Private Interest Based Multilateral Loans*

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Abstract

Firms now operate worldwide and have therefore interests in many countries. If one of these countries is facing a crisis, many foreign firms interests may be threatened. As a consequence, this paper investigates the effect lobbying by firms over their own government may have on International Financial Institutions (IFIs) loans decisions or multilateral loans. Another dimension related to multilateral loans is that it interferes with diplomatic considerations. So this paper highlights the interconnections between political and diplomatic interests.

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1 Introduction

International Financial Institutions (IFIs), and especially the IMF, currently know a revival period as they have become the cornerstone of the re-foundation of the world financial system according to the last meetings of the G20. The underlying ideology is that IFIs perform well as a lender and in their surveillance activities, or monitoring more broadly. This is probably true on a broad basis but should be nuanced if one focuses on several particular aspects.

A now quite proliferating literature on endogenous policy formation highlights the important role of lobbies. They are not, of course, the unique force that determines policies but they should not be ignored. The theoretical as well as the empirical works have robustly contributed to the recognition of the role of lobbies. Similarly, many firms are multinational that operate in many countries, either through exports or through Foreign Direct Investments (FDI). Consequently, firms’ interests are disseminated worldwide.

When a country is facing a crisis and then comes to an IFI or an informal group of countries (e.g the club of Paris) in order to obtain a loan, the financial health of many firms may be at stake. So why lobbies could not influence their respective governments to obtain that a country facing a crisis gets a loan to preserve their interests located in it? This paper is an attempt to encompass this idea. Moreover, lobbies may have an interest more closer to those of the international community than the one of their country of origin. Hence, lobbying could help reaching an consensus, contrary to what people are often thinking.

The first task is to determine the way consensus over lending decisions may be reached in a multilateral context. This paper focuses on a static approach, despite we acknowledge the importance of dynamics in this topic. Voting exchange is probably a widely used practice, as well as outside-IFI/financial concessions to convince a country to vote for a given loan. In this paper, to keep things simple, we will propose a very simple model of multilateral consensus. Indeed, it appears that negotiations on a day to day basis are much more settled with consensus than with a formal voting procedure. One should not forget, however, that each country is granted with a particular voting power that should enter into consideration in the consensus
rule. We consider mostly the conditions under which a consensus is reachable. To this end we refer to a concept named *apparent consensus*.

Then, a simple political economy framework is introduced to assess the extent to which lobbies may influence the decision of the Funds. Another aspect this paper explores is the role of diplomatic proximity in the possibility to reach a consensus. A quite recent literature is interested in highlighting how governments may influence each others as in Antràs and Padró i Miquel (2008). Hence, despite this paper does not propose a complicated way to introduce diplomacy, it allows it to be present in order to underline the possible links with the political economy.

This paper follows then an international political economy approach and we show the effect of political economy on the optimal loans and on the probability of reaching a consensus. Then we show the effect of diplomacy, distinguishing between the diplomatic proximity with the country facing the crisis and the diplomatic proximity with the other countries, thus reflecting the systemic effect of the crisis. Finally, the interactions between both aspects are studied.

First, we show that the political economy, understood here as the presence of lobbying, does not necessarily conduct to a decrease of the probability a consensus will reach. Two effects are at work. The first effect is an expected one. If lobbies' interests are closer to those of international community, their political action moves the optimal loan of their country towards the optimal of the remaining of the international community. The second effect is more surprising, at an optimal loan unchanged for the country they influence, lobbies still have an effect on the probability a consensus will be reached. The reason is that their presence may increase the gain of the government independently of the size of the loan thus increasing its propensity to accept a consensus. Logically, the bargaining power of lobbyists is found to reduce the probability of consensus whereas their situation outside the crisis has an opposed effect. The larger are their interests not affected by the crisis, the more likely is the consensus to occur, under some conditions.

We next show that the diplomacy reduces or increases the effect of the political relationship on the probability to reach a consensus. The main result with this respect is that diplomatic
proximity with the country facing the crisis generally reduces the effect of the lobbying activity. The inverted causality is also present. A small bargaining power of lobbies is proven to reduce the effect of a high diplomatic proximity with a country wishing a large loan. A large bargaining power of lobbies reduce the effect of a high diplomatic proximity with a country wishing a low loan.

