must be overcome. When we try to predict potential international confrontations, we can do so from at least three different perspectives. From an economic standpoint, we could postulate that a confrontation may ensue when one country’s welfare gains come at another country’s expense. This could be a normative analysis: e.g. when should a country be perturbed by another country’s programs?

Alternatively, we could consider the potential for conflict from a legal standpoint. Under what circumstances will one country’s employment-stimulating actions allow for a legal response under existing institutions? This is more of a positive description. It turns out that for a number of major international institutions, the correlation between those actions that are economically objectionable and those that are legally actionable is not particularly strong. There are instances in which countries can legally respond to actions that actually enhance their welfare. There are other instances in which countries have no legal recourse, despite demonstrable harm.

Finally, we could consider the likely political ramifications of various policies. If countries only responded to foreign job actions when they suffered economic harm, or when legal commitments were broken, this would duplicate at least one of the other two approaches. Instead, we see instances in which a policy may be deleterious for a politically-connected sector within a country, while actually benefiting the country as a whole. A strict economic approach might dictate no action, a legal approach might not allow for a response, but political pressures may nonetheless prompt action in reply.

11 There are some notable exceptions. There has long been acknowledgement that it could be difficult for workers to adjust to trade shocks, as recently described in Artuç, Chaudhuri, and McLaren (2010). For an example of trade and equilibrium unemployment, though, see Helpman, Itskoki, and Redding (2011).

12 There will be specific examples offered below, but one need only survey the range of cases in which World Trade Organization Dispute Settlement Panels rejected trade moves by offending countries. Such a survey would display legally illegitimate actions (per the rulings) that nonetheless prompted a political response. In some of these cases, national welfare may also have been harmed, and in some there may have been genuine differences of interpretation of the rules. But the remainder – in which national welfare was not the motive, and in which legal tenability was given little attention – is well-populated.
While all three approaches are of interest, they are not all equal in their predictability. The economic approach can be derived from conventional economic analysis. A framework to facilitate that approach will follow later in this section. The legal approach derives from an exploration of existing institutions that govern the relevant policies. That will be explicitly addressed in a later section, though legal points will be mentioned throughout the examples, as relevant. The potential for political reaction is the most difficult to describe systematically. For all its unpredictability, however, it is no less significant. It will emerge largely through selected examples.

Given the enormous breadth of policy instruments that might be employed to create jobs and the range of institutional rules that might be invoked, this paper will offer no grand over-arching theory of when pro-employment policies will provoke international conflict. Instead, this section will offer some framing of the welfare considerations of international jobs competition. The next section will largely describe the possibilities for international conflict through a series of examples. Later sections will describe the existing institutions that govern some of the relevant policies and also mention non-existent institutions whose creation might prove useful in dealing with some of these questions.

A. A welfare framework

The goal of the economic analysis will be to divide policy interventions into those that are likely to spark international rivalry and those that are unlikely to arouse a negative response from other countries. Ultimately, we would like to relate these policy classifications to observable characteristics that have either featured prominently in existing literatures or that appear promising. In the former category one might ask, when considering a competition for a particular type of job, whether the kinds of spillovers that emanate from the job are local or global, and whether factors of production are being drawn across borders through investment or migration. In the latter category, one might hypothesize that there is a qualitative spectrum of spillovers ranging from those that expand individual rights, to those that promote social cohesion, to those that raise living standards, to those that enhance productivity, and that as one moves along this spectrum, there is a steadily increasing threat of negative international effects. These possibilities will be taken up through the examples below.

First, as a means of considering the international economic impact of various jobs policies, it will be helpful to have a general framework for thinking about countries’ gains and losses. We can assume that there are only two countries in the world, Home and Foreign, and posit that each has an optimized welfare function:

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13 Of course, “Foreign” serves here as a proxy for “everybody else.” It captures the spillover benefits or cost from one country’s actions that impact the rest of the world. This is an innocuous simplifying assumption so long as we are indifferent about which other country is affected by Home’s policies. This need not be the case, though. If we are more alarmed by negative international spillovers that hit developing countries than those that hit developed countries, we would want to explicitly consider the welfare of different classes of countries and apply weights accordingly. This issue is briefly discussed in a section on weighted global utilitarianism below.
representing the maximum welfare home can achieve with a certain amount of labor, \( L \), other inputs to production, \( X \), a vector Home country policies, \( p \), and a vector of Foreign policies, \( p^* \). There would be a corresponding welfare function \( W^* \) for foreign, as a function of its own inputs and both policy vectors. For each country, these welfare levels are assumed to follow from agents within the economies optimizing, taking policies and resources as given.

We will have little to say about the actual levels of Home or Foreign Welfare. Instead, we are interested in the sign of changes in welfare induced by policy shifts. We will imagine Home considering a series of policy moves meant to increase Home welfare. If Home is successful in its action for some policy indexed \( p_j \), then the change in this policy from a status quo ante will result in:

\[
(4-2) \quad \frac{W}{p_j} > 0
\]

In a closed economy setting, this would be the end of the story; we would have discovered a means of enhancing welfare. In this open economy setting, however, we will be interested in what this policy does to \( W^* \). As shorthand for describing potential international rivalry, we introduce a variable \( \eta_j \):

\[
(4-3) \quad \eta_j = \frac{W^*}{W} \frac{p_j}{p_j}
\]

Thus, \( \eta_j \geq 0 \) implies no rivalry—the increase in home welfare is associated with unchanged or improved foreign welfare—while \( \eta_j < 0 \) implies rivalry. We will generally presume that the policies Home undertakes are beneficial for Home (\( \Delta W > 0 \)), but will return to the question below.

A prime motivation for considering government interventions to create jobs is the possibility of positive spillovers. It is worth noting that the possibility of positive or negative spillovers is allowed for with the very general description of equation (4-1). If there are positive spillovers that come from new employment, such employment may be underprovided without specific government action, since the investor or employer will not internalize these societal benefits. While not explicitly portrayed in the welfare functions \( W \) and \( W^* \), these spillovers enter indirectly through the policy variables. Thus, if a policy change \( p_j \) has exclusively local positive spillovers, it will push up \( W \). If that same policy has

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\(^{14}\) It is possible for policy changes to be either beneficial or detrimental, of course. We can rather arbitrarily assume that \( \Delta p > 0 \) (this is the change from old policies to new). If 4-2 holds, then this will be a beneficial change from Home’s perspective.
positive global spillovers, as with the provision of global public goods, it will push to raise both W and W*. It is entirely possible that a given Home policy will set off a chain of events that have both positive and negative effects for Foreign. For the purposes of this paper, we will not be disentangling those effects—other than to acknowledge the possibility—and will focus on the net effect on W*, which is intended to encompass all of them.

