CONTRIBUTION SHARES IN ALLIANCES

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ABSTRACT

That small players often free ride on the efforts of large players in an alliance is a fundamental conclusion of the collective action literature. But small players who benefit from joining an alliance and also provide significant benefits to other players by joining can do even better than these traditional free riders. By threatening not to join unless they receive some of the gain their participation provides, such players can get paid extra for joining an alliance they want to join anyway. We present a simple two-player model of the situation, explore several general results, and illustrate the phenomenon with examples from international relations, domestic politics, and business.

KEY WORDS


1. Introduction

In an alliance – be it of business firms lobbying for legislation, nations deterring a common enemy, or family members maintaining a household – individual members contribute to a collective, or public, good. Some will contribute little, relying on the contributions of others. They are called free riders.

Free riders have been well studied in economics, political science, and sociology [1, 2, 3, 4, 5, 6, 7]. Different authors have defined the concept in slightly different ways. We employ a straightforward definition: free riders are those who benefit from others’ contributions to a collective good while contributing little or nothing themselves. Free riders are prevalent; examples range from public television viewers who fail to pledge money for programming, to small firms that rely on large firms to lobby politicians for their shared goals, to small nations that depend on large nations to defend them or to defeat terrorism.

As a simple illustration, imagine that two people live on a private road, as shown in Figure 1. Richard, the wealthier of the two, lives in a mansion at the end of the private road. Porter, the poorer of the two, lives in a small cottage, originally the servants’ quarters, closer to the town road. On the other side the private road is a conservation area, enclosed by a high fence. Richard must get to work regularly (his job is quite lucrative), so, when it snows, Richard pays to have the entire street plowed. Porter must also work regularly. If pressed, he would share the cost of plowing to his house. He does not have to do so, however. Fortunately for him, plowing the street is a collective good, and he sits by while Richard pays for it all. Porter free rides.

Figure 1. Richard and Porter

Free riding also occurs in business settings. Imagine a group of pet food manufacturers joining together to lobby government officials for shared goals. All the manufacturers know that they would benefit if certain regulations were passed. But the large manufacturers (the major national firms) would gain substantially more than the small manufacturers (the regional producers). Therefore, the large firms are willing to pay for most or all of the group’s lobbying effort. By joining the alliance
— for example, by allowing their names to be on the letterhead and perhaps calling their congress members—the small firms increase the group’s political clout, because the alliance appears more representative of the industry. However, given bargaining relationships, the small firms do not contribute much, if anything, to the group’s resource expenditures. When it comes to paying its high-priced lobbyists, for example, they free ride off the contributions of the large manufacturers.

Traditional discussions of free riding behavior in situations such as these have assumed that the lower limit of a free rider’s contribution is zero, or perhaps some minimum amount required to join the alliance providing the collective good. Thus, Porter pays nothing for snow plowing, and the regional producers pay only what is necessary to join an association with the large manufacturers. But we propose that, in certain circumstances, these free riders may contribute less than nothing. If their participation provides significant benefits to the large players in an alliance, these free riders can demand a share of the gain their participation provides.

When might this occur? Return to the snow plowing illustration. Efficient plowing requires depositing mounds of snow on Porter’s property, which requires Porter’s permission. Though Porter is delighted to have the road plowed in front of his cottage, he knows Richard benefits more in absolute terms. Thus, Porter not only free rides and pays nothing to have the road plowed, but also demands that Richard plow his driveway as well. Similarly, in the pet food example, the small manufacturers could bargain for even more than they receive as traditional free riders. They realize that their participation lends added legitimacy to the alliance, and that the large manufacturers stand to gain substantially from that added legitimacy. Thus, the small manufacturers could threaten not to join the alliance unless the large manufacturers share some of this gain with them. For example, they could demand that the lobby group push on behalf of small producers’ interests, say by exempting them from certain regulations because of their size. Depending on the circumstances, the large manufacturers may capitulate, and the small manufacturers would benefit doubly: they would continue to free ride off the large manufacturers’ efforts, and they would get paid for doing so.