Finally, we explore as in Grossman and Helpman (1994) the effect of the population on these effects. We show that the fact the lobby represents a non negligible share of the population reinforces the positive political effect on the probability of reaching a consensus.

The remaining of the paper is organized as follows. The next section expose the international political economy approach. The third section introduces the idea of consensus over a loan. The political economy framework is introduced and its results derived in section 4 whereas section 5 discusses the question of the diplomacy and the population share represented by lobbies. The last section proposes some extensions and briefly conclude.

2 An international welfare approach

2.1 Diplomatic/strategic proximity

In a recent paper, Antràs and Padró i Miquel (2008) study the influence a foreign country can have on the domestic policies of another one. We kind of follow this idea but from a more diplomatic point of view. A country is assumed here to have the following function:

\[ H_i = W_i + \sum_{j \neq i} \alpha_{ij} W_j \]  

where \( H_i \) is the objective function of the government of country \( i \), \( W_i \) is the social welfare of country \( i \) and \( \alpha_{ij} \) is the weight government \( i \) grants to the welfare of country \( j \). The closer both countries are, the higher \( \alpha_{ij} \). This coefficient has nothing to do with the effect of world trade that operates through the social welfare.
2.2 The country facing a crisis

We consider that when a country $j$ is facing a crisis, its welfare suffers a sudden loss. We are not interested in this paper in representing a crisis using some complex mechanisms that may create it.

As it is obvious, the country may be helped because of a systemic risk as every welfare depends on local firms whose profits may depend on the crisis. So there are some direct incentives to rescue the country and some others that are indirect.

2.3 Firms

In each country, there is a continuum of firms. We assume that each firm’s profit can be dis-aggregated into a sum of the profits according to the location of their source.\footnote{It is interesting to note that a misperception of these stakes by geographical origin could introduce a tricky story in political economy frameworks.} For instance, a country is assumed to be able to split its profit into Europe and USA as two independent profit centers. This assumption seems simplifying as it comes to mind that the profit from country $i$ may be affected by the situation in country $j$. For simplicity, we assume that if 50% of the profit in country $i$ depends on what is going on in country $j$, then this share is attributed to country $j$ for instance.

We denote these shares $\mu_{kij}$. They indicates that firm $k$, originating from country $i$, generates a share of $\mu_{kij}$ of its profit in country $j$, directly and/or indirectly. For now, we will assume that the sum of these parameters is equal to one for each firm. Yet we acknowledge that it would of interest to discuss the possibility of relaxing this assumption in order to reflect the domestic systemic effect. That is, a firm’s profit in country $i$ may depend on other firms that are very dependent of country $j$’s financial situation.
2.4 Gain for country i when helping country j

First, the question of the cost of helping country j has to be addressed. Here, we will take our inspiration from the Funds despite the paper is not precisely about it; it has the most accomplished structure and we have already proven that diplomacy has a determinant role in its lending decision in Reynaud and Vauday (2009). In particular, the contribution to the Funds does not depend on the situation of this or that country asking for a loan. So we simply will consider that the cost for the country is equal to $\beta_i S_j$ if a loan of an amount $S_j$ is granted, where $\beta_i$ is the voting share (or quota in the case of the IMF) of country $i$.

The simplicity of this assumption may surprise. However, for instance, the IMF almost never spends the integrality of its available money in a year. Consequently, it is hard to consider that a country could be reluctant in voting for a given loan because it fears that no money will be available when a much closer country will come to the IMF to ask for a loan. Moreover, this dynamic vision, despite its obvious interest, would largely complicate the story.

So now, what is the gain to help country j for country i? The gain may be divided in several distinct channels. First, there is a direct gain for helping country j through domestic firms.

$$\sum_{k}^{m} \mu_{kij} \left[ \Pi_{kij} (S_{ij} > 0) - \Pi_{kij} (S_{ij} = 0) \right]$$

where $S_{ij}$ is the amount country $i$ would lend to country $j$. Second, there is a diplomatic gain which is equal to

$$\alpha_{ij} \left[ W_j (\sum_{k} \mu_{kj} \Pi_{kj} (S_{ij})) - W_j (\sum_{k} \mu_{kj} \Pi_{kj} (S_{ij} = 0)) \right] + \alpha_{ij} S_{ij}$$

