No. 97

NEGOTIATION STRATEGIES IN INTERNATIONAL ORGANISATIONS:
A GAME - THEORETIC VIEWPOINT

Sérgio Ribeiro da Costa Werlang
- 1987 -
1. A Game Theoretic View of International Organisations

The system of laws, rules and regulations known as "international law" is very distinct from the legal code of sovereign countries. The reason is that, in any country, there are institutions whose objective is law enforcement. For example, the police is one of such institutions. In the system of "international law" there does not exist any institution strong enough to enforce the laws. Hence, if a country who is signatory of an international agreement decides not to follow it, there is no way of directly forcing this country to abide by the agreement.

How is it possible that an organisation which intends to regulate relations among countries, like the GATT, can be effective?

The answer to this question lies in game theory. Each country should be viewed as a player, primarily interested in its own welfare. This game is obviously a multistage game. At every point in time a country is faced with the problem of participating or not, of cooperating or not, with the other countries. For the sake of argument, let us consider the case of the GATT.

The GATT is an international organisation whose objective is to regulate international trade practices. Anytime

* From IMPA/CNPq and EPGE/FGV.
it wants, a country may increase domestic welfare by raising import barriers. This well known increase in welfare hurts the rest of the international community. As a result, if each country acts in this selfish way, the world as whole loses.

However, one should remember that this situation will repeat itself over and over again. Therefore, it could be that the one shot gain by imposing trade barriers, is outweighed by the loss of a long-standing cooperation. For example, all countries might have agreed to end all their trade barriers, until one of them raised barriers again. In this case the countries would retaliate against the recalcitrant, by isolating it from the international trade system. Obviously the penalty for not following the agreement is too strong in today's terms. Nevertheless, the situation captures the basic intuition behind the stability of an international organisation. A possible threat by the other participants may hurt much more than the egoist gain obtained through non cooperation. Therefore, in repeated situations, much higher degrees of cooperation may be obtained, than in the one shot game.

Here we find the rôle of international organisations, as the GATT. The GATT is an organisation which coordinates all countries in such a way that countries take the most advantage they can from the dynamic character of international trade. The GATT is an institution whose function is to manage a noncooperative equilibrium of a repeated game. This is also the point of view of Mayer (1981), Dixit (1986) and Mc Millan (1986).

The main notion of noncooperative equilibrium is Nash equilibrium. We say that a set of players are playing a Nash equilibrium, when each of them chooses a strategy such
that, given what the other players are doing, no player gains by deviating alone from its equilibrium strategy. As an introduction to game theory, see Davis (1970). For more advanced material, as well as intuitive descriptions of noncooperative games, refer to Friedman (1986). In this text we assume Nash equilibrium is a well known and well accepted noncooperative equilibrium notion.

The rest of the paper is organised as follows. Section two describes a tariff war between two countries, that is to say, the one shot game of raising tariff barriers between two countries. This was first pointed out by Johnson (1953-54). Section three deals with the GATT itself. First, we see the repeated version of the tariff war game, and the theoretical results concerning it. The main results are the multiplicity of equilibria, and the possibility of getting, basically, any efficient outcome which is individually rational. Then, we interpret the successive events on international trade, especially the increase in protectionism which has happened since 1973. This is the first point where we strongly differ from Mc Millan (1986). Mc Millan's version of the fact is that we are at one of the multiple Nash equilibria of the repeated game. My interpretation is completely distinct. In fact, what we saw in 1973 was an abrupt change in the world relative prices of energy/labour. This completely changed the payoffs of the one shot game. For this reason the system needed to change the path it followed towards free trade. What we have seen since 1973 is a simple adjustment due to the fact that the old path, which was negotiated at the Kennedy Round, was no longer satisfactory. What we mean by satisfactory will be seen in section four.

Section four gives an interpretation of the negotiation
procedure. This is the second point where I sharply disagree with Mc Millan's analysis. In his viewpoint the negotiation in an international organisation is simply a dispute to choose among different Nash equilibria to be attained. This is because two different Nash equilibria of the repeated game will lead to two different outcomes in the long-run. And country one may prefer one equilibrium outcome, while the other country may prefer the other one. In general this point could be correct. But in international trade negotiations there is no question that the countries aim at an equilibrium which will lead them to free trade in the long-run. That is, in game-theoretic terms, free trade is a focal point. What countries disagree on, is how to get there. I illustrate this with a simple numerical example. Some paths of tariff cuts toward free trade, may hurt one country, and increase the other country's welfare. Mayer (1981) also points out that tariff cutting should be done in such a way that neither country will be worse off.