Before asking about the sign of \( \eta_j \) for various policy instruments, we conclude this section by thinking about the different standards we might apply for determining whether a pro-jobs intervention is desirable or undesirable from a global welfare standpoint. Once we move beyond the question of whether a single polity is helped or harmed, we encounter some of the basic tradeoff questions of welfare economics.

B. Global welfare criteria

There are several criteria we might adopt. Pareto Optimality would say that a policy change \( \Delta p_j \) is desirable if and only if it leads to \( \Delta W > 0 \) and \( \Delta W^* \geq 0 \). Thus, it helps Home and leaves Foreign no worse off. For measures that benefit Home, this is the requirement that \( \eta_j \geq 0 \).

While it may seem odd to think about policy changes that reduce Home welfare, they should be considered for completeness. If one is to think about the appropriate rules that should govern interventions to promote jobs, as we will below, one must allow for the possibility of policies that diminish Home welfare. These could plausibly emerge because Home miscalculates the extent of spillovers that would accompany a particular jobs project (a notoriously difficult calculation) or because political economy forces co-opt a legitimate economic idea and misapply it for their own ends.\(^{15}\) In such cases, the non-negativity of \( \eta_j \) would be no consolation at all. Instead, one might apply a do no harm criterion, simply requiring that whatever policy action Home might take, it leaves Foreign no worse off (\( \Delta W^* \geq 0 \)).

While such criteria have the virtue of simplicity, are well-accepted, and seem to underpin some institutional strictures on trade measures, it is not obvious that they are the ones one would want to govern judgments about jobs programs. A prominent alternative would be global utilitarianism. Consider a jobs policy that delivered a very large benefit to Home, but imposed a small cost on Foreign. One might favor such a policy either because it raised global welfare or because it raises the possibility of pairing it with another policy that has the complementary effect of a large welfare gain for Foreign and a small welfare loss for Home. The pairing would thus offer net welfare gains for both countries. This is arguably what countries do in trade negotiations when, by their own estimation, they make politically painful offers of access to their own markets but are compensated by even-more-valuable reciprocal offers of access to foreign markets. Even more simply, this is the case one would favor if international transfers were feasible and the country that gained could and would compensate the other country for its loss. Whatever the motivation, in this case,

\(^{15}\) When the idea of strategic trade theory emerged in the 1980s and offered a rationale for export subsidies, there was a burst of enthusiasm among industries labeling themselves ‘strategic’ and requesting subsidy support. Needless to say, not all were duopolists engaged in Cournot competition, selling exclusively to third markets.
our welfare criterion would be \( \Delta W + \Delta W^* > 0 \).

As a final possibility, one could consider weighted global utilitarianism. Suppose Home is a least developed country while Foreign is prosperous. How would we evaluate a policy that substantially alleviated poverty in Home while imposing an equivalent or greater cost on Foreign? To some extent, this begs the question of what form our social welfare function would take. How would it balance a $100 gain to someone in poverty against a $100 loss to wealthy parts of society? This sort of comparison is difficult both within and between societies. There is obviously some willingness on the part of developed countries to incur losses to achieve gains in the poorer parts of the world, as evidenced by the history of foreign assistance. Yet it is not clear whether the willingness to trade off welfare in that context can be generally assumed across a broader range of economic interactions. If it could, one might have a welfare criterion \( \alpha \Delta W + \Delta W^* > 0 \), where \( \alpha > 1 \) is a weight applied to the welfare of the favored country.

These are long-standing problems in welfare economics and will not be resolved here. They are worth keeping in mind, however, as we go through exemplary situations in the next section and see instances in which the rules of existing institutions seem distinctly imperfect. To set up ideal global rules governing potential rivalry, one needs to have a clear understanding of the welfare goal one is trying to meet. Such a goal would revolve around one of the global criteria described in this section. The appropriate choice between them is by no means obvious.

**V. Are there bright lines for when national jobs programs compete?—Examples and Principles**

Without a clear deductive-reasoning path to distinguish between desirable and undesirable jobs programs, this section offers fodder for inductive reasoning. Rather than grappling with generalities about welfare spillovers, the first part of this section presents a series of quick illustrative examples, meant to represent common questions that arise in policy or out of the literatures described above. The latter part of this section attempts to discern some general principles for how to think about the illustrative cases.

**A. Examples**

1. **An Innocuous Local Spillover**

It might seem, at first blush, that any spillover that is local would minimize the likelihood of negative effects on foreign. It is possible to construct such a case, but more difficult than one might think.

For this first example, consider a case in which our Home country had previously forbidden women to engage in formal employment. For whatever reason, Home then decides to
reverse this policy, but only in a particular non-traded sector, where women will now be allowed to seek formal employment.

There is evidence that encouraging female participation in the formal labor market generates positive local spillovers. While those gains would be more extensive if women in Home were allowed to work in all sectors—not just the non-traded one—we would still expect some benefits. There is no impact on the welfare of the Foreign country because we have shut down the main channels by which any effect could be transmitted: a spillover that crosses borders, or price effects as the policy alters the Home country’s participation in global markets (the motivation for assuming a non-traded good. Thus, in this example:

\[ \Delta W > 0, \Delta W^* = 0, \eta = 0 \]

We thus have a win-win case. Or, at least, a win/no-lose case. But it was not the assumption that the spillover was local that sufficed to insulate Foreign from effects. We had to conjure up further protections through non-traded goods. Building a non-rival example is relatively difficult.\(^{16}\)

2. **Global Spillovers**

Building a non-rival example is made somewhat easier when the Home country dispenses benefits around the world.

Consider a case in which the Home policy, \( p_j \), is to invest in a research and development center. This center will generate knowledge that diffuses instantly around the world—an instance of positive global spillovers. This policy induces welfare gains in both countries. Thus, no rivalry.

\[ \Delta W > 0, \Delta W^* > 0, \eta > 0 \]

The absolute sizes of the welfare changes may depend on the scale of the different economies, but in the absence of rivalry, we need not worry about how they balance out. Everyone is better off.