The last term is the direct effect of the crisis, the two other ones being the effect through the domestic firms’ of country $j$. Finally, there is a systemic gain that passes through the firms of other countries.

$$\sum_{h \neq i,j} \alpha_{ih} W_h (\sum_{k} \mu_{kh} \Pi_{kh} (S_{ij})) - \sum_{h \neq i,j} \alpha_{ih} W_h (\sum_{k} \mu_{kh} \Pi_{kh} (S_{ij} = 0))$$
This being true under the assumption that the welfare is linear in $\Pi$. For simplicity, we assume that the crisis uniquely hits profits. The generality of the results is clearly left unchanged as adding the consumer surplus or the government revenues would make equations coarser.

It is easy to show that a country has always interest to vote for the loan as soon as it thinks it is profitable to it. If one assumes that the probability country $j$ obtains the loan is $\rho_j = \overline{\rho}_j + \epsilon_{ij}$, where $\overline{\rho}_j$ is the probability country $j$ gets the loan if country $i$ has not voted for it, and $\epsilon_{ij}$ is the effect that country $i$ votes for the loan on the overall probability that country $j$ obtains the loan. It is easy to see that this is positive independently on the effect of $\epsilon_{ij}$.

3 The IMF

The previous section has exposed what would be the position of a country that would vote for an amount $S_{ij}$. However, this is not how things are going on in a multilateral decision. First, the decision is often based on a consensus. Second, and this is related, it is probable that the decisions simultaneously concern the agreement to grant a loan as well as its amount. Therefore, we will first study what happens if the country wants to maximize the difference of welfare with respect to the size of the loan compared to the null loan situation.

So the government seeks to maximize the difference between the welfare it obtains and what it would obtain if no loan is granted. Consequently, the constant term in $H$ disappears. The maximization program of the government is:

$$\max_S H(S) - H(S = 0) \Leftrightarrow \max_S G(S) \quad (5)$$

which yields

$$- \sum_k \mu_{kij} \frac{\partial \Pi_{kij}(S_j - S_a)}{\partial (S_j - S_a)} - \sum_{h \neq i,j} \alpha_{ih} \sum_k \mu_{khj} \frac{\partial \Pi_{khj}(S_j - S_a)}{\partial (S_j - S_a)} - \alpha_{ij} \sum_k \mu_{kjj} \frac{\partial \Pi_{kjj}(S_j - S_a)}{\partial (S_j - S_a)} = \alpha_{ij} - \beta_i \quad (6)$$
Again, here, for simplicity we have assumed that only the profits are affected by the crisis. We discuss in a next section what happens if one considers that the consumer surplus and the policy revenues also depends on the crisis. The optimal loan country $i$ wants to grant to country $j$ is labeled $S^*_{ij}$.

### 3.1 The consensus

We need to define two additional values that will prove very useful. Let $S_{ij}$ and $S_{ij}^*$ be respectively the lowest bound and the highest bound over which the expected objective function of country $i$ is positive, under the assumption that the objective function is quadratic in the argument $S_{ij}$. As one will see, the real assumption is that the objective function $H(.)$ is of third order. We further denote $S_{ij} = S^*_{ij} - \theta^l_i$ and $S_{ij}^* = S^*_{ij} + \theta^r_i$.

We are first interested in a notion that we label a full consensus.

**Definition 1** A full consensus implies that all parties agree to grant a loan.\(^2\)

Moreover, we consider for now under what conditions a full consensus is reachable, so we are not interested in how it is reached. There are $n$ active countries. We assume that a consensus over a loan to country $j$ is reachable between any two countries $i$ and $h$, characterized by $S^*_{ij}$ and $S^*_{hj}$ respectively, with $S^*_{ij} < S^*_{hj}$, if and only if $S^*_{hj} - S^*_{ij} < \theta^l_{hj} + \theta^r_{ij}$. That is, two countries will reach a consensus if and only if they may can agree on a loan amount such that they both gain in lending to country $j$. Moreover, we assume that the probability of reaching a consensus between any two countries depends on the size of the range defined just above.

