

The Reasons for Wars – an Updated Survey

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Revised: December 2009

Forthcoming in the *Handbook on the Political Economy of War*,
edited by Chris Coyne, Elgar Publishing

We thank CEPR for allowing us to organize a workshop on conflict in Switzerland in the months before the deadline for this chapter. We also thank Bob Powell and Stergios Skaperdas for helpful comments on earlier drafts.

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1. Introduction

Why do wars occur and recur, especially in cases when the decisions involved are made by careful and rational actors? There are many answers to this question. Given the importance of the question, and the wide range of answers, it is essential to have a perspective on the various sources of conflict. In this chapter we provide a critical overview of the theory of war. In particular, we provide not just a taxonomy of causes of conflict, but also some insight into the necessity of and interrelation between different factors that lead to war.

Let us offer a brief preview of the way in which we categorize causes of war. There are two prerequisites for a war between (rational) actors. One is that the costs of war cannot be overwhelmingly high. By that we mean that there must be some plausible situations in the eyes of the decision makers such that the anticipated gains from a war in terms of resources, power, glory, territory, and so forth exceed the expected costs of conflict, including expected damages to property and life. Thus, for war to occur with rational actors, at least one of the sides involved has to expect that the gains from the conflict will outweigh the costs incurred. Without this prerequisite there can be lasting peace.¹ Second, as cogently argued by Fearon (1995), there has to be a failure in bargaining, so that for some reason there is an inability to reach a mutually advantageous and enforceable agreement. The main tasks in understanding war between rational actors are thus to see why bargaining fails and what incentives or circumstances might lead countries to arm in ways such that the expected benefits from war outweigh the costs for at least one of the sides.

A good portion of our overview of the causes of war is thus spent discussing a framework of different bargaining failures. We emphasize that understanding sources of bargaining failure is not only useful as a categorization, but also because different types of failures lead to different conclusions about the types of wars that emerge, and particularly about things like the duration of war. We return to comment on this after

¹ See Meirowitz and Sartori (2008) and Jackson and Morelli (2009) for the point that this is true even when armament decisions are endogenous, a subject that we discuss below.

discussing various reasons for bargaining failure. Below, we talk in detail about the following five reasons for bargaining failure:²

1. Asymmetric information about the potential costs and benefits of war.
2. A lack of ability to enforce a bargaining agreement and/or a lack of the ability to credibly commit to abide by an agreement.
3. Indivisibilities of resources that might change hands in a war, so that not all potentially mutually beneficial bargaining agreements are feasible.
4. Agency problems, where the incentives of leaders differ from those of the populations that they represent.
5. Multilateral interactions where every potential agreement is blocked by some coalition of states or constituencies who can derail it.

To illustrate the importance of understanding which reason lies behind a conflict, note that if there is a lack of ability to enforce or commit to an agreement, then a war may last a long time. It will last until either one side has emerged victorious, or the situation has changed so that the costs of continued conflict have become overwhelmingly high for all sides. Such a lack of enforceable agreements is often one of the main ingredients leading to protracted wars. In contrast, suppose that enforceable and credible agreements are possible, but that the states start with asymmetric information, for instance, about the relative strength of one of the two countries. In such a case, there can be a bargaining failure which leads to war. However, in such a setting once war really begins the relative strengths of the countries can become clearer, and given that credible bargaining is possible and can avoid further costs of war the states could then reach an agreement to end the war. So, different durations of wars can correspond to different sources of bargaining failures. We expand on this below.

The chapter is organized as follows: For a clearer understanding of the boundaries of rationalist versus non rationalist explanations, we start by briefly discussing non-

² This expands on the list of Fearon (1995), which included the first 3 elements.

rationalist explanations in section 2. Section 3 provides a taxonomy of bargaining failures and how these relate to conflict; section 4 contains a discussion of which theories described in section 3 shed light on the observations of the democratic peace. In section 5 we report on the state of the literature on endogenous armaments and power and the implications for conflict and war.

2. The realm of rationality

Before proceeding to discuss various bargaining failures as causes of war, we discuss some of the alternative sources of conflict that are sometimes thought to fall into the realm of irrationality. We argue that many of these are more usefully viewed as being rational in nature, and hence the bargaining failure categorization still applies to many conflicts that are sometimes thought to be irrational. In order for our discussion to be as unambiguous as possible, we begin by clarifying what we mean when we dichotomize between rational and irrational actors. When we refer to a rational action by an agent we require that action to maximize the expected payoff to that agent out of the available actions and relative to the agent's beliefs about the potential consequences of the actions. This does not necessarily require that the beliefs be accurate, nor that the payoffs of the individual agent correspond to what is best for the state or country that he or she might represent.³ This is a broader definition of a rationalist explanation than is usually understood in International Relations, where it is common to associate a rationalist approach to realist and neo-realist theories of conflict with unitary actors that are exclusively interested in material costs and benefits. Our broader definition should make it clear that what matters is that players, given the payoffs that they face from different outcomes, choose their actions to maximize it given their beliefs about the opponents' actions, hence the qualification "material costs and benefits" is not necessary, nor it is necessary to confine the use of the rationalist approach to the world of unitary actors.