Finally, in section five we specifically discuss the Uruguay Round, negotiation techniques and policy suggestions. This section is heavily based on the theoretical arguments previously developed, and on the GATT document "Trade Policies For a Better Future - Proposals for Action", of March 1985, which contains the guidelines for the Uruguay Round.

2. Tariff Wars

If international trade is all done under perfect competition, and a country unilaterally imposes tariffs, this country's welfare will increase. However the welfare of some of the other countries will decrease. One may argue that there is no unique way to
measure this welfare, or that such statement is ambiguous, or that markets are not complete, and so on. This is not our concern here. It is widely agreed among economists that under perfect competition, and complete markets there are welfare gains from unilaterally raising trade barriers, at least if there are no domestic barriers yet in the product lines where barriers are raised.

Hence, there is an incentive for countries to engage in a war of raising barriers to trade. In this, and in the next two sections, we will consider only tariff barriers.

The first person to model this was Johnson (1953-54). Mayer (1981) casts the model in a more modern theoretic framework. We will follow closely Dixit (1986). There are only two countries, (A and B), no production, and two goods. Each country is represented by a single consumer. It is well known that this causes problems, as Dixit and Werlang (1985) point out. However, it greatly simplifies the analysis and highlights the basic issues we are interested in. Country A exports good x and country B exports good y. Country A taxes good y by \( t_A \), and country B taxes good x, by \( t_B \). Suppose endowments are \( W_A = (W_{xA}, W_{yA}) \) and \( W_B = (W_{xB}, W_{yB}) \).

Let \( x_A(p_x, p_y; I_A) \), \( y_A(p_x, p_y; I_A) \), \( x_B(p_x, p_y; I_B) \) and \( y_B(p_x, p_y; I_B) \) be the demands of countries A and B for goods x and y respectively under no tariffs. Here \( p_x \) and \( p_y \) represent the prices of good x and y, and \( I_A \) and \( I_B \) the incomes of countries A and B, respectively.

The general equilibrium prices with tariffs \( t_A \) and \( t_B \) are a pair \((\bar{p}_x, \bar{p}_y)\) which solves:
\[ x_A(p_x, p_y(1+t_A); I_A) + x_B(p_x(1+t_B), p_y; I_B) = \]
\[= W_{xA} + W_{xB} \quad \text{and} \]
\[ y_A(p_x, p_y(1+t_A); I_A) + y_B(p_x(1+t_B), p_y; I_B) = \]
\[= W_{yA} + W_{yB} \]

where

\[ I_A = \bar{p}_x \cdot w_{xA} + \bar{p}_y w_{yA} + t_A \cdot p_y \cdot y_A \quad \text{and} \]
\[ I_B = \bar{p}_x \cdot w_{xB} + \bar{p}_y w_{yB} + t_B \cdot \bar{p}_x \cdot y_B \]

Clearly \( \bar{p}_x \) and \( \bar{p}_y \) are functions of \( t_A \) and \( t_B \). Let us indicate this by \( \bar{p}_x(t_A, t_B) \) and \( \bar{p}_y(t_A, t_B) \). The welfare of country A is the utility its unique consumer gets at \((x_A, y_A)\), that is to say:

\[ W_A(t_A, t_B) = u_A(x_A, y_A), \]

where \( x_A \) and \( y_A \) are the demands of country A at prices \( \bar{p}_x, \bar{p}_y \) and tariffs \( t_A \) and \( t_B \), and \( u_A(x, y) \) is country A's utility function. Similarly, \( W_B(t_A, t_B) = u_B(x_B, y_B) \), where all symbols are defined accordingly.

We have, thus, a game, where each country may choose its tariff levels, \( t_A \) for A and \( t_B \) for B, and the payoff functions are \( W_A(t_A, t_B) \) and \( W_B(t_A, t_B) \). Under usual conditions, each country's tariff harms the other, that is: \( \frac{\partial W_A}{\partial t_B} < 0 \) and \( \frac{\partial W_B}{\partial t_A} < 0 \). Following our early discussion, we have that \( \frac{\partial W_A}{\partial t_A} > 0 \) for \( t_A = 0 \), and \( \frac{\partial W_B}{\partial t_B} > 0 \) for \( t_B = 0 \). That is to say, country A gains by restricting trade slightly if it is initially not doing so, for any value of \( t_B \), and similarly for country B.