As we shall see, with polynomial of degree 2, $\theta^r_{ij} = \theta^l_{ij} = \theta_{ij}$. Under this assumption, with $n$ countries, there are $\sum_1 n - 1$ conditions that ensure a consensus is reachable. However, by definition, it is possible to order the countries from the lowest $S_{ij}$ to the highest and from the lowest $S_{ij}^*$ to the highest. Therefore, a necessary condition for a full consensus to be reached is guaranteed by the fact that the lowest $S_{ij}$ is larger than the highest $S_{ij}^*$. So if we can establish the

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\(^2\)This definition seems rather obvious but one could also think to a consensus that is reached if a given percentage of the participants agree to grant loan. This situation is possible because the many IFIs, among which the IMF, have a voting rule behind its consensus practice.
range of all countries under which they would gain with a loan to country $j$, then we can rank the bounds and we can concentrate on the “less probable” bilateral consensus. This does not exclude the reasoning that should be done for all the other pairs if one wants to establish the probability of a consensus. It is also of course probable that there are some strategic behaviors behind this since a country should hide its bounds (or even lie) in order to increase the probability that the consensus will be closer to its optimal loan.

The fact all countries agree for a loan comprised between $S_{ij}$ and $\overline{S}_{ij}$ is not obvious. Therefore, we will work with another definition of consensus, borrowed to sociology (Urfino, 2006), called the *apparent consensus*

**Definition 2** *An apparent consensus is a decision validated after talks have been hold if no country expresses a disagreement*

If one accepts the idea in the case of the IMF for instance that all money it has is not spent each year, such a form of consensus is acceptable and corresponds with our simple framework concerning the bounds. So we state that if the consensus value is in the range of values that ensures a given country that it will gain from the decision, then this country will not oppose to the decision despite this value is far from the optimal value of the country of interest.

A noticeable aspect is that two elements are active in each bound. First, there is the optimal loan of both countries, and there are the bounds of the range over which both countries have an interest in granting the loan to country $j$. The highest $\overline{S}_{ij}$ depends on $S^*_{ij}$ and on $\theta^l_{ij}$. The lowest $\underline{S}_{ij}$ depends on $S^*_{ij}$ and on $\theta^r_{ij}$.

Where do these values come from? They come from the two following equations:

$$\max_S G = 0$$

$$\max_S G$$

Finally we need to add that there is requirement for the optimum solution of country $i$ without political economy. The optimal loan of country $i$ must be such that the mean of the differences
to the optimal values of all diplomatic partners has to be lower than $S^*_ij + \alpha_{ij}W_j$.\(^3\)

### 3.2 Voting power

An aspect has, for now, been put aside. In the case of IFIs such as the IMF, the voting power should enter in the negotiation process because there is always, implicitly, the possibility to turn to a formal voting procedure.

Again, this paper is not an attempt to establish formally the functioning of the IMF. We propose then two simple solutions in order to take account of the voting powers. First, in a bilateral consensus, there is a range over which the consensus is reachable. We can simply assume that the relative voting power determines where the final drawn loan amount is. If a country has a voting power of 4 whereas the other one has a voting power of 2, then the final amount is at the two third of the range, closer to bound of the country that has the highest voting power. However, this could turn to become complicated with \(n\) countries.

An alternative solution would be that the real bounds are divided by the voting power. So the higher the voting power, the lower, everything else equal, the effective bound of a country. However, this would mean that a country that has a large voting power could be against a solution that is beneficial to it. This is unlikely.

The effect of the voting power in the simple formalization proposed above enters the coefficient \(b\) negatively. So a higher voting power means a lower optimum policy and lower bounds.

### 4 Political economy

We now turn to the political economy part of the paper. We will first start with very general discussion. Following Grossman and Helpman (1994), two elements are central in the political game.

\(^3\)See in appendix
In their framework, the optimal policy is determined by the following equality

\[- a \frac{\partial W_i}{\partial S_j} = \sum_k \frac{\partial W_{ki}}{\partial S_j}\]  

(9)

where \(W_{ki}\) is the welfare of firm \(k\) originating from country \(i\) and \(a\) is the weight the government grants to social gains compared to private revenues. In other words, the equilibrium policy is locally truthful has it comes from the fact that \(\frac{\partial C_{ki}}{\partial S_j} = \frac{\partial W_{ki}}{\partial S_j}\). Hence, in addition to what influences the government in its decision, every aspect that influences the welfare of active firms or lobby is influencing the optimal loan the country \(i\) will wish.