³ In order for this not to become a tautology, one has to be careful. An "irrational" act can always be rationalized simply by saying that it gave the agent taking it a high payoff for some intrinsic reason. Thus in order to have bite, the payoffs to agents for various actions have to have some natural specification. Although the distinction is thus partly semantic, or reliant on some idea of what natural payoffs should be, we still find it to be a useful dichotomy.

With this viewpoint in mind, let us discuss some causes of war that are often thought of as relying on some level of "irrationality." As we shall see, with our broad definition of rationality, even many of these may be interpreted as rational causes of war. This is not simply an issue of semantics, since the distinction has fundamental implications for how wars might be initiated, and if and how they can be avoided or terminated.

2.1 Religion

In principle, a war between two theocracies, or two states led by people of different religions, can be thought of as having rational explanations. It is a question of defining the objectives of the agents. For example, the goal might not be materially based, but might be based on the increasing the size of the population of one religion or eradicating another. In such situations, even with full commitment and bargaining opportunities, there might be no agreement that appeases an aggressor. One reason that one might place such motivations outside of the realm of "rationality," is that such objectives are often not put forth by a leader as if they are acting by choice, but instead leaders claim to be acting on behalf or under the direction of a higher being or religious code. Thus, the leaders in such settings do not necessarily view themselves as "optimizing" or "choosing" between paths but instead as following ordained directions. Perhaps even more importantly, from our perspective, such agents cannot be bargained with. That is, even if agreements are available and fully enforceable, such agents are driven by a specific goal that may be incompatible with the well-being or autonomy of another population. Thus, there is a critical distinction between a leader who is choosing and optimizing, even though the his or her rhetoric may be religious in nature, and a leader who believes that he or she acts simply as a channel for a higher being.

In this light, many wars that are thought of as being religious in nature can still be well-understood from a rational perspective. To make this point clear, let us discuss two prominent examples that are often considered to be at least partly religious wars: the crusades and the 30-year war.

Although the crusades were complicated by the fact that the aggressor was a coalition of national and sub-national armies, they fell under a common religious flag. Beyond the rhetoric, the commonality of interests within the Christian coalition can be doubted. As Fisher (1992) remarks about the interests of crusaders: "Undoubtedly, many of the Crusaders were inspired by a genuine religious motive next to their mundane concern for a share in the spoils. However, the idea of Christian unity failed again to achieve political reality. The Crusaders not only carved up the newly won territories in the East into petty principalities but also continued to struggle against each other in Europe. And they ultimately failed to hold the East precisely because they could not square their particular interests with the universal idea that had inspired them..." (Fischer 1992:438). "Thus, the politics of the Crusades, while showing that religious ideas can have some political effect, remained alliances circumscribed by the exigencies of power" (1992:443). Effectively, the crusades involved many factions and took place over many fronts and to a large extent involved attempts to gain or regain control of various territories, ranging from the Iberian peninsula, to Constantinople, to parts of the middle east including Jerusalem. The important aspect of this from our perspective is that the crusades took place at least partly due to a lack of ability to credibly commit to abide by agreements, to the multiplicity of factions involved on multiple fronts, and due to situations with great frictions in communication and in gaining information (e.g., see Runciman (1951-4)). Thus, the crusades can be partly understood from a combination of the rationalist perspectives that we discuss below.

Regarding the 30-year war, even though before 1618 there was an eruption of religious divisions within Europe emanating from multiple protestant reforms and movements, the religious motivation was used by some leaders to justify actions and to mobilize people, when again part of the instability derived from a multi-lateral power struggle and a lack of enforceable agreements. As argued by Gutmann (1988), a central reason for the failure of many settlement attempts was the difficulty of enforcing a new distribution of power that was so different from the official distribution of power defended by the papacy and imperial power. The Westphalia agreements that ended the war in 1648 cut the connections between some of the territorial and religious disputes, and the principles of autonomy and territory that were embodied in the agreement laid a

foundation for modern states.⁴ To establish religious tolerance Catholics and Protestants were co-mingled within some of the same territories, and religious leaders were prohibited from having authority over people in separate territories. Thus, although the 30-year war involved religious motivations, the various factions were also motivated by territory, peace, and autonomy, and were eventually able to find a rather complicated agreement that was self-sustaining.