A Nash equilibrium of the tariff war game is a pair
Let us assume that the first order conditions \( \frac{\partial W_A}{\partial t_A} = 0 \) and \( \frac{\partial W_B}{\partial t_B} = 0 \) determine the maxima of the corresponding country's welfare. In other words, \( \frac{\partial W_A}{\partial t_A} = 0 \) gives the locus of \( (t_A, t_B) \) such that, given \( t_B \), country A maximizes its welfare \( W_A \). It should be clear that \( (\tilde{t}_A, \tilde{t}_B) \) which solves \( \frac{\partial W_A}{\partial t_A} = 0 \) and \( \frac{\partial W_B}{\partial t_B} = 0 \) is a Nash equilibrium.

In order to analyse graphically the tariff war game, let us use the special shapes of Figure 1, commonly regarded as central in this analysis. In the \( (t_A, t_B) \) space, we have the indifference levels of \( W_A = \text{constant} \) and \( W_B = \text{constant} \). Vertically lower \( W_A \) indifference curves correspond to higher country A welfare, \( W_B \) indifference curves further to the left have higher country B welfare. (i) We assume that the locus corresponding to the equation \( \frac{\partial W_A}{\partial t_A} = 0 \), the curve \( R_A^{R_A} \) (reaction function of country A) looks like it is negatively sloped. Such need not be the case, but for our present purpose that does not matter. Similarly we have \( R_B^{R_B} \) the locus of \( \frac{\partial W_B}{\partial t_B} = 0 \).

(ii) It is assumed that \( R_A^{R_A} \) and \( R_B^{R_B} \) have a unique intersection point \( N \). As above, \( N \) is a Nash equilibrium of the tariff war game. Neither country independently would want to change its tariff rate away from \( N \). Note that \( N \) happens for positive tariffs \( (\tilde{t}_A, \tilde{t}_B) \). The central case under consideration assumes that the free trade point \( F \) is preferred to \( N \) by both countries.
Figure 1

Region of autarky

Contour of $W_B$

Contour of $W_A$

$P$

$N$

$E$

$t_B$

$t_A$

$Q_B$

$Q_A$

Figure 1
Figure 1 shows three other loci that prove useful. The first, EE gives the Pareto efficient combination of tariff policies. A pair \((t_A', t_B')\) is said to be Pareto efficient if there is no other pair \((t_i', t_j')\) such that \(W_A(t_A', t_B') > W_A(t_A, t_B)\) and \(W_B(t_A', t_B') > W_B(t_A, t_B)\), with strict inequality for at least one of the countries. A Pareto efficient situation requires the relative prices to be the same in both countries, i.e.

\[
\frac{p_x}{p_y(1+t_A)} = \frac{p_x(1+t_B)}{p_y} \implies (1+t_A)(1+t_B) = 1.
\]

Of course F is in EE, but there are other Pareto efficient points where one country subsidises its imports. These Pareto efficient points are preferred to free trade by the country which does not subsidise. Hence, one may argue that these points are not actually feasible, since the country which is worse off (relative to free trade) is subsidising the imports. Thus, we restrict ourselves to the region \(t_A > 0\) and \(t_B > 0\). Now, we have that the Pareto efficient points which are preferred to N by both countries is PP. It should be clear that F lies in PP.

The third locus that is of interest is the locus of the tariff combinations that eliminate all trade. Let \(p_A\) be the relative price of x in units of y which turns country A into an autarky, that is, turns it to be neither an importer or exporter. Symetrically, define \(p_B\) to be the autarkic relative price of x for country B.

\[
p_A = \frac{p_x}{p_y(1+t_A)} \quad \text{and} \quad p_B = \frac{p_x(1+t_B)}{p_y} \implies (1+t_A)(1+t_B) = p_B/p_A.
\]
One should note that \( \frac{p_B}{p_A} > 1 \) because country B imports x. This is simply the principle of comparative advantage. This gives us the locus AA above which we have the autarkic region. This locus lies above EE because \( \frac{p_B}{p_A} > 1 \). Suppose AA meets the axes at \( Q_A = (t_A, 0) \) and \( Q_B = (0, t_B) \), respectively.