The political relationship also necessitates to share a constant between the government and the lobbies. Grossman and Helpman (1994) show that it is possible to determine their values (i.e. one per lobby) using the assumption of truthful everywhere contribution. That is, \(\frac{\partial C_{ki}}{\partial S_j} = \frac{\partial W_{ki}}{\partial S_j}\) is true, whatever the value of \(S_j\). A simplifying way to understand how this constant is shared is that it depends on the relative bargaining power of the government with respect to each lobby.

Consequently, the relative bargaining power of the government may, by itself, modifies the range over which a full consensus is reachable. Indeed, the higher is the bargaining power of the government, the lower is the constant in the contribution and this has an effect on the bound over which the objective function of the government is positive for \(S_j > 0\). Everything else equal, a higher bargaining power of the government increases the value of \(G(S_j > 0)\).

More precisely, switching from a nil loan to a positive one increases by \(C_{ij}(S_j)\) the objective function of the government. Two effects are at work. First the constant part of the contribution, that depends on the relative bargaining power, increases the two bounds by the same magnitude. Second, the variable part has an undetermined influence over the bounds. If it is strictly increasing in \(S_j\), then it should have a larger effect on \(\overline{S_{ij}}\).

On the other hand, the variables that affect the equilibrium value of the policy have an effect on \(G(.)\) and on \(\partial G(.)\), despite it is not the same.

Hence, under the assumption that the objective functions of the government exhibit one or two values such that \(G(S_j = 0) - G(S_j > 0) = 0\), this means that they are of the type
\[ G = aS_{ij}^2 + bS_{ij} + c = 0. \] If one maximizes this function, one obtains \[ S_{ij}^* = -\frac{b}{2a}. \] The two values that cancel out this function are given by \[ x_i = x^*_i \pm \frac{\sqrt{b^2 - 4ac}}{2a}. \] The constant only has an effect on the bounds, whereas \( a \) and \( b \) have an effect on both.

The effect of \( b \) over \( x^* \) depends on the sign of \( a \). The effect over \( x_i \) has the same sign if this is the upper bound and \( b \) is positive. If \( ac \) is positive, then it has an opposed sign if this is the lower bound and if \( b \) is positive.

We are interested in the lobbying by private interests. Under a truthful everywhere equilibrium, the contribution is \( Prim \frac{\partial W_k}{\partial S_j} \), where the constant of the primitive is determined by the relative bargaining power between the government and the lobbies. The contribution may either be linear or quadratic\(^4\). We consider that there is only lobbying for the loan to be grant since, again, the total amount country \( i \) contributes to the Fund has already been spent and this amount is not totally spent by the IMF on a yearly basis.

### 4.1 Linear contribution

In the case of linearity, the contribution is strictly increasing in its argument, so \( a_c \) is nil, \( b_c \) is positive as is \( c_c \), the subscript \( c \) denotes that these parameters are those of the contribution. This \( b_c \) comes from the lobby’s welfare. So everything that could explain a positive effect of the loan over the lobby’s welfare will have the following effects. Since we want the government objective function to be concave, we can conclude that \( a \) is negative and that \( b \) is positive. So the effect of \( b_c \) is positive on the optimum. It is also positive on the upper bound. The effect of an increase in \( b_c \) on the lower bound may be negative if \( ac \) is positive, so if \( c \) is negative. \( c \) represents the part of the objective function of country \( i \) that is independent of \( S_{ij} \). We can expect it is positive, except for countries that could suffer of highly systemic risk due to the crisis in country \( j \). If \( b \) is positive, the effect of \( b_c \) is lower on the lower bound than it is on the upper bound so we can conclude the following

**Proposition 1** If \( C = b_c S_{ij} + c_c \) and \( G = aS_{ij}^2 + bS_{ij} + c \). If \( G \) is concave, then \( a < 0 \) and

\(^4\) Under our simplifying assumptions.

\(^5\) In fact, the function is of degree 3. The constant disappears if the difference between both welfare is maxi-
Then an increase in \( b_c \) which is positive induces an increase of \( b \).

This increase in \( b \) increases \( S_{ij}^* \), increases \( S_{ij} \), \( \overline{S}_{ij} \) and increases \( \underline{S}_{ij} - S_{ij} \).