In both examples, the small players may be able to extort additional payments merely for joining an alliance they would join anyway if given a binding take-it-or-leave-it offer. In other words, they not only benefit from the efforts of others as traditional free riders in an alliance, but they may also extort additional compensation from their allies merely for playing along. This paper explores these kinds of situations in a preliminary way. Section 2 presents a simple two-player model. Section 3 discusses some important related issues, including the nature of the side payments given to the free riders and the implications for efficiency. Section 4 presents some illustrations, and Section 5 concludes.

2. A Simple Model

This particular free-riding phenomenon can occur in an alliance of any size. But for now, consider a simple model with just two players: a Large Player (L) and a Small Player (S). Both are considering whether to contribute to the provision of a collective good. L has strong preferences for the good, and it determines that it is worthwhile to provide for the good by itself, regardless of what S does. If S joins with L in an alliance, however, the payoffs for both increase. This may be because of the added legitimacy S’s participation provides (as in the lobbying example), or because S’s participation makes L’s task easier (as in the snow plowing example).

Also assume that S benefits from the collective good, whether allied with L or not. In either case, S does best by free riding off L’s efforts. But, if it joins the alliance with L, it gains even more. Thus, faced with the choice of joining or not joining the alliance, S chooses to join the alliance and contribute as little as possible to its efforts.

To formalize this, call L’s net benefit from providing the collective good by itself is B_L.1 If S joins the alliance, however, L’s net benefit increases substantially to B_L*, even though S contributes as little as possible to the collective good. Similarly, call S’s net benefit outside the alliance B_S. If it joins the alliance, however, its net benefit increases slightly to B_S*, even though it contributes only minimally to the collective good.

Both L and S find it beneficial to ally together, since B_L* >> B_L, and B_S* > B_S. In other words, S is happy to join the alliance and free ride, and L is very happy to have S do so, even if it might prefer that S contribute to the collective good. S reasons further, however. It recognizes that L’s gain from its participation (B_L* – B_L >> 0) is substantial. Thus, it could threaten not to join the alliance unless L shares some of the gain that S brings. Of course, the risk is that L will refuse to yield to S’s threat, in which case S either joins anyway (and loses nothing) or carries through on its threat (and loses the gain from joining the alliance).2 Depending on the relative magnitudes of the gains and S’s evaluation of the

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1 This net benefit could be a certain net benefit (as in the snow plowing example) or an expected net benefit, where the probability of success is part of the calculation (as in the lobbying example, in which successful lobbying is not guaranteed).
2 An example of this may have been the bargaining between the United States and Turkey in the months leading up to the recent War with Iraq. The U.S. sought permission for its military forces to traverse Turkey, promising billions of dollars in aid for what would have clearly been a tremendous advantage for American war planners. However, Turkey demanded more, the U.S. held firm, and negotiations broke down, despite the mutual benefit an alliance between the two nations may have brought.
probability of succeeding with its threat, however, it may find the risk worthwhile to take.

Return to the pet food illustration. Imagine that two firms, a large National Producer (L) and a small Regional Producer (S), are considering whether to create a Washington-based trade association to lobby government officials for shared goals. Lobbying by either firm alone would be beneficial. If the two form an alliance, however, they can claim to represent the entire industry and can therefore expect a greater chance of lobbying success. Specifically, L calculates that, if it lobbies alone, it expects to gain 100, but if S joins it as a free rider, it expects to gain 150. Meanwhile, S calculates that it expects to gain 20 from Big Electric’s lobbying effort if it does not join the association and 30 if it does, assuming it is free rides in either case. We can represent these expected payoffs in a partially completed game theoretic matrix, as shown in Figure 2.²