We are now ready to find the other Nash equilibria of the tariff war game. Let \( (t_A, t_B) \) be such that \( t_A \geq \hat{t}_A \) and \( t_B \geq \hat{t}_B \). Each country's tariff is so high that no trade occurs even if the other country sets a zero tariff. Hence, they are at an autarkic Nash equilibrium. The existence of autarkic Nash equilibria was first noticed by Dixit (1986), from whom this section is drawn. In the next section we use the results of the one shot game to derive implications when the game is seen as repeated in time.

3. The GATT Model

In the real world, the one shot game seen in the last section happens every day. Therefore, it is not appropriate to deal with the GATT as choosing one of the two types of Nash equilibria of the tariff war game. The first thing to note is that by repeating that game a finite number of times, the international trade system may achieve a substantially higher degree of cooperation than the trade equilibrium N. This point is formally made clear by Benoit and Krishna (1985). We will describe their arguments step by step. We start by describing why one should only consider equilibria where incredible threats are impossible.

In games where moves are not simultaneous there are
problems with the Nash equilibrium notion. A Nash equilibrium may present incredible threats. For example, let us see the following very simple game. There are two players: child and mother. The child may obey or disobey the mother. If the child obeys, the game ends. If the child disobeys, the mother may punish or not. Schematically we have in Figure 2.

By the description of Figure 2 there are obvious ways of ranking the various outcomes of the game, two Nash equilibria result from that. In the first, the mother threatens the child to punish in case of disobedience, and the child obeys. In the second, the child disobeys and the mother does not punish. Observe, however, that the first Nash equilibrium presents an incredible threat: if the child disobeys, despite the mother's warning, what should the mother do? She clearly prefers not to punish the child, and hence, there is no reason why she should stick to her threat (Note: this game is being
played only once. In case of repetition, things are different. Therefore, the first equilibrium is not an adequate description of the real situation, when we take into account the sequentility of the game. Although before the game starts the mother may threaten the child, the very fact that she can change her mind after the child plays, destroys any Nash equilibrium with incredible threats.

Technically, a Nash equilibrium with no incredible threats is called a subgame perfect equilibrium. All equilibria which are sensible in a repeated game must also be subgame perfect.

Note that repeating the one shot equilibrium for all the time the game is played is a subgame perfect Nash equilibrium of the repeated game. This is easily seen once we think how much one of the two players could gain by deviating alone from the equilibrium, at any point in time. It is obvious that anything the deviation will always give the country is less than what the country would get if it stuck with the equilibrium strategy N at all times. This occurs due to the very definition of N as a Nash equilibrium.

In the same fashion, let A by any autarkic Nash equilibrium. If the countries alternate between N and A in any possible way, this also constitutes a subgame perfect equilibrium of the repeated game.

What Benoit and Krishna note is that, since at any autarkic Nash equilibrium (A) both countries are worse off than at the trade Nash equilibrium (N), basically any point inside the Pareto frontier can be obtained as an outcome of a subgame perfect equilibrium of a long enough repetition of the game.

This is known as the "Folk theorem" for finitely
repeated games. As a matter of fact, what Benoit and Krishna's result does, is to allow us to think about the repeated tariff war game as an infinitely repeated game. All the characteristics of the subgame perfect outcomes of infinitely repeated games are present in finitely repeated games with two Nash equilibria. For infinitely repeated games, the "Folk theorem" is known for a long time. See Aumann and Shapley (1976) and Rubinstein (1977, 1979).

We will base the theoretical discussion of this part on the more realistic model of infinitely repeated games with discounting, solved by Abreu (1983, 1986). Discounting is a word whose meaning is: other things constant countries (or players) prefer the present to the future. One may also think it as meaning that countries are impatient: the sooner the problem of achieving free trade is satisfactorily solved, the better.

The basic structure of an equilibrium of the repeated tariff war game with discounting is the following. The countries agree on a certain outcome. If one of them deviates from the agreed outcome, the other starts a punishment. The punishment is longer, the more the deviating country persists in the deviation, and the greater the number of previous deviations. Abreu showed that there is a most severe punishment which can be applied to a player which deviates from the equilibrium, and this most severe punishment leads the closest possible to the Pareto efficient frontier.