The long-standing conflict between Israel and the Palestinians could be viewed as another instance of a religious conflict that is often given non-rationalist explanations. However, it may more usefully be viewed through a rationalist lens. One of the central difficulties in resolving this middle-eastern conflict is in finding a stable agreement that is credible in the long run on behalf of the many different factions that comprise the two sides of the conflict. Even though the Oslo peace accords followed land for peace principles as one would expect in a rationalist dispute, when violence resumed the blame was given to "fundamentalism" on various sides (a typical non-rationalist explanation). The rationalist explanation for conflict based on multilateral bargaining, which we discuss below, is a more useful lens with which to view this conflict. In this case, both the Israelis and the Palestinians consist of many different constituencies and so although it appears to be a bilateral conflict it is in fact multilateral. In such settings, it can be that even with fully rational individual actors, agreements are not possible since the states end up being inconsistent in their decision-making as they are collectively aggregating the preferences of many different actors. This rationalist explanation is one that we discuss in more detail below.

2.2 Revenge

Revenge is another reason for war that one would instinctively place within the set of non-rationalist explanations of war. It is important, however, to distinguish an emotional version of revenge from a version of what someone might call revenge in the context of a repeated game: the punishment phase involved in trigger strategies of one kind or

⁴ See Krasner (1995) for an account of the role of territory and autonomy principles.

another. It is the emotional version that falls within the non-rationalist explanations.⁵ Revenge in emotional terms involves actions motivated exclusively by anger for a past action, and not motivated by the potential incentive consequences, nor decided ex ante as part of an optimal strategy. Wars driven by revenge are also rare, although famous examples include the motivation of the Achaeans' in the Trojan war, at least according to the description in the Iliad.⁶

2.3 Ethnic cleansing and other ideological mass killings

As in our discussion of religion, one could in principle rationalize the incentives to eliminate another ethnic group or minority ideological group by a desire to obtain a larger share of the social cake, in the present and/or in the future (see e.g. Esteban and Ray (2008)). Such ideologies are generally uncompromising and not justified by reasoned choice but by appealing to other principles.

Hitler had the affirmation of the dominance of his race as a primary objective. However, as much as ethnic domination and insanity were part of Hitler's motivations, part of the understanding of the Second World War involves seeing why conflict was not avoided through concessions, and there rationalist explanations can help. As we mention below, for example, the failure of the Munich Agreement was due to credible commitment problems, and would have failed even if ethnicity and insanity were not in the picture.

⁵ Nonetheless, emotional responses can still be understood from an evolutionary perspective as providing the ability to commit to certain actions in particular circumstances. Such commitment can be welfare improving in certain circumstances. For example, in a simple bargaining game, it can be advantageous to have the other side know that a player will become angry and refuse further negotiations if not given an adequate share of the pie.

⁶ Interestingly, the Iliad also contains numerous discussions of ransoms, slaves, territories, and various other prizes and glories as motivations. However, repeated references are made to revenge for the stealing of Helen as well as the defense of honor and anger as the primary impetus for various actions of Agamemnon, Menelaus, and Achilles at different points in the war (not to mention fate and the play of the gods).

A final caveat should be made about the possibility of wars caused by insanity of one or more leaders. As we shall see below when we discuss the "spiral" theory of war by Schelling and others, the fear of the insanity of an opponent may also cause a rational motivation for attacking, so even here the boundary between rational and non rational is fuzzy. We place such explanations within the rationalist explanations because it can be the fully rational agents end up in war because of their uncertainty about the rationality of others.

3. Bargaining Failures and War

As mentioned in the introduction, we see two necessary ingredients for a war between rational agents. First, the costs of war cannot be overwhelmingly high. That is, for war to occur, at least one of the two parties must see a net potential gain from war under some circumstances.⁷ Second, there must be some impediment to bargaining, so that an enforceable and credible agreement cannot be reached. Effectively, rational decision makers weigh gains and losses from war given their objectives, beliefs, environment and constraints, and so if a mutually advantageous agreement is possible they should reach it. In an important paper, Fearon (1995) points out the criticality of bargaining failure for war. Basically, if rational agents come to the table with mutually consistent beliefs about the potential outcome of a costly war, then they should be able to reach a bargain to avoid it. In such a situation states can agree to split resources as they are expected to be split by a war, and then gain the extra surplus of the avoided destruction and costs of war.