Figure 2. To Join or Not to Join

<table>
<thead>
<tr>
<th>Regional Producer (S)</th>
<th>Join</th>
<th>Don't</th>
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<tbody>
<tr>
<td>National Producer (L)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Join</td>
<td>150,30</td>
<td>100,20</td>
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<tr>
<td>Don't</td>
<td>0,0</td>
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S recognizes its fortunate position. It can make the safe choice – join the association, free ride on its ally, and gain an additional 10. Or it can take a risk. It recognizes that its participation in the association benefits L significantly; L gains 50. So, instead of simply joining the association outright, S can hold out a portion of this gain. For example, S could threaten not to join the alliance unless L gives it 20. Will L give in? If it believes that S is at least 40% likely to carry through on its threat, it should. And if S thinks L is at least 33% likely to capitulate, it will find it worthwhile to risk its expected gain of 10 (if it joins with no threat) for a possible expected gain of 30 (if its threat is successful).

We have assumed that the threat just described is an ultimatum: S promises to join if L pays it 20, L agrees, and the game ends. It is perhaps more likely that S’s demand would instead be the beginning of a negotiation between the two firms. S demands 20 (or perhaps more), L responds with a counteroffer, and so on until they agree on a solution or break off negotiations. In our example, the amount L agrees to pay S would fall in the range from -10 (i.e., Bs - Bs*) to 50 (i.e., Bl* - Bl). The negotiations literature calls this the zone of potential agreement (ZOPA) [8, 9]. The result of a negotiation would depend upon many human factors specific to that negotiation. The empirical evidence suggests that many negotiation results seem fall at the midpoint of the ZOPA, or at least the midpoint of the initial offers made by the players [9]. Of course, there is the potential that the players would not agree on a payment, even if the ZOPA exists. In our example, however, it seems likely that S could benefit from a negotiation with L. After all, L stands to gain substantially from the alliance and may be willing to sacrifice some of this gain to ensure S’s participation.

This model can readily be extended in several ways. We can incorporate more than two players. In our terminology, each Small Player considers how its participation affects the expected gains to the Large Players in an alliance, and each Large Player considers how much it would be willing to pay to ensure the Small Players’ participation. We can also consider cases in which a Small Player would not wish to join an alliance anyway, perhaps because joining is too costly. For example, imagine the government of a small country considering whether to enter a military alliance against the wishes of a supermajority of its constituents. In this case, Bs* < Bs, and L will have to compensate S for its participation. At the very least, L will have to pay the small player an amount Bs - Bs*. But, if L benefits substantially from S’s participation, there is no reason that S could not demand more. Once compensated enough to want to join the alliance, S is in the same situation as all the free riders already described. Finally, we can consider the role of imperfect information. So far, we have implicitly assumed that both players know each other’s payoffs. If instead the players are uncertain about these payoffs, they will have to incorporate the knowledge they have into their calculations and design their negotiation strategies accordingly. Imperfect information may reduce the likelihood that the players reach an agreement, but it certainly will not prevent it.

3. Discussion

Free riding is a common problem in alliances. Particularly when there is voluntary provision of the collective good, alliance members often free ride off each other’s contributions, resulting in sub-optimal production of the good. This is the classic Prisoner’s Dilemma result: no individual chooses to cooperate, even though cooperation yields mutually beneficial gains for all.

This problem may be alleviated when the players are of different size. A large player may find it worthwhile to provide the collective good on its own, even though others contribute little or nothing. This is a classic result in the literature on collective action; Mancur Olson called it “the exploitation of the great by the small” [1]. Olson

² Note that we have not included payoffs in the lower-left-hand box, in which the Regional Producer (S) lobbies but the National Producer (L) does not, because it does not seem relevant: if S finds it beneficial to lobby, so will L. We would expect the payoffs in this situation to be something like (40, -10). That is, L would benefit if S went ahead and lobbied by itself. Moreover, even a small amount of lobbying is not beneficial for L and S together, even if it is not beneficial for S alone.
and Zeckhauser explored this burden-sharing asymmetry in depth, primarily through an examination of the NATO alliance [2]. At the time their article was written, they found that the United States spent 9% of its GNP on defense, while its ally Luxembourg spent only 1.7%. The literature since then has generally confirmed their results, with some theoretical and empirical exceptions [3].