So the lobbying activity increases the range over which reaching a consensus is possible through the effect the crisis has on the firms that have an interest in country \( j \).

The effect of the constant \( c_c \) is to decrease the lower bound and to increase the upper bound, by the same magnitude.

**Proposition 2** The higher the bargaining power of the government is, the higher the range over which country \( i \) will accept a consensus.

So the effect of the bargaining power is the same, independently of the position of country \( i \) with respect to the other countries in the ranking of their \( S_{ij}^* \)'s. As for the increase in \( b_c \), its effect on the probability a consensus will be reached is positive if country \( i \) is in the bottom of the \( S_{ij}^* \)-ranking and it is negative if the country is in the top of this ranking.

Moreover, the global effect of the contribution on the optimum is an increase. Hence, independently on the probability the loan is granted, lobbying should increase the size of the loan.

### 4.2 Quadratic contributions

The quadratic functions work also very well. It is just harder to determine some effects of the lobbying as now lobbies contribution may increase the numerator or the denominator of the equilibrium loan \( S_{ij}^* \) as well as in the bounds over which the country gains.

**Lemma 1** With a contribution such that \( C = a_c S_{ij} + b_c S_{ij} + c_c \) and \( G = a S_{ij}^2 + b S_{ij} + c \). We know that \( a \) is negative as we consider the maximum is between the two bounds. It is well known that the sign of the polynomial is from the sign of \(-a\). Since \( G \) is assumed to be positive in its maximum \( S_{ij}^* \), then the sign of \( a \) must be negative.

This is not true for \( a_c \) since this not obliged that a firm exhibits a maximum optimal loan. She

mized. So one can simplify by \( S_{ij} \) such that it remains a degree-2 polynomial.
may well wish a loan equal to infinity.

So this lemma influences the effect of diplomacy on the optimum policy as the next section will underline it. In this condition, it is possible to state that

**Proposition 3** With a quadratic contribution, a political economy framework has a positive effect on the two bounds if at least one of the following statement is true:

- The profits of the lobby if the loan is null are negative.
- \( a_c \) is positive, the lobby hence wants the largest possible loan. Implicitly, this is to say that the lobbying activity has not an marginally increasing cost.

One can also add that the constant in the contribution being negative, it has a negative effect on the range allowing a consensus. Except in the case of a positive \( a_c \), so high that it outweighs the negative \( a \). To see this, we write the objective program after the contribution has been paid.

\[
G(S_{ij}) + \sum C_c(S_{ij}) = 0
\]  
(10)

which is equivalent to

\[
aS_{ij}^2 + bS_{ij} + c + a_cS_{ij}^2 + b_cS_{ij} + c_c
\]

that finally yields

\[
(a + a_c)S_{ij}^2 + (b + b_c)S_{ij} + c + c_c
\]

The optimal loan is therefore

\[
S_{ij}^* = -\frac{(b + b_c)}{(a + a_c)}
\]  
(11)
and the bounds are

\[ S_{ij} = S^*_{ij} \pm \frac{\sqrt{(b + b_c)^2 - 4(a + a_c)(c + c_c)}}{2(a + a_c)} \]  

(12)

For the government, \( a \) must be negative. For the lobby, the constant has two components. A truthful contribution is such that \( C = W_{ik} + \gamma_{ik}W_i - B_{ik} \). The last term is a negative constant and the first two terms also contain some constants that may either be negative or positive. Consequently, the overall effect is not obvious. First, there are no reasons to think \( a_c \) is negative. Indeed, if the lobbying activity has marginally decreasing cost, then a lobby could find it always profitable to ask more. We however admit this is a particular situation and we do not intend to analyze this in the present paper.

Therefore, we will focus on the case (most likely to occur) of a marginally increasing lobbying cost. The conclusions that we draw have just to be inverted if we are interested in the case of a \( a_c > 0 \) but again with caution as observing such a particular feature should probably necessitate some additional hypotheses.

Under this assumption, the effect of lobbying depends on \( b_c \) and \( c_c \). As already evoked, the fact \( b_c \) or \( a_c \) have an effect on the equilibrium loan a government wishes is not of a primary interest since its effect on the probability to obtain a consensus depends on the relative position of the country with respect to the multilateral political loan (see the definition in a following section). Hence, we are interested in the effects on the bounds.