Thus, to really understand the multitude of ways that wars may occur, it is illuminating to provide a taxonomy of bargaining failures and their roles in wars. As pointed out in Fearon (1995), there are various ways in which such bargaining might fail. It might be that the agents do not have the same beliefs or expectations about the

⁷ As we shall discuss below, there is a subtlety here. In cases where an actor is uncertain about the rationality of another, it could be that they attack preemptively even when sure that the outcome will be worse than avoiding war. They could wish to attack because they fear the other will attack, and because attacking first is preferable to being attacked. Thus, the costs not being overwhelmingly high should be restricted to cases where rationality is common knowledge or where there are no preemptive advantages.

potential outcome of a war. It could also be that they cannot commit to abide by an agreement and that there are no external means of enforcing an agreement. It might be that resources are indivisible and so there is no way to realize the split of resources that are expected as an outcome of a war. Beyond these three ways that are central to Fearon's analysis, we add another two. It might also be that the agents who bargain or make decisions do not have the same payoffs as the states at large, so that their incentives are distorted from what might be mutually beneficial to the populations. Finally, when considering multilateral bargaining, it might be that there is no outcome that is stable against coalitional deviations from groups of countries. In this section we elaborate on these five sources of bargaining failure, and we integrate this picture with some of the recent advancements in the theory of war.

3.1 Asymmetric information and bargaining failures

Asymmetries of information can arise from a variety of sources. It could be an asymmetry of information about the relative strengths of the countries either because of differences in what they know about each other's armaments, quality of military personnel and tactics, determination, geography, political climate, or even just about the relative probability of different outcomes.

The possibility of a bargaining failure due to asymmetric information has a solid foundation in economics, and was made very clear in work by Myerson and Satterthwaite (1983). To see the basic insights in the context of war, suppose that there are two countries and one of them, referred to as country A, has unknown strength. In particular, suppose that country A can either be strong or weak with equal probability in the eyes of the other country. Imagine that war involves a relatively small cost, that the victor in a war gains control of all resources, and that war results in one of the two countries conquering the other. Suppose that if country A is strong then it wins a war with probability $3/4$ and if it is weak it wins with probability $1/4$. So, in order to always avoid a war, an agreement must provide the strong version of country A with at least $3/4$ of all resources less the cost of war (in expectation, presuming it maximizes expected payoff).

Now the asymmetry of information enters: a weak version of country A cannot be distinguished from a strong one by country B. Thus if the strong version of country A always gets at least $3/4$ of the resources less the cost of war, then since a weak version of the country cannot be distinguished from a strong version by country B, a weak version of country A must also expect at least $3/4$ of the total resources less the cost of war, as it can mimic a strong version of the country and get a high payoff without risk of war. This means that country B must get at most $1/4$ of all resources plus the cost of war. If the cost of war is low enough, then the country B is better off simply going to war and taking its chances rather than reaching such an unfavorable bargain. This is obviously a highly stylized example, but it encapsulates the difficulties with bargaining in the face of asymmetric information. Generally, it may be difficult for a weak country to pretend to be a strong one, but there can still be some degree of asymmetric information across countries and even lesser asymmetries can make it impossible to find agreements that all parties will agree to in all circumstances.

It is important to note that imperfect information about the opponent's resolve or strength is a source of conflict that does not require any violation of common knowledge of rationality. The above reasoning is such that all the actors are fully rational, understand the setting, and fully comprehend all of its implications. It is also clear that the countries would like to avoid the difficulty. In particular, a strong version of country A would like to be able to distinguish itself from the weak version. If it could credibly demonstrate its strength, that would solve the problem. That is, if strength can be revealed peacefully and credibly (even at some minor cost), then there is a bargain which works as follows: if country A reveals strength, then it gets $3/4$ of all resources and if it does not reveal its strength then it is presumed to be weak and only gets $1/4$ of all resources. This solves the incentive problem as the weak version of country A can no longer pretend to be strong. Weakness is presumed unless evidence is presented to the contrary. This provides some insight into why countries might be willing to demonstrate arms (for instance publicly testing nuclear devices, holding military parades and exercises in observable settings, and so forth). There might be other settings where hiding strength is advantageous because

bargaining is precluded,⁸ but in settings where binding agreements can be reached there are powerful incentives for the strongest types to reveal their strength to distinguish themselves from weaker types and to cement their bargaining position. Moreover, this is not limited to settings with just two potential strengths. Even with many different gradations of strength, the strongest wants to reveal itself, and then the next strongest will want to reveal itself, and so forth and this then unravels so all but the weakest types want to distinguish themselves. So this is robust to much richer information environments than the example above.