3. **Creation of a new technology hub**

The previous example may seem hopelessly naïve to some observers. There has been great concern in the United States, for example, about the possibility that actions undertaken by the People’s Republic of China could undermine U.S. technological leadership and all of the benefits that come with it (See, e.g., USITC, 2011). What if the policy, \( p_j \), in Example 2, were

\[ 16 \text{In fact, we may not have gone far enough. One might have to make further assumptions about factor markets and usage in order to avoid a situation in which the entry of women into the non-traded sector releases male labor to other traded sectors, for example, and thereby alters global prices. We need to tamp down general equilibrium effects and linkages between the traded and non-traded sector.} \]
to create a “New Silicon Valley” outside of Shanghai? How could we claim that this would leave U.S. welfare unaffected?

This scenario differs in that the concern is based on the implicit assumption that a significant portion of the spillovers emanating from either the old or new Silicon Valley are local. It illustrates the extremity of the assumption of truly global spillovers. If the benefits truly diffuse instantly across the world, then there would be no difference in the accrual of external benefits if a firm were located across the street in Palo Alto, across the country in Portland, Maine, or across the world in Paris, France. Under this extreme assumption, it follows that if the research center or firm generating these externalities relocates to Shanghai, there will be no impact on its neighbors. A subsidy that increased the generation of knowledge would just provide more of the benefit previously enjoyed.

This assumption about global spillovers seems extreme because it does not fit well with the sort of historical experience that inspired the ‘economies of agglomeration’ literature. The very fact that the technology industry concentrates in a high-priced area like Silicon Valley suggests that there are significant positive spillovers that are local and that a firm would not reap them if it were located elsewhere in the country, much less elsewhere in the world. With such local spillovers, it is entirely possible that Home gains and Foreign loses:

\[ \Delta W > 0, \Delta W^* < 0, \eta < 0 \]

The extremity of the global spillovers assumption in Example 2 is a further illustration of the need to strain to construct innocuous scenarios. If we relax this assumption and allow a mix of local and global spillovers, the net effect is ambiguous. The country not subsidizing the technology hub (Foreign, in our standard terminology) benefits from the global spillovers funded by someone else, but misses out on the local spillovers.

4. **Strategic Trade**

We turn now to a different scenario, straight from the international trade literature. Home identifies an imperfectly competitive sector that offers the promise of economic profits (rents). Assume a duopoly with Cournot competition with all sales to a third country that we can conjure up just for this example. Home adopts a strategic trade subsidy program that expands Home industry production and employment.\(^{17}\) Foreign reacts by moving to a new Nash equilibrium point with lower output. Thus, Home captures a greater share of the rents, along with the new jobs. Foreign production decreases.

\[ \Delta W > 0, \Delta W^* < 0, \eta < 0 \]

There is rivalry. Home’s gains come at Foreign’s expense. Note that in a symmetric situation, \(\eta < -1\), since in the new Stackelberg game, overall rents decrease as total production rises. Foreign’s losses exceed Home gains.

\(^{17}\) With no domestic consumption, there is no difference between a production subsidy and an export subsidy.
5. Tax Incentives

In the previous example, Home targeted a key sector with a production subsidy. In this example, we switch over to the realm of the tax competition literature. Suppose there is a planned factory that generates positive local spillovers, perhaps a semiconductor manufacturer. The parent company had planned to locate the factory in Foreign but is, instead, lured to Home with a targeted tax incentive package. In practice, such measures can prove more popular than the production subsidy described above, since there is not the same requirement of an outlay of funds.

Home now captures the local spillovers from the factory and whatever tax revenues remain after the incentive package. If the tax concessions are limited to the target firm, Home suffers no revenue loss. Foreign, however, loses both the spillovers and the tax revenue it would have collected.

\[ \Delta W > 0, \Delta W^* < 0, \eta < 0 \]

As in the previous two examples, there is rivalry in policies.

6. Retaliation Variation 1—Strategic Trade

Before moving on to other examples, we can relax an implicit assumption from Examples 3-5. In each case we described a policy change in the Home country (\( \Delta p \)) but no corresponding change in Foreign country policies. This partial analysis allowed us to gauge the extent to which Home policies affected Foreign's welfare.

A more thorough analysis should consider the possibility of a policy response from Foreign (\( \Delta p^* \)). This is relatively difficult to do for Example 3, in which we postulated a national move to establish a technology hub. Given the importance of agglomeration economies, we would need to specify more precisely which policy measures were being employed and how firms responded.

It is easier to address the well-established possibility of retaliation in the scenario of Example 4, Strategic Trade.\(^\text{18}\) In our initial case, Home offered its firm an export (production) subsidy, effectively shifting out its reaction curve in a Cournot quantity competition. Suppose the setting is symmetric and Foreign adopts a corresponding policy of subsidizing the firm located in its country. Comparing the outcome to the scenario in which there was no government intervention, the new Nash equilibrium would feature higher joint levels of production—jobs!—but would reduce rents as output levels move further away from the monopoly level. In this case:

\[ \Delta W < 0, \Delta W^* < 0 \] relative to pre-intervention levels. Our metric for policy rivalry is not particularly useful when \( \Delta W < 0 \), as it would now reassure that both countries would experience welfare changes of the same sign—little solace when it is a loss.

\(^{18}\) The seminal paper discussing the limitations of strategic trade policy was Eaton and Grossman (1986).
7. **Retaliation Variation 2—Tax Competition**

In Example #5, the Tax Incentive case, we can ask what happens if Foreign matches the tax concessions offered by Home and retains the factory that emitted positive externalities. Now there is no change in Home or Foreign employment levels, relative to the *status quo ante*, but Foreign has diminished revenue. Thus, if foreign taxation was initially at its welfare-maximizing level, then:

$$\Delta W=0, \Delta W^*<0$$

This is the preoccupation of the “race to the bottom” tax competition literature, described above. As with Example 6, when we allow for a Foreign policy response, not only can the desirability of the Home action be reversed, but we can end up with a Pareto inferior outcome to the *status quo ante*.

8. **Production Subsidy**

For the penultimate example, let us turn to a scenario very much like that in the strategic trade case, only without the special assumptions about market structure and competition that helped drive those results. This example is thoroughly conventional, but illustrates an institutional point.

Here we will assume only that Home is a net exporter of good i and Foreign a net importer. The policy in question will be a simple Home subsidy of the production of good i. Without any special assumptions, we would expect that the sector expands in Home (increased employment), contracts in Foreign, and the world price of good i falls.

For Home, the analysis is standard. In the absence of any positive externalities from Home production, this policy would introduce a distortion and diminish home welfare—the social benefit of the new production would be less than the social cost. If there were positive externalities to the production, it is possible that the positive externalities from new i sector jobs exceed the cost of the subsidies and the terms-of-trade loss and Home might gain.