This brings us back to the GATT. As we said before, the GATT is an institution whose objective is to manage a Nash equilibrium of the repeated tariff war game. The main instruments of the GATT are described in Articles I and II (see Rego Barros Netto (1987)): the most favored nation clause and the reciprocity
idea. The most favored nation clause, in Article I, simply extends to all signatories a concession bilaterally obtained. This is a simple way of trying to get the closest possible to the Pareto frontier.

On the other hand, reciprocity is the main concession/punishment strategy. Although not formally defined, reciprocity means that any concession of one country to another country, must be followed by a concession of equal value to the first country. Reciprocally, anytime a country deviates, the country that suffers from this deviation, must retaliate by raising barriers to trade from the first country, in equal value of the harm it suffered. Reciprocity is a simple rule, and this is no doubt a big advantage to it. However, it is not clear at all that it is the most adequate punishment rule for countries who deviate from equilibrium (see also Eberle, Gardner and Moller (1986), page 18). In fact, according to Abreu (1983, 1986) the best that could be done to punish a deviating country is to harm it the most, for a short period. Hence a good alternative to reciprocity, when taken as a punishment strategy, is a rule like: if a country raises trade barriers with no previous agreement of the GATT, all the other countries should simply impose enormously high tariffs against it, say of 1000%, in order to isolate this country for a certain known period, from the international trade system. This is the most severe punishment a country can suffer, and will lead to the highest possible cooperation level.

The Kennedy Round led to substantial tariff reduction on world trade. This was one of the main factors to cause an unprecedented prosperity and growth for the world economy in the sixties and beginning of the seventies. However, the mid-seventies brought a tremendous increase in protectionist
measures, mainly non-tariff, out of the GATT measures (see Marques and Nogueira Batista Jr. (1986)). Why is it so? Certainly it is very strange to think the world was trapped into a low-welfare level Nash equilibrium of the trade game, as McMillan (1986) argues. The explanation for this fact instead lies in the sharp relative price change occurred in 1973 with the first oil crisis. It happened that the relative price energy/labour abruptly changed, requiring a worldwide change in production technology. This implied a change in the payoffs of the trade game. The Kennedy Round method of getting to free trade, no more represented the best way to achieve this purpose. This led the countries to raise trade barriers in the short run, in order to recycle their workers. Later on, the second oil shock in 1979, and the interest rate shock of the U.S. Reagan administration (1980), made this technology conversion slower. Also domestic industries, where recycling was necessary, and labourers, who should be retrained, forced big lobbies for protectionist measures. As a result the world is trapped into a low-level equilibrium of a new tariff war game, and the Uruguay Round is supposed to improve international trade again. See, for example, the GATT Proposals for Action (1985).

4. Negotiations in the GATT

Again, we concentrate, in tariff reduction negotiations. In section 3 we saw that basically any point in the Pareto frontier could be obtained by an agreement in the GATT. If we think we are, to begin with, at the trade Nash equilibrium \( N \) (in Figure 1), we can achieve, through cooperation, any point in \( PP \). McMillan's argument is that the negotiation process is just a way to determine which point of the Pareto frontier we will get at, in the long run.
I think this is not the case. In fact, although his point of view is correct in general, when one thinks of international trade negotiations, it is obviously in everyone's mind that free trade is the long run equilibrium, i.e., the point F. This is what game-theorists call a focal point.

What countries may disagree, is in a way to get from N to F. In Figure 1, it is clear that we can find a tariff reduction path which both countries prefer to N. We provide here a numerical example of such fact.

If we follow the model presented in section 2, suppose we have countries with: $u_A(x,y) = (xy)^{1/2}$, and $u_B(x,y) = (xy)^{1/2}$. Also, suppose $w_xA = W$, $w_yA = 0$, $w_xB = 0$, $w_yB = W$. Then, making all computations, we have the welfare functions:

$$W_A(t_A,t_B) = \frac{1}{2} \cdot W \left( \frac{2(1+t_A)}{(2+t_A)(2+t_B)} \right)^{1/2}$$

$$W_B(t_A,t_B) = \frac{1}{2} \cdot W \left( \frac{2(1+t_B)}{(2+t_A)(2+t_B)} \right)^{1/2}$$

One should not try to find the Nash equilibrium of this tariff war game (to see another example fully computed, see Gorman(1957)). It does not exist. Given the Cobb-Douglas utility functions, and the fact that each country needs a positive amount of the endowment of the other country to get utility higher than zero, they will always want to negotiate, no matter how high are each one's tariff rate. This is not important. We just want to illustrate how we can get from a situation with tariff, to a situation of free trade, with both countries getting higher welfare in each step of the tariff cutting process.