The model just presented is properly viewed as an extension of the exploitation hypothesis. Sometimes the exploitation in an alliance is so great that the small actually get paid for doing something they would do anyway if presented with a take-it-or-leave-it offer. The model yields four interesting results: two about the potential for small players to secure side payments from large players, and two about the nature of side payments that result.

(1) As the disparities in resources between players increases, the potential for exploitation of Large Players by Small Players increases.

In our model, Small Players can exploit Large Players simply because of the asymmetric benefits the potential alliance provides. Small Players benefit modestly, while Large Players benefit substantially; therefore Large Players may be willing to pay to ensure Small Players' cooperation. If the collective good yields benefits in proportion to the resources of each player, then the greater the disparities in resources, the greater the asymmetry of benefits. This widens the ZOPA, which increases the potential for exploitation of Large Players by Small Players.4

Consider the example in Figure 3a below. Here, the ZOPA ranges from −10 to 20. That is, S could conceivably secure a maximum side payment of 20, and L would still gain from having him join. But in Figure 3b, L is three times as wealthy, and its benefits from collective action are three times as great. The ZOPA now ranges from −10 to 60, and S simply has greater room to exploit L. Put another way, imagine S seeks to double its benefit from the alliance by negotiating a side payment of 10 from L. It clearly has a much better chance of success in Figure 3b than in Figure 3a. Disparities in resources matter.

Figure 3a. Exploitation of the Larger

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<td>L</td>
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<td></td>
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<tr>
<td>Join</td>
<td>60, 30</td>
<td>40, 20</td>
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<td>Don't</td>
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(2) As the disparities in intensities of preference between players increase, the potential for exploitation of Large Players by Small Players increases.

So far we have thought of Large Players as those of greater size or greater resources. Instead, one player may be "large" because of the relatively greater preference it has for the collective good. For example, a certain firm may strongly need a regulation crucial for its survival, or the government of a nation may strongly prefer joining an alliance because its electorate overwhelmingly does, or because the alliance will protect it against a nearby enemy. In such a case, Figure 3 still applies even if player sizes are equal. The greater the disparity in intensity of preferences, the greater the opportunity for the "small" to exploit the "large."

(3) In many cases, direct monetary side payments are either discouraged or prohibited. Therefore, payments will often take some other, non-monetary form.

In many situations, direct financial payments may be unseemly or illegal, and their use would effectively diminish the gains from enlarging an alliance. For example, firms in an industry who are engaged in lobbying cannot make monetary side payments to each other. Consequently, side payments may take one of several other, more indirect forms. Payment may be made in kind: smaller players may be granted a disproportionate influence on the goals and strategies of the alliance. For example, a small firm may get to name one proposal on a three-proposal lobbying platform or fill two seats on a five-seat advisory board. Payment may also take the form of a "chit" for the future. For instance, a large firm may promise to include a small firm in a future business deal after the current lobbying effort concludes, or a large nation may assure a small nation of favorable treatment during the next trade negotiation. In fact, the small player's initial demand and the ensuing negotiation over side payments may focus entirely on indirect compensation and not on direct monetary exchanges.

(4) Utilizing indirect side payments will often invariably create inefficiencies. Many beneficial deals may never get struck.
If the bargaining between the players is over a direct monetary exchange, then there will be no inefficiencies: a dollar sacrificed by L is a dollar gained by S, and the negotiation over side payments will focus merely on how to distribute the gains from the alliance. But if the negotiation is over indirect or in-kind payments, inefficiency is to be expected. Side payments are blunt instruments, and any transfer from L to S does not necessarily maximize total benefits at the same time. For example, the small firm in a potential two-player alliance may only value incorporating its proposal in the lobbying platform at 20, whereas the large firm may have paid 30 to retain that plank for itself. Unfortunately, with a taboo against direct monetary payments, there is no way for L to pay off the S in a way that would create an efficient outcome.