For Foreign, the presence of positive externalities to the production of good i has the opposite effect. In the absence of any such externalities, the lower price of an import good represents a terms-of-trade gain. In the presence of externalities, the lost benefits that come from decreased production could outweigh the improved terms of trade.

Let us assume for a moment that the positive externalities from sector i jobs are sufficiently small, such that the Home subsidy policy induces

$$\Delta W<0, \Delta W^*>0$$

Foreign welfare increased as a result of Home’s subsidies. Yet under existing rules governing subsidies and trade, Foreign could legitimately retaliate against the subsidies with tariffs. It could argue that Home had subsidized its producers and that this was the
clear cause of injury to Foreign producers, thus justifying the use of a countervailing duty. This highlights a distinction between welfare analysis and institutional practice (to be discussed below).\footnote{The distinction is that the welfare analysis considers Foreign well-being from a broader perspective, adding in the effects on consumers, government, and producers in other sectors. Countervailing duty law asks a narrower question about injury to import-competing firms, not the overall effect.}

9. **Infrastructure**

We conclude with a slight variant on the previous example. It is no more complicated, meant only to illustrate further some of the peculiarities of existing rules.

We preserve the assumptions of Example 8 with one change: Instead of production subsidies in sector i, Home invests in an infrastructure project that is of particular value to sector i. Imagine, for example, an airport upgrade that allows for the export of perishable produce, such as pineapples. Or, this could be an investment in education that would have a particular payoff (e.g. a new curriculum in math or computer aided design). In theory, other sectors could take advantage of this upgrade as well, but we will assume it is not relevant for most (and whatever changes occur in other sectors have only a trivial effect on Foreign welfare).

Just as before, Home costs in sector i drop and production expands, with the same impact on Foreign. By construction, this could have identical welfare impact on Home and Foreign as in the previous example, but would likely not be actionable under any existing institution.

Again, this is because existing rules are not crafted around comprehensive economic welfare analysis but frequently around whether actions cause injury to a competing firm and whether the actions that cause injury are illegitimate. Loosely speaking, specific subsidies to encourage production in a sector are likely to be found illegitimate, while broader social spending on infrastructure or education is considered legitimate, even if it has equivalent effect.

Before delving into questions of existing and potential institutions, the next section attempts to draw some general principles from this collection of examples.

B. **Principles**

The previous section attempted to describe the landscape of interactions between interventions and international rivalry by considering select glimpses of the terrain. In this section, the question is whether we can say anything more systematic to map out which interventions are likely to cause trouble and which are immune from this concern.

The task is a difficult one and no perfect principled roadmap emerges. However, given the popularity of various candidate approaches, it can be useful to explore how well they work.
The question throughout will be what rules one can follow to determine whether a particular program to promote jobs in a country is likely to encounter opposition on economic, legal, or political grounds.

1. **Approach #1: Base the evaluation on the nature of the government intervention.**

This has been the prevailing approach of the global regime governing subsidies and has been a point of substantial controversy. Examples 8 and 9 above differed only in the nature of the intervention; one was a direct payment to an industry while the other provided indirect support through infrastructure. Regimes to regulate subsidy usage under the World Trade Organization and the European Union have drawn distinctions based on the type of intervention.\(^{20}\)

In WTO negotiations, for example, subsidies were categorized into colored boxes: green for acceptable, amber for dubious, red for forbidden. In that last category would lie practices such as direct export subsidies. In the first category might lie subsidies that support research and development, or environmental goals.\(^{21}\) In between might lie various types of industrial support.

While the categorization derives in part from perceptions of which interventions are potentially the most distortionary or damaging, it is ultimately a reflection of whatever negotiators could agree upon and whatever interpretations were later given to those sometimes-vague agreements. Those agreements were influenced in part by a number of factors. Rubini described the principal global subsidies regulatory agreement of the 1970s thus:

“The Tokyo Code showed an ambivalent attitude towards domestic subsidies, recognizing that they may be used to promote important objectives of social and economy policy, and that, at the same time, they may cause adverse effects to the interests of other signatories.” (Rubini, p. 69).

As in the last two examples, the focus on the nature of government involvement rather than on the welfare impact can result in instances in which two measures that have virtually identical impacts can receive very different treatment. In a discussion of European Community regulation of state aid, Rubini (Ch. 6) notes that a direct grant of a certain sum may violate state aid rules, but a regulation that, *de facto*, requires private industry to transfer the same sum to the same recipient would not.\(^{22}\)

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\(^{20}\) For a detailed and careful review of these regimes, see Rubini (2010).

\(^{21}\) The “green” category lived for a while after the conclusion of the WTO’s Uruguay Round in 1995, but has since expired.

\(^{22}\) He gives the specific example of a case in which a Spanish requirement that television stations set aside a fraction of funds to produce local-language content was not deemed an example of state aid.
2. **Approach #2: Base the evaluation on the nature of the spillovers**

What if, instead of looking at the nature of government intervention, we sorted policies by the types of spillover effects they may have? Jobs policies can improve compliance with basic human rights, which can be seen as having broad positive global spillovers. Jobs can promote *social cohesion*, in that they build social identity, networks, and a sense of fairness. They can boost living standards by raising the earnings of others (not just the person employed), altering household decision-making, and reducing poverty. And they can boost productivity through agglomeration effects, facilitating global interaction, and minimizing environmental damage.²³

One might hypothesize a spectrum along which measures to support human rights have broadly positive effects while, at the other extreme, productivity enhancing measures operate through trade and investment flows to affect partner countries who might then lose jobs of their own.

This hypothesis encounters a number of difficulties, however. First, it is not clear that these different types of spillover are uniquely paired with particular jobs policies. Thus, how would one evaluate the ramifications of a policy that had both human rights and productivity effects? It would seem to simultaneously capture the best and worst of global effects.

Second, it is not terribly difficult to construct counterexamples. Suppose that a small, windy island nation developed an enormous advance in capturing wind energy. This would be a significant productivity advance, but would also have important positive global spillovers (as the technology could spread and help reduce energy constraints). Alternatively, if one accepts the presence of peer pressure effects among nations—one rationale for positive spillovers from rights-promoting policies—then there is a danger that excessive labor market regulation could impose negative externalities on those countries to which it spread.²⁴ This last possibility taps into the recurring theme that externalities are inherently difficult to measure precisely and that proper evaluation of the advisability of a policy approach needs to account for the possibility of error.