The tariff cutting will be done in two periods. In the
first step, we reduce tariffs by 50%. In the second step we get to free trade. Let the initial tariffs be \( t_A = t_B = 1 \) (100%).

Call the periods by 0, 1 and 2. Let \( W_{A0} = W_A(1,1) \), \( W_{B0} = W_B(1,1) \), \( W_{A1} = W_A(1/2,1/2) \), \( W_{B1} = W_B(1/2,1/2) \), and \( W_{A2} = W_A(0,0) \), \( W_{B2} = W_B(0,0) \). By making all computations we see that both countries approve the tariff cutting procedure:

\[
W_{A0} = W_{B0} = \frac{W}{3} \approx 0.3333W
\]

\[
W_{A1} = W_{B1} = 0.3464W
\]

\[
W_{A2} = W_{B2} = \frac{\sqrt{2}}{4} W \approx 0.3536W
\]

It should be easy to see that some tariff cutting processes may hurt one country more than the other. In fact, suppose that in the first step, country A alone has to cut 10%. In the second period, country B cuts 100% together with the 90% left of country A. In this case, \( W_{B0}' \), \( W_{B0} \), \( W_{A2} \), \( W_{B2} \) are as before, and:

\[
W_{A1} = 0.3304W, W_{B1} = 0.3390W
\]

We see that country A would oppose to this scheme, while B would approve it.

In general, although I have not proved it, there must be a way of getting to free trade where all countries will, at any step of the tariff cut, be better than in the previous step.

By its turn, different countries may prefer different cutting formulas. They should in turn bargain for different cutting formulas. For some cutting formulas see Mayer (1981). Dixit (1986) also discusses this point. Bargaining over tariff cutting formulas is more complicated, and will not be discussed.
here. In the next section we apply the model previously presented to the Uruguay Round and its objectives.

5. The Uruguay Round

We are ready to discuss the negotiation round, which is happening, the Uruguay Round. The main objectives of this round are described in "Trade Policies for a Better Future—Proposals for Action" - GATT(1985). We list some of them, which we think are important to comment on:

(i) Non-tariff barriers;
(ii) Agricultural goods;
(iii) Textiles;
(iv) Services;
(v) Reciprocity and LDC's

The Kennedy Round's reduction in tariffs was possible because there was a unique parameter to measure how far (or near) a country was form the free trade point: the tariff levels themselves (see Albregts and Gevel (1969)). We are faced now with a more complex problem. How should a country bargain to exchange its "sanitary rules" with a "voluntary export restriction" from another country? This is quite hard, and would make negotiations almost case-to-case and bilateral, which is clearly inferior to the multilateral negotiations. To deal with this problem we suggest:

1) A list of all non-tariff barriers existing. Together with it, one should give a definition of such barriers, and check whether new ones are being developed;

2) A way to compute equivalent (this means a tariff level which provides equivalent protection) tariffs should be
agreed upon by all countries;

3) The non-tariff barriers should be converted (in their
country) into an equivalent tariff;

4) Negotiations should always be based on this unique
parameter: the tariff level.

Concerning agricultural goods and textiles, they
should be included in the negotiation as any other good.

There is no economic rationale to exclude services
from international trade discussion. The main point the
negotiations should be aware of, is that debt interest is a
service itself and, as such, should enter in the negotiations. After
this point is realised, trade in services should not be treated
as different in any sense from trade in goods.

Reciproc ity, as remarked in section three, is not the
most effective way of punishing a country from deviating from
the norms of the GATT. Game theory tells us that there are ways
of enforcing higher degrees of cooperation than by the simple
reciprocity rule. One such rule would be to impose tremendously
high tariffs on all goods and services of a country that does
not follow the General Agreement rules for a fixed amount of
time. For example, a 1000% tariff rate. The view that reciprocity
should not be the only way of punishing is not new. See Eberle,

The LDC's are "protected" by concessions known as
systems of preferences. The main idea is that, in being members
of the international trade system who do not respond for a big
share, they should be given special treatment. Gutierrez (1986)
shows that the U.S. Generalised System of Preferences was a "good
deal" for Brasil. I think her view, as well as of the whole system
of preferences idea, is very short term and myopic. In fact, the
system of preferences prevent the LDC's to have a retaliating strategy against some harm they feel they suffered. Nowadays, the group of ten, of which the main members are Brasil, India, Argentine, Yougoslavia and Egypt, already represents an independent group with relevant volume of trade. As a result, LDC's should also be required to comply with all GATT rules.