Given this inefficiency of in-kind side payments, some beneficial deals may never get struck. Though a ZOPA may exist, one or more of the players may walk away from the bargaining table because the players could not agree upon a mutually beneficial exchange of in-kind payments. In the example above, one platform plank may not be enough to compensate S, while two planks may be too much for L to give away. The negotiation may break down, even though some payment in between would have been satisfactory, if it could have been achieved.

It is perhaps more likely for bargaining solutions to be inefficient or negotiations to break down if players are engaged in one-time-only interactions than if they engage in alliance negotiations repeatedly. Over time, players may develop rules and reach agreements to satisfy all players while still maximizing total benefits, the result of a learning process unavailable to players who interact just once. In the business world, mergers and acquisitions may help in this endeavor.

4. Illustrations

It seems natural in the post-9/11, post-Iraqi War world to talk about contribution shares in alliances in the context of foreign policy. We consider two cases here, one historical and one current. But our particular problem of side payments given to free riders can also arise in many other scenarios; we consider one such scenario from politics in the U.S. Congress.

4.1 Malta and Great Britain – 1971-72

The negotiation between Great Britain and the island of Malta in 1971-72 over the terms of its defense alliance illustrates the theory presented [10]. When Dom Mintoff was elected Prime Minister of Malta in 1971, Great Britain no longer considered Malta a crucially located military asset, as it had been historically, and it began pulling men and money out of the island nation. Prime Minister Mintoff knew this, and he also knew that allying with the British was a net good for his country. Faced with a challenging situation, Mintoff gambled on a risky bargaining strategy.

Soon after his election, Mintoff initiated a renegotiation of his nation’s mutual defense agreement with Great Britain and used a host of clever negotiating tactics to earn concessions. Most importantly, he had a significant effort to court two other potential allies, the Soviet Union and Libya, and to convince the British and its NATO allies that Malta had authentic alternatives for partners outside of Europe, alternatives that were unpalatable to Britain. Though Britain was not significantly alarmed, the United States and Italy were, and they urged Great Britain to keep Malta out of Soviet hands. To the British, the benefit of having Malta as an ally was, in and of itself, insignificant. But when faced with the possibility that Malta would fall into the hands of the enemy, Britain’s payoff for maintaining the alliance increased dramatically. The goal of Mintoff’s strategy was to make his threat credible to the British.

Mintoff further enhanced the credibility of his threat to withdraw from the alliance by cultivating a reputation for irrationality. In particular, he nearly completed negotiations with the British only to make more demands at the last moment. His strategy worked marvelously. With time running out and only a handful of British troops remaining on the island, the two nations struck an agreement. Malta remained in the alliance, providing significant benefits to Britain and its allies, relative to the alternative. In addition, Malta not only received the generous benefits from previous agreements that made the British a valuable partner to begin with, but more than tripled the amount of aid it received from Britain and its allies while reducing its own defense-related obligations to NATO. Mintoff did better than a traditional free rider, securing substantial monetary and in-kind payments despite a desire to ally with Britain without any additional compensation.

4.2 United States and France – 2002-03

Though we do not have enough information to reach a definitive judgment, we believe that the negotiations between the American and French governments over the Iraq crisis in 2002-03 illustrates our theory of free riders. There is no doubt that France’s participation in the effort to oust Saddam Hussein would have been tremendously
valuable to the United States, providing much-desired legitimacy in the eyes of the world. Almost certainly, the U.S. would have been happy to have had France in the alliance as an effective free rider, say by sending a small medical group as its contribution. And it may be possible that participation in such an alliance was also in France’s best interests too, assuming that there was no chance of bargaining for more: After all, maintaining an important seat at the table with the world’s only superpower would have clearly been beneficial [11]. Of course, France’s electorate strongly opposed the war, perhaps in part because it thought it should extract significant benefits – e.g., in world influence – from doing so, but it was being asked to take the war on far different terms. Thus, the United States may have needed to compensate the French government enough to make them prefer to join despite popular opposition.