3. **Approach #3: Base the evaluation on the welfare impact of the policies.**

If the failure of the previous approaches is that they does not always line up well with welfare analyses, one obvious alternative is to base the rules themselves on welfare analysis. This section offers not a practical guide to doing so, but an exploration of the complications that can arise. It is a search for any practicable means of pursuing this approach.

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²³ I am indebted to the World Development Report 2013 team for these insights.

²⁴ This argument has been made, for example, in the context of the spread of European Union regulatory practices to less-developed new member states. In its recent free trade agreements, the United States has also advocated developing country adoption of more stringent regulatory measures governing labor and the environment.
**Absent externalities**

Even in the simplest case, the obstacles are daunting. Suppose there are no externalities (admittedly thereby eliminating many of the motivations for pursuing job creation policies). Suppose a country provides a tax break to an industry, such as oil and gas. The tax break induces an increase in domestic production, which lowers global oil prices. As a general rule, those countries that are net oil exporters will suffer; those that are net oil importers gain.

Even in this oversimplified world, devoid of externalities, there will be winners and losers. It will be very difficult to find policies that offer Pareto improvements, even if we only consider welfare changes at the national level (it is even more difficult if one considers actors within countries).

**With externalities**

Since externalities are often the motivation for interventions, we move quickly to a case where they are allowed to exist. Suppose now that there are spillovers and that they are all readily observable. As discussed above, truly global spillovers may be unobjectionable. Policies that promote such spillovers could be deemed acceptable. Such instances may or may not be common, but they can exist. In a 1994 study, Irwin and Klenow found that there was evidence of learning-by-doing existed in the semiconductor industry (costs fell as firms gained production experience). They found that firms benefited three times as much from their own cumulative production experience than from the experience of other firms, but that these extra-firm spillovers worked equally well across international borders as within. Of course, even in this case, the spillovers were not readily observable; they needed to be teased out of the data.

In the examples above, local externalities presented the scenario that often, but not always, was a cause for concern. When there were local spillovers to hosting a technology hub, or being the dominant producer of large passenger aircraft (strategic trade), the presence of local positive externalities was associated with cases of policy rivalry. But in the first example, in which women were able to join the formal work force in a given sector, the presence of a local positive externality was not an indicator of policy rivalry.

One key distinction that emerges from the comparison is that in the rivalrous cases, the benefits the country was seeking were globally available in fixed or decreasing supply. We presumed that there would be a single “Silicon Valley” technology hub and that if it were to locate in one country, it would only do so by leaving another. In the strategic trade case, the market allowed for a certain level of duopolistic profits. The move from a Cournot game to a Stackelberg game decreased the global industry profits (while increasing the first mover’s take).

In the non-rivalrous case, the global supply of the spillover benefit increased with the domestic subsidy (other countries neither gained nor lost, but new benefits existed where previously there had been none).
Putting this a bit more formally, we can think of a policy action $\Delta p$ in country $H$ that induces an increase in spillover benefits $S_H$. The question is whether that same policy action lowers spillover benefits $S_i$ for any other country $i$. If we consider the effect of the policy on the global supply of benefits

$$S = \sum_i S_i$$

then $\Delta S < 0$ will necessarily mean rivalry; the increase in $S_H$ must be more than offset by decreases elsewhere. If, instead $\Delta S \geq 0$, this is a necessary but not sufficient condition for Home’s gain to be non-rivalrous (even with an increasing pie, a sufficiently large slice for Home can diminish the return to other countries).

Returning to Example 3 above, the subsidization of a new technology hub, one key question is whether this hub substitutes for existing hubs (as assumed) or whether, through the creation of a new product or market, the new addition augments the global supply. One might argue, for example, that in the broader market for conveying information and entertainment, the emergence of Silicon Valley did not replace the traditional publishing hub of New York City (at least for some decades).

We offer three points of note to conclude on this approach:

- For simplicity, the discussion here just spoke of spillover benefits, $S$. While this can be a convenient shorthand, in actuality a full analysis needs to consider both the spillovers and the regular pecuniary effects. In some cases, as in Example 8 above, these can move in opposite directions.

- In the quest for an easy rule of thumb to separate innocuous jobs measures from potentially problematic ones, this section demonstrates that the distinction between global and local externalities does not suffice. While truly global externalities will avoid problems, the implications of positive local externalities were mixed.

- For convenience, this section has discussed externalities as if they are readily observable. In general, however, they are quite difficult to observe, as discussed by Gottlieb and Glaeser (2008). Their discussion revolves around the difficulty of assessing the extent of externalities in a local context. To the extent that rivalry depends on assessing these impacts worldwide, that increases the challenge. Not only are such externalities difficult to observe, but there is an incentive to over-report them when subsidies are at stake.

**VI. Institutional Considerations—Present and Future**

If governments set out to deliver jobs to their workforces, there is a vast array of policies they might adopt, many of which have been described above. This section addresses the
question of what international institutions presently govern these types of policies, if any, and what this might imply about prospects for new institutions.

A. The Coverage of Existing Institutions

We first review some of the major institutions that might be invoked if disputes were to arise over measures taken to promote jobs. In some areas, such as the regulation of subsidies, there are prominent institutions, rules, and enforcement mechanisms that have evolved to regulate their use. For many other policies, such as tax competition or competition to attract FDI, there have been discussions or attempts to establish institutions, but they have not borne fruit, at least not to anywhere near the same extent. Thus, we will focus on the regulation of subsidies.

1. Which institutions for which measures?

There are two relatively powerful international institutions with rules over the use of subsidies: the World Trade Organization and the European Union. As foreshadowed in the examples and analysis above, neither regime manages to align the rules very closely with the recommendations that would emerge from an economic analysis. Sykes (2010) puts it bluntly:

“the detailed (subsidy) rules of the WTO and EU are largely indefensible from an economic perspective...(T)he rules that purport to distinguish permissible from impermissible government activity are frequently incoherent. They rely on arbitrary baselines, distinctions that elevate form over substance, and on myopic analysis of government programs that inevitably masks the full effects of government activity on business enterprise.” (pp. 473-474)

He attributes this not to particular ineptitude or venality on the part of the institutions in question, but rather to the exceedingly difficult nature of the task:

“Government assistance to business enterprise is ubiquitous. Much of what governments do—from highway construction to educational funding to the administration of the courts to direct fiscal outlays to firms—directly or indirectly promotes business activity. At the same time, governments discourage business activity by imposing costs on firms in the form of taxes and regulatory requirements. The net impact of government on business activity in any context thus reflects a complex web of benefits and burdens.”