With such asymmetries of information, whether war will occur will depend on the extent to which the private information of individuals can be credibly revealed or not as well as how relevant the private information is to forecasting the outcome of a war. If it is really impossible to fully and credibly reveal information and such information is critical to predicting the outcome of a potential war, it can be that bargaining will fail and war must be expected with at least some probability. An early paper providing a model of war decisions with asymmetrically informed countries, and pointing out that an uninformed country may sometimes have to go to war to avoid bluffing behavior by an informed country, is Brito and Intriligator (1985).

The form of information asymmetry discussed above concerns potential outcomes of a war. A second information-based reason for a bargaining failure is that agents have inconsistent beliefs. For example, it could be that two states each are optimistic and are convinced that they will benefit from a war. In these cases war can erupt, as long as the inconsistency of beliefs is large enough to compensate for the cost of war. For instance, if both parties expect to win a war with a high enough probability, then there would not exist any agreement that avoids war.⁹ The possibility and examples of wars that are attributed to such miscalculations or errors due to lack of information or to different

⁸ For example, see Slantchev (2007).

⁹ At some level to have a war and such inconsistent beliefs when bargaining is possible, it is critical that the information structure and the rationality of the agents not be common knowledge, as defined in the seminal paper by Aumann (1976).

priors about relative power have been discussed informally by Blainey (1973), Gartzke (1999), Wagner (2000), Smith and Stam (2003), among others.

A third form of information asymmetry concerns incomplete information about the motivations of other agents. Here it is believed that there is some probability that the other actor might be irrational.¹⁰ This includes spiraling models such as those discussed in Waltz (1959) and Schelling (1963), and more recently Kydd (1997). These ideas have been elaborated and extended upon by Baliga and Sjöström (2004) and subsequent works. The idea common to these works is that even a small probability of being faced by an armed irrational foe can lead a rational country to arm to some level. In turn, this now means that either a foe who is irrational, or a foe who thinks that I might be irrational will be arming, and this then leads me to arm even more, and this feedback continues to build. Depending on the specifics of the payoffs to arming and potential conflict, it can be that the rational countries each arm to very high levels and are ready to attack first because of the fear that the other side may attack first. In some cases, communication can help overcome this problem, since it can be in both countries' interests to be known to be rational, but this depends on the specifics of the setting and the type of communication available, as Baliga and Sjöström (2009) show.

3.2 Commitment problems

Commitment problems are probably the single most pervasive reason for bargaining failure. This applies to many aspects of agreements that might avoid conflict, including promises to make future transfers and/or not to attack in the future. The implications of the inability to guarantee an agreement have been understood for centuries and, for instance, underlies the basic anarchic state of nature described by Hobbes (1651) in the *Leviathan*. As Hobbes states (1651, Chapter 13), "Because of this distrust amongst men, the most reasonable way for any man to make himself safe is to strike first, that is, by force or cunning subdue other men - as many of them as he can, until he sees no other power great enough to endanger him. This is no more than what he

¹⁰ This is effectively a "rationalist" explanation, since there is no need for the other actor to be irrational, just that rational actors allow for this possibility and react to it.

needs for his own survival, and is generally allowed." Effectively there is nothing stopping someone from grabbing resources except fear of retaliation. Hobbes goes on to suggest that reasonable people can come to realize the inherent difficulties with anarchy and cede their rights to a Leviathan in order to live in peace. However, such social contracts do not generally appear in the international arena, and hence for an agreement to endure it has to be balanced in such a way as to be self-enforcing. In some cases, an outside authority, for instance an international organization such as the UN, can serve as an enforcer of an agreement, but the role of that international organization and its members' incentives to really enforce the agreement are then part of a bigger picture where things need to be self-enforcing. Powell (2006) provides a rich set of illustrations of the pervasiveness of commitment problems.¹¹

What does self-enforcement entail? Effectively it must be that, in terms of our earlier discussion, the costs of war subsequent to whatever transfers of wealth or territory become overwhelmingly high. That is, for an agreement to be self-sustaining the states need to be sufficiently balanced in terms of strength and the allocation of resources, so that a war would not benefit any of the states in expectation. It can also be that even if one does not start at such a situation, then by giving up some resources one of the states becomes a less attractive target or a less threatening adversary and one reaches a situation where the costs of war outweigh the potential gains and so peace is self-enforcing. (See Bevia and Corchon (2009) for some discussion). Another way in which things might be made self-enforcing involves reputation. If a country faces potential conflicts with many other countries, then abiding by an agreement with one country can make it possible to credibly abide by agreements in other cases. Thus, it may be in a country's interest to abide by a collection of many agreements even when it might prefer to breach any single one of the agreements in isolation. Such self-enforcement involves embedding in a rich context and will depend on a variety of factors.