Considering \( b_c \), the largest and positive it is, the largest are the two bounds if \( b \) is positive. If \( b \) is negative, then the largest and negative \( b_c \) is, the largest is the range between the two bounds. To the contrary, an increasing \( c_c \), as we have already highlight it, depends solely on the lobbies’ welfare.

Indeed, the objective of the government only depends on \( S_{ij} \). Since it is equal to \( W_i(S_{ij}) - W_i(S_{ij} = 0) \), all terms of the welfare that do not depend on \( S_{ij} \) vanish as they cancel each others. If \( c_c \) is positive, then it will increase the size of the interval between the two bounds. Logically, the constant due to the political relationship in itself is negative. Under the hypothesis
of contributions truthful everywhere, the contribution is equal to the welfare of the lobby minus a constant $B_j$ as showed by Grossman and Helpman (1994), applying the result of Bernheim and Whinston (1986). This constant is a measure of the relative bargaining power of the lobbies and when it is high, then this reduces the size of the interval. This is not surprising as it reduces the size of the gain of the government.

However, the welfare of lobbies does not entirely depend on the crisis. If, under a null loan, the welfare of the lobby is negative, then this indicates the constant in the welfare is negative. In that situation, the effect on the bounds is also negative. But most lobbies do not depend on the crisis so much that with a null loan their welfare is negative. Under this consideration, the fact a political relationship is engaged will increase the size of the interval and therefore, under the definition of a consensus we have adopted in this paper, will increase the probability a consensus will be reached, everything else being equal.

5 Diplomacy and population

The effect of the diplomacy only passes through the part that depends on the size of the loan. The effect on the equilibrium policy needs here to be separated between the effect of the diplomatic proximity with the country that faces the crisis and the other countries.

5.1 Diplomacy with the country facing the crisis

This country would obviously be favorable for the largest possible loan, so $a_j > 0$. Then, since $a$ is negative, including $a_j$ with a coefficient which is positive $\alpha_{ij}$ decreases the absolute value of the numerator of both the equilibrium and the bounds. Additionally, it decreases the effect of the constant in the numerator of the bounds.\footnote{If one has to analyze the effect of the political economy in the country facing the crisis, the fact $a_j$ is negative reverses the conclusion of the section above.}

The decrease of the $|a|$ implies an increase of the equilibrium which is logical as this implies that the tighter the diplomatic links of a country $i$ with the country $j$ hit by the crisis, the larger
the loan the country $i$ wishes.

We next turn to the effect on the bounds. It reduces the effect of the political constant. If one admits that the magnitude of $a_j$ is correlated to the magnitude of the crisis\footnote{When $a_j$ increases, this indicates a larger propensity of the country facing the crisis to ask quickly for a large loan.}, the harder the crisis, the lower the effect of lobbying activity through the constant, everything else equal. This is also true for the magnitude of $\alpha_{ij}$. So interestingly, the diplomatic relationship with the country facing the crisis has a negative effect on the lobbying activity.

**Proposition 4** *An increase of the diplomatic proximity with the country facing the crisis reduces the effect of the political relationship*

As underlined in section 2.4, the diplomatic proximity is related to the sum of the profits firms from country $j$ that depend on the crisis (under our simplifying assumptions that the effects only pass through profits). A small crisis would then only have a marginal effect on the decision.

### 5.2 Diplomacy with the other countries

Other countries have gross-of-politics objective functions that have shapes corresponding to the shape of the objective function of the country of interest, namely country $i$. As a consequence, they are such that $a_h < 0$ since they also exhibit an optimal loan. So diplomatic relationships with other countries have a leverage effect on the political effects.

One might wonder whether the effect is larger when the other country has a similar position with respect to the loan (i.e the optimal loans of country $i$ and $h$ are similar), or if the distance between both countries in terms of optimal loan is large. In order to check this, we need to think of moving a parameter, holding the other ones constant. If the $b$s are hold constant. A country that is on the left of the axis that measures the optimal loan of each country if and only if $0 > a_h > a_i$. So the numerator is lower compared to the opposed situation ($a_h < a_i$). So when the country $h$ wishes a lower loan, the effect is unambiguously negative on the optimal equilibrium of country $i$ if the constant is negative overall. Hence, when the dominating political
effect is driven by the bargaining power of lobbies, then being closer from a country that wishes a low loan reduces its own loan. The effect is ambiguous when considering the case of $c_c > 0$. Since the $a$ in the numerator is in a square root, we can logically conclude that the effect the is the most important is the one passing through the denominator.