He reaches a pessimistic conclusion about the prospects for an improved approach:

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25 This section relies heavily on three sources: WTO (2006) provides a useful reference on subsidies; Rubini (2010) offers a thorough analysis and comparison of the WTO and EU treatment of subsidies; and Sykes (2010) adds a comparison to federal subsidy law in the United States and a critique of the functioning of the WTO and EU systems.
“Due to the complexity of the modern economy and the wide panoply of government activity that both encourages and discourages the activities of business enterprise, it is arguably impossible to fashion general principles for the identification, let alone measurement, of undesirable subsidies.”

For all their imperfections, however, both the WTO and the EU have systems that set some rules on the use of subsidies and provide recourse to countries that believe they have been wronged by foreign actions. As these are the principal examples of international regulation of the measures discussed in this paper, we briefly address each regime in turn.

WTO

The World Trade Organization came into being in 1995. One of the most substantial changes it brought to global trade governance was that it replaced a somewhat scattered system of regulation, in which rules might only apply to a subset of participating countries, to one in which the rules applied to the entire membership of the new organization. This had a significant impact on the regulation of subsidies.

There was relatively little limitation of the use of subsidies in the precursor to the WTO, the General Agreement on Tariffs and Trade (GATT). The only strict rule was on export subsidies. To illustrate the degree to which subsidies were permissible, Sykes (2010, 480) notes that in GATT’s Article III, which otherwise required countries to treat their GATT counterparts as they would their own firms (‘national treatment’), an explicit exemption was made to allow for the use of subsidies. Other sections recognized that new subsidies might offset market access countries thought they had obtained in negotiation, and therefore might be actionable. 26

There were more serious moves to limit the usage of subsidies in the Tokyo Round of the 1970s, with the passage of a subsidies “code” and another agreement on trade in civil aircraft (a sector which has featured ample subsidies and is often considered the archetypical sector for strategic trade analyses). In Rubini’s analysis, “The Tokyo Code showed an ambivalent attitude towards domestic subsidies, recognizing that they may be used to promote important objectives of social and economy policy, and that, at the same time, they may cause adverse effects to the interests of other signatories.” (2010, p. 69).

These codes, however, applied only to the subset of GATT participants who signed on; they were not rules globally adopted by the entire body. The “single undertaking” approach of the Uruguay Round changed that for many sectors, prominently including an Agreement on Subsidies and Countervailing Measures (“SCM Agreement”) and an agreement on agriculture (another sector in which subsidies play a significant role). In addition to broadening the applicability of rules, the SCM Agreement strengthened and clarified restrictions. Among other things, it provided a formal description of what qualified as a subsidy:

26 For a brief review of this period in trade governance, see WTO (2012b).
27 Despite the general intent of the single undertaking, a small number of agreements remained plurilateral, such as that on civil aircraft and one on government procurement.
“The definition contains three basic elements: (i) a financial contribution (ii) by a government or any public body within the territory of a (WTO) Member (iii) which confers a benefit. All three of these elements must be satisfied in order for a subsidy to exist.” (WTO 2012a).

There were further requirements, such as that the subsidy be specific—i.e., limited to a particular set of beneficiaries. These points may seem obvious, but they imply some very particular stances on issues raised in the discussions above. For example, what if a government were to issue a regulation that had the effect of putting cash in the coffers of a favored firm? It is an action by a public body that confers a benefit, but probably does not meet the requirement of being a financial contribution. Alternatively, what of a loan from a government that charged market interest rates, but had generous provisions for if the recipient firm ran into financial difficulty? It would seem to be a financial contribution from a government body, but did it confer a benefit?

The potentially large repercussions that stemmed from these particular provisions—and others—of the SCM Agreement were not lost on the Uruguay Round negotiators. The negotiators considered the implications and the talks were protracted and contentious (WTO 2012a). Rubini (2010, p. 57) describes the lack of a preamble to the SCM Agreement as “highly significant...The area is so controversial that Members could not agree on, and did not even wish to expressly spell out, even in a general fashion, the goals of the agreement.”

The relevant point is that the rules that govern international subsidies are not the edicts of philosopher kings bent on maximizing global welfare, but rather reflect compromises among a large number of national negotiators working under political constraints. It is not impossible that such negotiations would reach the same conclusion as the philosopher kings might, but nor should it be surprising when they do not.

The WTO regime that emerged from this process has a number of noteworthy themes in its regulation of subsidy use. The first is that there are effectively two parallel mechanisms for enforcing restrictions on subsidy use: a multilateral one, and a unilateral one. The former operates through the WTO’s Dispute Settlement Mechanism. If one country (“Home”) adopts a subsidy policy that both adversely affects another WTO member (“Foreign”) and contravenes a WTO rule on subsidies, Foreign can lodge a complaint with the WTO. If the WTO were to find in Foreign’s favor, Home could either remove the offending subsidy or Foreign would have the right to retaliate (e.g. by imposing a tariff on Home exports).28

The second mechanism is unilateral. Since the original GATT, Article VI has allowed countries to impose countervailing duties (CVDs) “on subsidized imports that cause or threaten material injury to an established domestic industry.” (Rubini, p. 69). So long as the national process for determining whether subsidies are countervailable meets WTO standards, these cases need not run through the WTO at all. This distributed enforcement

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28 There are further distinctions that can be drawn. Prohibited subsidies, such as direct payments for exports, are forbidden per se. “Actionable” subsidies may be permissible if it is possible to remove the harm to other members. For a detailed discussion, see Rubini (2010), pp. 70-73.
mechanism allows for even greater deviations from a single welfare-maximizing ideal, since countries can take diverse approaches to determining the extent of a countervailable subsidy, determining whether a domestic interest has been injured, and determining whether the linkage between the subsidy and the injury is sufficient to merit a countervailing duty. In this process, injury is measured broadly as harm done to an import-competing firm, rather than harm to the broader national welfare. As described above in Example 8 (Production subsidies) a subsidy from Home could hurt an import-competing producer in Foreign but, by lowering prices for foreign consumers, could still raise overall welfare. Countervailing duty investigations do not perform such calculations, so it should be no surprise that the results under this institution deviate from what might be prescribed for welfare-maximization.29

**European Union**

While the WTO restrictions on subsidy use have the broadest applicability, the other highly developed system for controlling assistance from governments is that of the European Union, where such assistance is referred to as “state aid.” The prohibition against such aid, on its face, appears quite broad:

“save as otherwise provided in this Treaty, any aid granted by a Member State or though State resources in any form whatsoever which distorts or threatens to distort competition by favouring certain undertakings or the production of certain goods shall, in so far as it affects trade between Member States, be incompatible with the common market.”30

But the Treaty quickly follows with provisos allowing assistance in particular cases: public services, economic development of economically disadvantaged regions, projects of common European interest, cultural heritage, or “aid to facilitate the development of certain economic activities or of certain economic areas, where such aid does not adversely affect trading conditions to an extent contrary to the common interest.” (Rubini, p. 74). This is all administered by the European Commission, which has fairly wide discretion over interpretation. One veteran of Commission work on State aid characterized the welfare implications thus:

“...the EU control mechanism is not designed to ensure that aid measures are economically efficient. I would not call this a weakness, it is simply the consequence of how the system was conceived... The Commission is reluctant to take a position on the efficiency of a proposed aid measure, also in view of the division of powers between Member States and the Commission. Ultimately it is up to Member States to decide how they pursue an economic policy adapted to their own situation and spend - or waste - money.” (Sinnaeve, 2007)

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29 In fact, studies have found substantial welfare cost from the application of administered protection (which groups anti-dumping and countervailing duty policies). Gallaway, Blonigen, and Flynn (1999) found combined welfare costs in the United States in the early 1990s to be roughly $4 billion.

30 Article 87 of the EC Treaty, quoted in Rubini (2010, p. 74).
There are a number of parallels between the WTO and European approaches. On balance, Rubini (2010) argues that the European approach is more lenient than that of the WTO on subsidies. In the development of case law, a WTO interpretation is usually adopted by EC so as to avoid conflict. He finds it much more likely that a measure would be EC-legal and WTO-illegal than reverse. (p. 17).

2. Conclusions about existing institutions

The WTO and the EU are not the only institutions laying out rules for the permissibility of subsidies. Similar issues can be regulated by other regional trade agreements as well. Yet those other institutions are not as well developed. As with any legal document, the meaning of agreements’ strictures is only clarified—and sometimes evolves—as it is interpreted through successive decisions by bodies hearing disputes. The WTO and EU have the most extensive collection of such interpretations.

Nor are subsidies the only job-promotion measure for which international rules might pertain. The effects of a tariff can be decomposed into a producer subsidy and a consumer tax. This potential for tariffs to have the same effect was at the crux of the infant industry argument reviewed earlier. Tariff usage is obviously a principal subject of concern of both global and regional trade agreements. But subsidy regulation represents the clearest attempt to balance the sorts of desires that motivate job-creation measures and the concerns about the effects such measures will have on other countries.

Some rough conclusions that one can draw from the WTO and EU experience for institutional coverage of job-creation measures are that:

1. It is possible to reach international agreements that may prevent conflict by laying out countries rights and obligations on such measures.

2. It has not proven possible, so far, to do so with any great degree of clarity. There continue to be ample disputes about whether subsidies are or are not permissible. This lack of clarity reflects unresolved conflicting interests and limits the agreements’ potency in forestalling disputes.

3. The agreements correlate only loosely with those that would emerge from a standard economic welfare analysis. This is not just politics intruding at the margins, but altering the operation of the agreements in a more fundamental way.

This all provides a dual motive for considering the potential for new institutions: can there be improvement on the existing ones in areas already covered, and could there be new institutions that would clarify rights and limit conflict over job-promotion measures? These questions are taken up in the next section.

31 See, among others, Busch (2007).
B. Does this suggest a role for new or improved institutions?

Given the critiques of the existing subsidy regime from the previous section, there would certainly seem to be room for improvement. Further, the literatures on the use of measures like tax incentives to attract foreign investment are replete with concerns about policy spillovers on other countries. Since tax breaks do not constitute a “financial contribution” (as interpreted), they do not run afoul of existing subsidy rules. Nor do they face regulation from any corresponding institution. For these measures, or others described above, what are the prospects for designing new institutions to govern their use in the context of job-promotion efforts?

This section poses three questions to assess the matter: Is there principled agreement on what an ideal institution should dictate? Is there political support or an institutional vehicle for adopting such an agreement? Would such an agreement be enforceable.

1. Is there principled agreement?

While there appears to be a near-consensus that the existing regime to regulate subsidies is flawed, there is no such consensus on what an ideal set of regulations would look like. Sykes (2010) takes a dim view of prospects for identifying such an ideal:

“Government assistance to business enterprise is ubiquitous. Much of what governments do—from highway construction to educational funding to the administration of the courts to direct fiscal outlays to firms—directly or indirectly promotes business activity. At the same time, governments discourage business activity by imposing costs on firms in the form of taxes and regulatory requirements. The net impact of government on business activity in any context thus reflects a complex web of benefits and burdens.” (p. 473).

Thus, one obstacle is disentangling any one measure from all of the others that affect businesses’ profitability, job opportunities, and consumers’ well-being. While it may be possible to perform comparative statics in the context of a simplified model, it is far more difficult in the presence of multiple distortions. In such a world, the “Theory of the Second Best” applies: there is no guarantee that moving from a world with many distortions to a world with some (but fewer) distortions will necessarily raise welfare. There is also the problem of conflicting objectives, on which different actors place different weights. The broad principled statements of the EC Treaty against state aid were quickly followed by a list of exceptions, when interests deemed important might conflict. Even when standard welfare analysis might prescribe a subsidy, Sykes (2010, p. 514) writes that “The task of crafting exceptions for ‘efficient’ subsidies...is enormously difficult.” He notes

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32 This is not to argue that the real world is too complicated to justify any regulatory action. Rather, as the world gets more complicated, policy conclusions will be tied more tightly to particular modeling assumptions and therefore the likelihood of a consensus, in which everyone adopts those assumptions, decreases.

33 Lipsey and Lancaster (1956-1957).
that the WTO attempted such a list with a Uruguay Round list of “green light” categories of subsidies, but that this expired in 2000 and has not been renewed.

This lack of principled agreement extends beyond the world of subsidies. As described in the literature review above, there is a common concern that tax competition to attract investment will lead to excessively low tax rates. Yet an alternative view holds that tax competition serves to temper the excesses of bloated government.

The absence of a consensus on what an ideal governance regime would look like does not necessarily, by itself, kill prospects for a new or reformed institution. There is a small possibility that nations could identify Pareto-improving changes or institutions, even without consensus about a Pareto optimum. That possibility seems more remote for issues such as tax competition, in which there is disagreement about the desirable direction for change. If there were a consensus about a limited set of changes, however, that could permit a stand-alone agreement.