Throughout the crisis, France did not just accede to American plans but instead tried to extort the U.S. by threatening to leave the alliance unless the U.S. gave in and let France have much more control over policy. In 2002, it succeeded: the Bush administration gave in to its demand to secure a multilateral U.N. resolution for the disarmament of Iraq. But in 2003, France failed to extract more concessions. It committed itself to carry out its threat by making confrontational public statements that could hardly be reversed, and it played a game of diplomatic brinkmanship similar to Dom Mintoff’s thirty-one years earlier. Unfortunately, the U.S. was also raising the stakes, committing itself to a military showdown with or without Security Council approval and from which it could not easily retreat. Though we may never know for sure, France might have agreed to join the coalition had the U.S. given the UN weapons inspectors an extra six months to search for weapons of mass destruction before launching a war. Clearly, the U.S. thought that such a departure from its preferred policy – or at least the Bush Administration’s preferred policy – was just too great. In the end, no deal was struck. The alliance-wrenching outcome is possibly an example of a negotiation gone astray, a failure to land within the ZOPA.

4.3 The Congressional Black Caucus and Campaign Finance Reform

Free-rider situations most certainly arise in politics, where alliances and negotiations are commonplace. One example is the Congressional Black Caucus’s influence over campaign finance reform legislation in the U.S. Congress. According to press reports, the 40 or so Caucus members, all Democrats, did not necessarily agree with the party’s support for the elimination of soft-money contributions to political campaigns, because soft money helped fund campaigns and in minority districts [12, 13]. Nonetheless, most indicated they would vote with their party should the bill come to a vote. Since the support of the Caucus was crucial to the Democrats, however, the Caucus was able to win important concessions from leadership – for example, securing long-term support for get-out-the-vote drives in minority districts, one of the activities that soft money had formerly helped support.

This situation fits our model well. Caucus members knew they would benefit, both in the present and the future, from voting with their party on campaign finance reform. But the Democratic Party would benefit even more: The support of Caucus members was crucial to presenting a united front and, as it turned out, passing the legislation. Party leaders presumably did not want to risk the defection of this critical group, which it knew to be cohesive in a way that other blocs of legislators were not. This cohesion made the Caucus’s threat more real, and thus the party met its demands with in-kind side payments that, strictly speaking, may not have been necessary.

This example illustrates a general point. In many cases, smaller parties may misrepresent their payoffs to secure greater payments from larger parties. But even if preferences are fully known, there is the potential for free riders to extract significant side payments. All that is required is that a small player be particularly important to the large player in a coalition. The small player can then demand to share a piece of the larger player’s gain, or else leave (not join) the alliance. And the larger player, not wanting to risk the chance of a dissolved (nonexistent) alliance, may well concede.

5. Concluding Remarks

The modern world witnesses a rich array of alliances. They pursue ends from unseating Saddam, to lobbying legislatures, to producing pharmaceuticals. Where small players bring big benefits to such alliances, they can easily be free riders. But they can often do better. By threatening to withdraw from the alliance, they can actually get paid for doing what they want to do anyway – namely, being part of the alliance.

This paper has merely outlined the general anatomy of a theory. Future work will formalize the model in

5 In fact, at the time of this writing, there were 49 countries in the “coalition of the willing,” but only two of them, the United States and the United Kingdom, made any significant contribution. Most just contributed their names.

6 Frequently, side payments are concealed, because both sides prefer it that way, since it is often bad to either succumb to a bribe, or to have bribed. In this case, however, France would probably have preferred it known that the U.S. succumbed to its pressures, though the U.S. would have certainly disliked that being known.
ways already suggested and will also focus on testing our propositions empirically. Relevant case studies should look to alliances in business and government for evidence that small players not only free ride on the efforts of larger players in a coalition, but also get side payments, possibly in cash but more often in kind.

References


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7 Suggestions from readers of potential examples of our theory are greatly welcomed, particularly if there is concrete evidence of side payments to smaller parties. Please contact Jonathan Borck at jonathan_borck@gsa.harvard.edu.