¹¹ Powell also shows that even some cases in which conflict seems to be due to indivisibilities (Kirshner 2000) can be viewed as due to commitment problems.

Let us also comment on some of the ways that a lack of commitment in agreements might lead to war.¹²

3.2.1 Commitment not to attack after a received transfer or to deliver inter-temporal transfers

The most basic difficulty with a lack of commitment is the obvious one. A country delivering resources cannot trust that the other will not demand more or attack after receiving the resources. A notable example of such a failure of appeasement due to a lack of commitment is the Munich Agreement of 1938, after which Hitler invaded Czechoslovakia despite the agreement.

One idea that has been explored in terms of avoiding such difficulties is to make a series of transfers at a carefully determined rate over time that balances the incentives for conflict against anticipated future transfers. It is not always possible for such an approach to work, but it can in some circumstances, depending on which transfers are possible, how patient the countries are, how imbalanced they are, and how attractive or costly conflict is.¹³

3.2.2 First Strike Advantages and Preemptive War

As the quote of Hobbes makes clear, one difficulty in attaining peace is that the natural anarchy in which international relations reside often leads to a first-strike advantage (preemption). That is, an element of stealth or surprise provides a significant advantage. If there were no first-strike advantage, and countries could have a well-founded expectation of the expected outcome of war, then there would be some mutual allocation of resources leading to a better outcome for all countries than war (presuming that the allocation does not further alter the expected outcome of war). That agreement

¹² There is a strand of the bargaining literature which points out that in some contexts ability to “commit” can lead to conflict. The idea there, following Nash (1953), Schelling (1966), Crawford (1982) (and see also Ellingsen and Miettinen (2008) and Querou (2009)), is that players can commit to accepting no less than a certain fraction of the pie. If players can make simultaneous commitments it is possible for them to reach incompatible demands in settings with uncertainty about whether commitments are binding.

¹³ Schwarz and Sonin (2008) show that war can be avoided with a continuous stream of transfers that comes at a fast enough rate to always have the aggressor wish to delay rather than attack.

becomes self-enforcing since it provides countries each with more than their expected resources after a war, and so war is worse for all involved in expectations. However, this presumes that the expected outcome of a war is the same independent of how the war starts. In many cases, the outcome depends on who initiates a war. A significant offensive advantage to war can lead war to be inevitable. As a simple illustration, imagine two evenly matched countries with an even split of resources and a cost to war. If war leads to an evenly matched outcome regardless of who attacks first or under what circumstances, then peace is self-enforcing. In contrast, if a country that strikes first gains a large advantage by doing so, and expects to gain resources with a high enough probability, then peace is destabilized. Each country would like to strike before the other, and also understands that the other also has an incentive to attack first, and so must react by expecting a war, and so war becomes inevitable. Various models of this appear in Powell (1991), Fearon (1995), Chassang and Padro i Miquel (2008), and Morelli and Rohner (2009).

3.2.3 Preventive war

Even in situations where countries are balanced in the short run, a country may fear that an opponent will become stronger over time and that the balance will be destabilized over time,, and may therefore wish to attack today to prevent being attacked by a stronger opponent in the future. Taylor (1954) is an early reference for this perspective, arguing that wars among great powers between 1848 and 1918 can be explained as preventive wars.

Interestingly, preventive incentives are not just an issue when countries are evenly matched and anticipate becoming unevenly matched in the future, but also when one country has a current arms advantage and worries that the other will catch up in the future and that the future situation will be unstable (possibly due to first-strike advantages, or some other considerations), and so wishes to attack while the balance is in their favor. This was an important concern during the early period of the cold war when the United States had nuclear weapon capabilities and the Soviet Union did not. There were debates about whether or not the U.S. should fight a preventative war during both the Truman and Eisenhower administrations. The fact that this did not happen has been argued to be due

to a feeling that this was inconsistent with democratic principles (e.g., see the discussion in Silverstone (2007) and Levy (2008)), but from a purely rationalist perspective it might be that the fear of the future instability was insufficient to engage in a war at that time.