A more likely possibility, though, is that any given bundle of regulatory changes would have proponents and opponents. It could be adopted, but only in the context of a larger negotiation in which opponents of the changes felt they were being compensated by benefits derived elsewhere in the agreement.

2. Is there political support? An institutional vehicle?

While there have been past successes in reaching agreement on new global roles (e.g. the Uruguay Round that created the WTO in 1995), there have been fewer of late than there once were. GATT negotiations initially concluded every few years. Since the late 1960s, however, as rounds covered more topics (such as subsidies) only two rounds have successfully concluded. The latest attempt at broad talks, the Doha Development Agenda, launched in 2001, seems to have reached an impasse.

Nor has the narrow, limited approach to negotiating new institutions fared better than the broad all-encompassing approach. In the 1990s, there was a concerted effort to reach a Multilateral Agreement on Investment (MAI). Initially, in the wake of the Uruguay Round, there was a move to address investment issues in a new WTO round, but this was rejected in a 1996 Ministerial meeting in Singapore. The issue was then taken up by the Organization for Economic Cooperation and Development (OECD). Though the OECD has a limited membership, the idea was that it would be a free-standing agreement to which non-OECD members could accede.

34 This category included research and development, regional assistance, and environmental compliance programs.
36 The MAI discussion is based on Muchlinski (2000).
The negotiations ultimately foundered, even though the issue of incentives to attract investment had been postponed for later.\textsuperscript{37} There were sharp divisions over the scope of the agreement and the nature of restrictions it would adopt. There were ‘defensive’ concerns about the interaction between potential new rules and existing national regulatory regimes. There was sharp division over issues such as the extraterritorial application of national laws governing investment. Ultimately, in 1998, France pulled out, with leaders citing an “unacceptable threat to national sovereignty” (Muchlinsky, 2000, p. 1048).

Thus, the most prominent attempt at a stand-alone agreement failed and the principal multilateral vehicle for an agreement potentially covering job-creation measures lies dormant.

3. Is there enforceability?

Even had the MAI talks concluded successfully, there would have been an issue of how to enforce the agreement. One reason that there have been attempts introduce issues such as intellectual property rights, labor regulation, and environmental measures into global trade agreements is that it can be difficult to enforce accords. There are free-standing international bodies that address such issues—the World Intellectual Property Organization, the International Labor Organization, and a number of environmental agreements. But what options are available to other members if one member transgresses? A fine may be very hard to collect. A reciprocal withdrawal of concessions could be very hard to target.\textsuperscript{38} Nor, in some of these instances, would a retaliation necessarily be incentive-compatible.

Prominent trade agreements, such as the WTO or U.S. preferential agreements, seem to offer an alternative. They have well-established dispute resolution procedures and there are ample opportunities for reapplying protection in ways that hit a single target and are politically incentive-compatible.

Stand-alone measures to address potential international conflicts over jobs measures would have to grapple with the question of enforceability. Such concerns would be greatly eased if the questions were taken up in the context of the WTO, but there does not seem to be any great prospect of a near-term agreement there.

Thus, although there would seem to be ample room for improvement and innovation in international handling of disagreements over job-promotion measures, there does not seem to be either a consensus on what measures are necessary, a viable vehicle for reaching an agreement, nor a means of ensuring that a new accord would be enforceable.

\textsuperscript{37} As but one illustration of the complexity of governing such measures, participants such as the United States and Canada would have had difficulty adopting regulations governing the behavior of sub-national governments (states, provinces, and municipalities).

\textsuperscript{38} To illustrate the point: would the European Union revise its labor regulation just because another small member state had broken an agreement? And if it did, could it ensure that the impact fell on the transgressor, rather than primarily on other big member states.
VII. Conclusions and Policy Guidance

This paper has explored the question of what it means for a government to try to create jobs and considered what the range of likely policies might portend for conflict internationally. Although job creation itself has not been the principal focus of large literatures in international trade, where analysis frequently assumes full employment, the sorts of measures that governments might adopt have been extensively analyzed. The paper reviewed a number of those literatures.

In assessing the potential for conflict, a central assertion was that the desirability or objectionability of jobs-promoting measures could be assessed through different lenses: economic, legal, or political. Even within the realm of economic analysis, it was difficult to provide criteria for measures that were welfare-enhancing. Strong requirements, such as for a Pareto improvement, would drastically reduce the sorts of measures that were permitted. Weaker requirements beg many of the standard questions of welfare analysis concerning how one trades off one party's gain against another's loss. The question becomes even more complicated when one compares economic analyses with existing legal practices and with political assessments, since there is often a sharp disconnect between the three. A series of examples illustrated the sorts of issues that could arise in practical policy settings.

There are international organizations that address some of these issues, most notably the subsidy regime the WTO and the state aid restrictions of the EU. There were important differences between the operation of these regimes and the prescriptions of a welfare-maximizing approach. Nor did prospects for new or improved situations seem bright.

Nonetheless, to conclude on a more optimistic note, the analysis does suggest some general guidelines for how, within existing institutions, it could be possible to structure pro-jobs policies so as to avoid international conflict.

1. Not industry-specific

The more focused a measure is on promoting a specific industry, the more likely it is to either run afoul of existing regulations (as with the WTO requirement of specificity) or to trigger a political response. While broad economic measures are not immune from criticism (see, e.g., discussions of Chinese currency policies), they are less likely to cause conflict.

2. Equally available to foreign and local investors

Just as the previous principle warned against undertaking measures that were industry-specific, this last warns against job-creating measures that favor local investors over foreign investors. Provision of global public goods will raise few hackles; measures to lure firms from other countries will raise many more.
3. **Avoid domestic content requirements or any trade performance requirements**

In an otherwise murky arena of international regulation, there is relative clarity that subsidies tied to exports, or that attempt to alter trade flows by favoring the use of domestic goods over imported ones in production are likely to be violations of trade rules.

4. **Not a financial contribution**

For better or for worse, WTO restrictions on subsidies and EU restrictions on state aid focus their attentions on measures that use the direct transfer of money. Measures such as regulatory changes that might have an equivalent economic effect are less likely to run afoul of such regimes. Institutions of equivalent potency that might take on the more subtle questions of limiting changes in regulatory practice have not emerged.

5. **Not a tradable sector**

This could be a difficult guideline to meet, but the most common trigger to conflict occurs when an import-competing firm objects to the heightened competition it faces as a result of foreign measures. There are no import-competing firms in non-tradable sectors.
References