On big exception to this last point, but not only for LDC's, is the case of infant-industry. Only when a country's resources are such that it is possible to make absolutely clear that local industry will be internationally competitive after a few years, this country should be allowed to impose trade barriers, decreasing with time, and for a limited period.

Finally, the negotiators should keep in mind that it is highly likely that it is possible to reduce tariffs in such a way that, at any instant of time, all countries are increasing their welfare. So, there is no reason why they should not do so.
6. References:


Aumann, Robert and Loyd Shapley (1976), "Long Term Competition - A Game Theoretic Analysis", mimeo.


Friedman, James W. (1986), "Game Theory With Applications to Economics", Virginia Polytechnic Institute and State University, mimeo.


50. JOGOS DE INFORMAÇÃO INCOMPLETA: UMA INTRODUÇÃO - Sérgio Ribeiro da Costa Werlang - 1984 (esgotado)


52. A INDETERMINAÇÃO DE MORGENSTERN - Antonio Maria da Silveira - 1984 (esgotado)

53. O PROBLEMA DE CREDIBILIDADE EM POLÍTICA ECONÔMICA - Rubens Penha Cysne - 1984 (esgotado)

54. UMA ANÁLISE ESTATÍSTICA DAS CAUSAS DA EMISSÃO DO CHEQUE SEM FUNDOS: FORMULAÇÃO DE UM PROJETO PILOTO - Fernando de Holanda Barbosa, Clovis de Faro e Aloísio Pessoa de Araujo - 1984

55. POLÍTICA MACROECONÔMICA NO BRASIL: 1964-66 - Rubens Penha Cysne - 1985 (esgotado)

56. EVOLUÇÃO DOS PLANOS BÁSICOS DE FINANCIAMENTO PARA AQUISIÇÃO DE CASA PRÓPRIA DO BANCO NACIONAL DE HABITAÇÃO: 1964-1984 - Clovis de Faro - 1985 (esgotado)

57. MOEDA INDEXADA - Rubens P. Cysne - 1985 (esgotado)

58. INFLAÇÃO E SALÁRIO REAL: A EXPERIÊNCIA BRASILEIRA - Raul José Ekerman - 1985 (esgotado)

59. O ENFOQUE MONETÁRIO DO BALANÇO DE PAGAMENTOS: UM RETROSPECTO - Valdir Ramalho de Melo - 1985 (esgotado)

60. MOEDA E PREÇOS RELATIVOS: EVIDÊNCIA EMPÍRICA - Antonio Salazar P. Brandão - 1985 (esgotado)

61. INTERPRETAÇÃO ECONÔMICA, INFLAÇÃO E INDEXAÇÃO - Antonio Maria da Silveira - 1985 (esgotado)

62. MACROECONOMIA - CAPÍTULO I - O SISTEMA MONETÁRIO - Mario Henrique Simonsen e Rubens Penha Cysne - 1985 (esgotado)

63. MACROECONOMIA - CAPÍTULO II - O BALANÇO DE PAGAMENTOS - Mario Henrique Simonsen e Rubens Penha Cysne - 1985 (esgotado)

64. MACROECONOMIA - CAPÍTULO III - AS CONTAS NACIONAIS - Mario Henrique Simonsen e Rubens Penha Cysne - 1985 (esgotado)


67. CONTRATOS SALARIAIS JUSTAPOSTOS E POLÍTICA ANTI-INFLACIONÁRIA - Mario Henrique Simonsen - 1985
68. INFLAÇÃO E POLÍTICAS DE RENDAS - Fernando de Holanda Barbosa e Clovis de Faro - 1985 (esgotado)

