Bargaining and International Policy Cooperation

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The past decade has witnessed the growth of a large literature on international cooperation in trade and macroeconomic stabilization policy. Virtually all the models developed to date, however, are based on one of two extreme assumptions concerning governments' ability to commit to international agreements. Either they assume that governments can make constitutionally binding long-term agreements, or else they assume that governments have no ability to make legal commitments whatsoever. In the latter case, international policy cooperation is possible only to the extent that reputational factors will allow.[1]

In this paper, I consider a world in which there is no legal mechanism for enforcing long-term international agreements, but where governments must still incur some small direct costs if they renege. These small costs might arise due to legislative or administrative frictions. I also allow for the possibility that international economic policy agreements can include small sidepayments. For example, in negotiating a bilateral reduction in tariffs, two allies could simultaneously agree to redistribute the burdens of defense expenditures.

I. Bargaining and the Flow Gains from Trade

Allowing for small side payments and small costs of reneging can have a dramatic effect on short-term agreements involving

[1] In some areas of economic policy, restraints on cooperation can actually improve welfare. My 1985 paper for the case of monetary policy, and Patrick Kehoe (1989) for the case of fiscal policy, provide examples where the ability to coordinate policies would exacerbate governments' credibility problems vis-à-vis their own private citizens.

flows (for example, the gains from intratemporal trade). Consider a simple two-country, two-good model in which the representative citizens of both countries have identical homothetic tastes. Production is exogenous and constant. There are gains from trade because the two goods are produced in different proportions across the two countries. Clearly, the laissez-faire free-trade equilibrium is Pareto efficient. It will not necessarily come about, however, unless the two governments can somehow agree on a mutual nonintervention pact. The problem is that if either government could consistently get away with imposing tariffs unilaterally, it would be able to make its citizens better off at the expense of those residing in the other country. Tariff warfare is a classic prisoner's dilemma problem.

Let us assume that the two countries' governments have finite horizons and that the Nash equilibrium to the tariff war is unique. In this case, the laissez-faire equilibrium cannot be supported by reputational factors. It can, however, be achieved if there are small legislative costs to breaking an agreement. Because gains from trade are a flow, neither country will have any short-run incentive to defect from a free-trade agreement. Moreover, once an agreement is broken, both countries will have every incentive to replace it with a new one. Note that free trade can be maintained here even in the last period.

If side payments are possible, efficient trades will still take place, but the gains from trade will be divided according to the relative bargaining power of the two countries. Suppose, for example, that country A enjoys much larger gains from trade than country B (perhaps because A is smaller and less diversified). In this case, country B may be able to extract a side payment from country A in return for agreeing to free trade. Note that B can only extract a small side payment at any given point in time, since it cannot commit to refrain from asking for more money in the

future. But this restriction is unimportant here since the gains from trade are a flow, and *B* can extract a steady stream of payments. Of course, to gain insight into what factors govern the size and the direction of the sidepayments, it is necessary to have a formal model.

As of yet, there exist very few theoretical analyses based on the paradigm suggested here; one special case has been developed by Jeremy Bulow and myself (1988b). We base our analysis on an alternating offers bargaining framework,[2] in which a key feature of bargaining is that the parties can only strike bargains over current flows. Since any long-term deal is subject to renegotiation, countries must constantly recontract. In our setup, both countries are risk neutral and there is full information. Consequently, in equilibrium a deal is always reached without delay, and side payments depend only on the relative magnitude of each countries' gains from trade and on their relative discount factors. If the two countries were risk averse, however, the richer country might be able to bargain for a larger share of the gains from trade. With risk aversion, the poorer country has more to lose from a breakdown in trade. Thus the bargaining paradigm suggests a loose sense in which a free-trade equilibrium can involve strategic exploitation.

Once one departs from a pure endowment economy and allows for investment, the ability to make bargains over flows is no longer enough to achieve an efficient equilibrium. The problem is that countries will have an incentive to distort investment patterns to improve their bargaining position in future periods.

Clearly, a bargaining paradigm only makes sense in situations where individual countries have monopoly power. If the world consists of a large number of countries and the usual assumptions for perfect competition are met (for example, no increasing

returns to scale), then of course strategic problems disappear. For example, if a country can import its wheat from any of a large number of competing countries, then there cannot be any bargaining incentive for it to subsidize an uncompetitive wheat-farming sector.

II. Bargaining and Mercantilism

History provides an important example of how bargaining factors can dictate trade policy. Modern textbooks almost universally condemn the mercantilists for arguing that countries should always strive to run trade surpluses. After all, a government's objective ought to be to maximize its citizens' utility, not their wealth. But as Eli Hecksher (1955) noted, the mercantilists had completely rational reasons for their policy recommendations. Back in mercantilist times, countries frequently had to rely on mercenary armies to fend off invaders or to protect colonies. To ensure survival, it made sense to have an ample supply of gold on hand. Even during peacetime, a country's ability to project military power improved its bargaining position vis-à-vis its colonies and other competing empires.