3.2.4 War as part of a dynamic bargaining process

Leventoglu and Slantchev (2007) report that almost 70 percent of conflicts end with a negotiated settlement, and almost no conflict ends with the complete elimination of one side, and hence the theory should explain why in many cases a commitment/self-enforcement problem disappears over time and a negotiated settlement eventually becomes feasible. They provide conditions, viewing war as part of a dynamic bargaining process, for a limited war to happen in equilibrium, and commitment to a negotiated settlement to appear after a period of war.¹⁴

In summary, the pervasiveness of commitment problems comes from the lack of any external enforcement device in an international setting, and so any agreement is really only lasting if it is in the interest of all parties to continue to abide by it. A simple transfer of resources will not suffice unless it aligns incentives, or there are larger reputational concerns involved, or transfers are delicately arranged inter-temporally. There are many factors in such anarchic settings that naturally lead to instability such as preemptive and preventive motives, as well as the earlier mentioned asymmetries of information.

3.3 Indivisibilities and other physical impediments

Consider a situation where a fairly precisely balanced agreement needs to be reached in order to avoid conflict. If it is difficult to finely divide territory, or other natural resources in ways that strike the exact balance needed, that could lead to an inability to reach an agreement in the face of war. While indivisibilities are a seemingly important impediment to bargaining, Fearon (1995) dismisses them as a significant

¹⁴ Yared (2008) extends this analysis to incorporate commitment problems and asymmetric information as potential combined causes of limited wars during the bargaining process. For other perspectives on war as part of a bargaining process, see Bloch et al. (2006), Sanchez-Pages (2005), and Chassang and Padro i Miquel (2009).

explanation for war. Even if some resources are indivisible, it must be that there are no other resources that could be used to compensate.¹⁵ Agreements involving trade of large sections of land and money (e.g., the Louisiana Purchase), are plentiful, and the many dimensions through which wealth can be transferred from one state to another make it rare that a war occurs as a result from an inability to divide resources.

In terms of other impediments, delays in communication can make basic forms of bargaining difficult or impossible. While that is less of an issue in modern times, it was a substantial hurdle in times where armies might end up weeks or months in distance away from the leaders that commissioned them (as in the crusades). This leads to substantial delays in communication between the main parties involved in a potential conflict, and in such settings reaching an agreement that avoids conflict may be precluded even if such an agreement exists.

3.4 Agency problems

Even when decision makers are fully informed and have perfectly consistent beliefs, conflict may still be rationally chosen when there are differences in preferences between decision-makers and the rest of their country (a principal-agent problem). As explained in Jackson and Morelli (2007), when the decision-makers are biased relative to their countries war can occur, regardless of the availability of enforceable or binding agreements.¹⁶ The leader of a country might not face the same risks as the country's citizens, or it might be that the leader expects greater gains or glory from a war than the citizens.¹⁷

¹⁵ As Powell (2006) points out, there is another way to avoid indivisibilities. Even if there are no other resources to transfer, the two sides could always resort to a lottery that has the same odds as the war but without the cost. The answer as to why such a lottery might not work then relates back to an inability to commit to abide by the agreement *ex post*.

¹⁶ See Lake (1992) for an alternative notion of bias and Bevia and Corchon (2009) for an extension of the Jackson and Morelli (2007) theory and for some related predictions on the role of inequality.

¹⁷ Implicitly, there is a sort of contracting failure here in aligning the leader's preferences with that of the citizenship. This might be due to an inability to contract with the leader and so represent some sort of commitment problem or other bargaining failure. Or, as we discuss below, it might even be that the

Furthermore, as Jackson and Morelli (2007) point out, it can even be that a country would like to choose leaders that have different preferences from that of the country to improve their bargaining position. Overall the risk of war that this implies *ex ante* can be compensated by the ability of a hawkishly-biased leader to obtain better deals at bargaining tables.¹⁸ This means that even though democracies might be expected to have unbiased leaders who represent the preferences of the average citizen, unbiasedness cannot be guaranteed in democracies either..

Clearly, the ways in which leaders come to power differ across political regimes and this can affect the type of leader that emerges and the extent to which they represent the population as a whole. According to the selectorate theory in Bueno de Mesquita et al. (2003), democratic leaders need a larger coalition to support them relative to non democratic leaders. Keeping a larger coalition satisfied is more costly and hence losing a war is relatively more costly for democratic leaders, and generally makes them less prone to war.

3.5 Multilateral bargaining failures

As an illustration of the potential bargaining failures that arise in a multilateral setting, let us consider a simple three-state conflict. Suppose that there are three equally powerful countries with equal resources. Also suppose that if two countries cooperate, they can easily defeat the third with relatively low costs of war. In such a situation any pair of countries can expect to get almost all of the resources in the world by ganging up on the third. There is no bargain that is stable here.¹⁹ If the countries are about to sign an agreement, it must be that at least one of the countries gets at least a third of the total resources. The other two countries could gain by not signing the agreement, cooperating to defeat this third country and then afterwards splitting the resources evenly (and

citizens gain by having a leader whose bargaining position is more hawkish than they would have if they were bargaining on their own behalf.