69. BRAZIL INTERNATIONAL TRADE AND ECONOMIC GROWTH - Mario Henrique Simonsen - 1986

70. CAPITALIZAÇÃO CONTÍNUA: APLICAÇÕES - Clovis de Faro - 1986 (esgotado)

71. A RATIONAL EXPECTATIONS PARADOX - Mario Henrique Simonsen - 1986 (esgotado)


73. DINÂMICA MACROECONÔMICA - EXERCÍCIOS RESOLVIDOS E PROPOSTOS - Rubens Penha Cysne - 1986 (esgotado)

74. COMMON KNOWLEDGE AND GAME THEORY - Sérgio Ribeiro da Costa Werlang - 1986

75. HYPERSTABILITY OF NASH EQUILIBRIA - Carlos Ivan Simonsen Leal - 1986

76. THE BROWN-VON NEUMANN DIFFERENTIAL EQUATION FOR BIMATRIX GAMES - Carlos Ivan Simonsen Leal - 1986 (esgotado)

77. EXISTENCE OF A SOLUTION TO THE PRINCIPAL'S PROBLEM - Carlos Ivan Simonsen Leal - 1986

78. FILOSOFIA E POLÍTICA ECONÔMICA I: Variações sobre o Fenômeno, a Ciência e seus Cientistas - Antonio Maria da Silveira - 1986


80. MÉTODOS MATEMÁTICOS DE ESTATÍSTICA E ECONOMETRIA: Capítulos 1 e 2 - Carlos Ivan Simonsen Leal - 1986 - (esgotado)

81. BRAZILIAN INDEXING AND INERTIAL INFLATION: EVIDENCE FROM TIME-VARYING ESTIMATES OF AN INFLATION TRANSFER FUNCTION - Fernando de Holanda Barbosa e Paul D. McNelis - 1986

82. CONSÓRCIO VERSUS CRÉDITO DIRETO EM UM REGIME DE MOEDA ESTÁVEL - Clovis de Faro - 1986

83. NOTAS DE AULAS DE TEORIA ECONÔMICA AVANÇADA I - Carlos Ivan Simonsen Leal - 1986

84. FILOSOFIA E POLÍTICA ECONÔMICA II - Inflação e Indexação - Antonio Maria da Silveira - 1986 - (esgotado)

85. SIGNALLING AND ARBITRAGE - Vicente Madrigal e Tommy C. Tan - 1986

86. ASSESSORIA ECONÔMICA PARA A ESTRATÉGIA DE GOVERNOS ESTADUAIS: ELABORAÇÕES SOBRE UMA ESTRUTURA ABERTA - Antonio Maria da Silveira - 1986 - (esgotado)

87. THE CONSISTENCY OF WELFARE JUDGEMENTS WITH A REPRESENTATIVE CONSUMER - James Dow e Sérgio Ribeiro da Costa Werlang
88. INDEXAÇÃO E ATIVIDADE AGRÍCOLA: CONSTRUÇÃO E JUSTIFICATIVA PARA A ADOÇÃO DE UM ÍNDICE ESPECÍFICO - Antonio Salazar P. Brandão e Clóvis de Faro - 1986

89. MACROECONOMIA COM RACIONAMENTO UM MODELO SIMPLIFICADO PARA ECONOMIA ABERTA - Rubens Penha Cysne, Carlos Ivan Simonsen Leal e Sérgio Ribeiro da Costa Werlang - 1986

90. RATIONAL EXPECTATIONS, INCOME POLICIES AND GAME THEORY - Mario Henrique Simonsen - 1986 - ESGOTADO

91. NOTAS SOBRE MODELOS DE GERAÇÕES SUPERPOSTAS I: OS FUNDAMENTOS ECONÔMICOS - Antonio Salazar P. Brandão - 1986 - ESGOTADO

92. TOPICOS DE CONVEXIDADE E APLICAÇÕES À TEORIA ECONÔMICA - Renato Fragelli Cardoso - 1986


94. INFLAÇÃO, INDEXAÇÃO E ORÇAMENTO DO GOVERNO - Fernando de Holanda Barbosa - 1987

95. UMA RESENHA DAS TEORIAS DE INFLAÇÃO - Maria Silvia Bastos Marques - 1987

96. SOLUÇÕES ANALÍTICAS PARA A TAXA INTERNA DE RETORNO - Clóvis de Faro - 1987

97. NEGOTIATION STRATEGIES IN INTERNATIONAL ORGANISATIONS: A GAME - THEORETIC VIEWPOINT - Sérgio Ribeiro da Costa Werlang - 1987