III. Reputational Mechanisms for Enforcing Trade Agreements

Standard reputational models provide a different approach to analyzing international policy cooperation (see Matthew Canzoneri and Dale Henderson, 1988). A prototypical example arises in the case where governments have infinite horizons and do not discount the future very heavily. Then the laissez-faire equilibrium can be maintained if both countries believe that any defection from free trade will ultimately lead to a prolonged state of tariff warfare. If governments have high discount rates, then some cooperation is still feasible, but not enough to achieve efficiency. How realistic is the repeated-game reputation paradigm? One can plausibly argue that the postwar consensus to adhere to free trade was strengthened by memories of the tariff wars of the 1930s. On the other hand, a problem with the repu-

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[2] The analysis extends Ariel Rubinstein's 1982 model to the case where two parties continually bargain over flow gains from trade, and where any long-term agreement is subject to recontracting.

tational models is that they admit a broad range of equilibria, and a substantial degree of coordination seems to be required to achieve the optimal one (see my 1989 paper). Also, the assumptions underlying the present bargaining approach appear to be more realistic in many contexts.

It is not my intention here to criticize earlier approaches to analyzing cooperation, since these approaches have yielded some important insights. Rather, I hope to show that a bargaining-theoretic view of policy coordination provides a fresh and interesting perspective on a variety of problems.

IV. Bargaining and Net Capital Flows

Small legislative frictions and small lump sum side payments are of far less use in striking deals over *inter*temporal trade. When the costs to reneging are small, countries have no way to commit to making large lump sum payments; this precludes efficient allocation of international investment funds as well as efficient risk sharing. Reputational factors can in principle support significant net loans across large countries, but there are a number of reasons (such as coordination problems) for believing that these are not always operative.[3]

Thus our bargaining model suggests that net international lending may be much smaller than a general equilibrium model might predict. Indeed, to a first approximation, this view may be accurate. Net capital flows have seldom been very large historically; this observation is the mirror image of Martin Feldstein and Charles Horioka's (1980) finding that savings and investment are highly correlated across countries. Clearly they must be correlated if countries are unable to commit to making large net transfers. Many other possible explanations of the Feldstein-Horioka finding have been advanced, but the above rationale is perhaps

the simplest. It is also potentially consistent with the observation that *gross* international capital flows can be quite large. Bargaining problems are likely to be most severe when a country is a large *net* debtor or creditor.

Obviously, the above discussion abstracts from some subtle and important domestic distribution questions. Among home residents, those who hold assets abroad are likely to have very different interests from those who are net debtors to foreigners.[4] It is also important to recognize that a country may have a positive net asset position in some countries that is offset by negative positions in others. Understanding how heterogeneity affects the scope for intertemporal trade is an important topic for future research. Nevertheless, a simple bargaining framework may well provide a more realistic picture of intertemporal international trade than the classical complete markets macro model does.

V. Bargaining and LDC Debt Plans

A bargaining approach also provides an interesting perspective on plans for alleviating the Third-World debt crisis. For example, one important class of plans involves the creation of a new multilateral lending organization (see Peter Kenen, 1983). The new agency would issue bonds and use the proceeds to buy up Third World government debt at discount. It would then pass on the discounts to troubled Third World debtors, thereby helping to relieve the debt overhang problem. This is an interesting and important idea, but there are two possible drawbacks. The first is that it would not be easy for the new debt agency to buy up the debts without bidding up their prices (see Bulow and myself, 1988a, 1990). I will ignore this problem here. The second has to do with the implicit assumption that once developing-country debts have passed into official hands,

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[3]Bulow and I (1989) argue that, in theory, it is very difficult for small countries to have a reputation for repayment. If so, then a small country must try to borrow under the umbrella of a large country's legal system.

[4]Bulow and I (1990) emphasize that the bargaining factors underlying private international debt negotiations are often quite different than those underlying debt negotiations between governments.

they will be paid off like clockwork..A bargaining approach casts doubt on this proposition. Historically, developing-country governments have been successful in extracting positive net resource flows from industrialized-country governments. (Private creditors are much tougher bargainers.) Why should the creation of some paper claims have any fundamental effect on this process? Bulow and I (1990) argue that developing countries would never make significant repayments to a multilateral debt agency, and that industrialized-country taxpayers would ultimately be forced to honor the agency's own bond debts.

VI. Conclusions

To date, there has been only a limited amount of formal research applying bargaining theory to international policy cooperation. I have argued here that this paradigm is a fruitful one for analyzing a broad range of problems. Under certain conditions, bargaining can lead to efficient intratemporal trade. However, the gains from trade are divided according to the relative bargaining power of the two countries and not simply according to the difference between autarky and free-trade utility levels.

In general, achieving efficient intertemporal trade is much more problematic. Bargaining problems may explain why net international capital flows are relatively small (the Feldstein-Horioka hypothesis) whereas gross flows are much larger.

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