As a consequence, the political economy aspect may reduce the effect of being close to a country that wishes a low loan. Turning to the other situation, obviously the overall effect is in the other direction (and that’s reassuring). However, that is the other situation of the political economy framework that reduces the effect of diplomacy. When the bargaining power of lobbies is small, then the effect of begin close to a country that wishes a high loan is reduced.

5.3 Lobbies represent a non negligeable share of the population

A last aspect we want to discuss in this paper is the role of the fact population is at least partly represented by lobbies. In such case, the welfare of a given lobby is equal to

$$W_{ik} = \Pi_{ik} + \gamma_{ik}W_i$$  \hspace{1cm} (13)

where $\gamma_{ik}$ is the share of the population of country $i$ that is represented by the lobby $k$. An interesting effect is that this reintroduces the constant part of the welfare of country $i$ in the overall effect on the bounds. Indeed, the weight of $W_i$ in the equation of interest is now $1 + \gamma_{ik}$. So when we consider the difference with $W_i(S_{ij} = 0)$, the part of $W_i$ that is independent of $S_{ij}$ does not totally disappear. This is due to the population is interested in the welfare $W_i$ and not by the difference $W_i - W_i(S_{ij} = 0)$.

Consequently, when the welfare of country $i$ is positive despite the loan is null, which is probable yet not systematic since domestic firms may be so exposed in country $j$, this reinforces the positive effect of the political relationship between the government and lobbies on the probability a consensus will be reached.

**Proposition 5** When a lobby represents a share of the domestic population, this reinforces the positive effect on the probability a consensus will be reached.
6 Extension and conclusion

The first extension that may come to mind is to apply the following framework to the possibility for the G20 to find an agreement over the financial crisis of the last years. An other interesting extension would be to consider heterogenous firms in each sector in order to assess the effect of lobbying whether most of organized firms are more or less exposed to the crisis. Applying this type of framework to other multilateral decisions as the WTO negotiations or the environmental negotiations would also represent a particularly interesting approach. A last extension that would be of interest is the inclusion of foreign private influence.

This paper is the first, to our best knowledge, to propose such a framework to assess the effects of domestic political relationship and the diplomatic proximity on the probability of reaching a consensus over a lending decision in the context of a crisis. We believe the results are indicative that we need to pursue in this research avenue as it is simple and suggests many possible applications as well in the theoretical direction than in the empirical one.

One of the most striking result is that lobbying may help negotiations to be concluded under some particular conditions. It is however not surprising since it is enough that the country under private interest influence is on the opposed side of the spectrum of all optimal loans, compared to the lobbies, in order to have a consensus more easily reached.

A Proof of the requirement for $S$

Every welfare may be written as

$$W_i = (S_i - S_{ij})(\bar{S}_i + S_{ij})$$

(14)

except for country $j$ (that faces the crisis). Recall that $\theta_{ij}$ is the difference to the bounds for country $i$ when judging of the size of the loan to grant to country $j$. 

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So the objective function of the government is the following

$$G_i = \sum_{h \neq j} \alpha_{ih}(S_{hj} - S_{ij})(S_{hj} + S_{ij}) + \alpha_{ij}W_j$$

(15)

under the convention that $\alpha_{ii} = 1$. So we have that, around the optimum

$$G_i^* = \sum_{h \neq j} \alpha_{ih}(S_{ij}^* - \theta_{hj} - S_{ij}^*)(S_{ij}^* + \theta_{hj} + S_{ij}^*) + \alpha_{ij}W_j$$

(16)

or

$$G_i^* = \sum_{h \neq j} \alpha_{ih}(-\theta_{ih})(2S_{ij}^* + \theta_{hj}) + \alpha_{ij}W_j(S_{ij}^*)$$

(17)

We know that $\theta_{ij} < 0 \forall i \neq j$. If the mean of $|\theta_{hj}|$ for all $h \neq j$ is superior to $2S_{ij}^* + \alpha_{ij}W_j(S_{ij}^*)$, then the equilibrium welfare is negative.

References