¹⁸ Freshman and Judd (1987) and Jones (1989) develop a similar delegation logic in different contexts. Querou (2009b) examines agency issues in collective bargaining settings.

¹⁹ Stability has many meanings in international relations, as can be seen in Nyou et al. (1989). In this example any basic notion of multilateral stability fails.

reaching a balanced and self-enforcing agreement once the world is reduced to two countries).²⁰

What happens in settings with multilateral interactions will depend on the specifics of the bargaining process, the relative powers of different coalitions, and many other factors. What is clear, however, is that with three or more countries the fact that there is complete information, divisible outcomes, and an enforceable bargaining technology does not preclude war. This is an important and relatively unexplored territory in the theory of war, and given the innumerable wars that involve more than two states, understanding multilateral bargaining and war is an important area for future research.

Let us add a remark to this. Even when there are just two countries involved in a war, it might be multilateral considerations that derail peace. Although countries are sometimes discussed as if they are unitary actors, it is clear that they are composed of many actors with different objectives. As we know from the basics of collective decision making, an organization that is comprised of many actors does not necessarily act as if it were maximizing some objective function. Basic voting cycles can emerge and so a country composed of individually rational actors can exhibit intransitivities and other inconsistencies in its decision making that make the country difficult or impossible to bargain with.

4. Democratic Peace

As an example of how the various theories interact, let us consider a well-studied empirical regularity in international relations, namely the "democratic peace"; i.e., the observation that democracies rarely go to war with one another (e.g., see Doyle (1986)

²⁰ This is what is known as an empty core in the cooperative game theory literature. See Ray (2007) for a recent discussion of multilateral interactions and the possibility of reaching binding agreements and how that depends on the presence of local public goods.

and Russett (1993)). The idea that incentives of aristocrats to go to war differ from that of democratic leaders is not new, and is well articulated by Kant (1795).

An important explanation of democratic peace is an agency one. As discussed above, Jackson and Morelli (2007) point out, when a leader has a disproportionately high share of benefits relative to costs from war when compared to the average citizen, then war can occur, but such a war will not occur if self-enforcing agreements are feasible and leaders are unbiased representatives. This "unbiased peace" result can be viewed as an explanation of democratic peace, since the checks and balances of a democracy can help reduce the chance of having a biased leader.

Conconi et al. (2009) extend this argument from Jackson and Morelli (2007), introducing an explicit election and reelection mechanism to control the bias of leaders. They show, theoretically and empirically, that the incentives of reelection can lead leaders to be unbiased in their decision-making, but that democratically elected leaders who do not face re-election can act similarly to autocratic leaders. Thus, the democratic peace observations are refined, and it is democratically elected leaders who face reelection who do not go to war with other democratically elected leaders also facing reelection. But autocrats or democratically elected leaders under the last term of a term-limit can diverge from the population's interests and go to war. So it seems that a driving force behind the democratic peace is how a leader's incentives are kept in line with the population through potential reelection.²¹

It is worth noting that the interactions between an executive's behavior and election prospects can be quite complicated. For example, going counter to the incentives to avoid conflict when facing reelection, there are also "wag the dog" sorts of situations, such as that described by Hess and Orphanides (1995, 2001), where an incumbent leader facing poor reelection prospects has greater incentives to initiate a war. The Hess and Orphanides (1995) explanation is that a conflict might reveal information

²¹ For an analysis of the political costs of war for different regimes, see also Bueno de Mesquita and Siverson (1995) and Chiozza and Goemans (2004). See Downs and Rocke (1994) and Tarar (2006) for different discussions of the incentives of an executive to engage in war relative to the electorate's incentives to retain the executive.

about the leader's abilities to the electorate that increases the probability of reelection. As Hess and Orphanides (2001b) suggest, such behavior can be correlated with recessions where an incumbent may be at a disadvantage.

Moving to the role of asymmetric information for the explanation of democratic peace, Fearon (1997) emphasized that so called "audience costs" (the cost of misrepresentations) are much higher in a democracy, and substantial audience costs can make signaling of information more effective in democracies, which in turn reduces asymmetries in information, and thus reduces the probability of war.

Fearon (2008) emphasizes another channel to rationalize democratic peace that involves commitment issues. The stronger country between two potential contenders usually has a higher GDP per capita. If it is democratic, then, even if the leader promises to a set of supporters some benefits from the war, it cannot avoid the possibility that eventually, once democratic rules apply to the unified country in case of victory, the GDP per capita of the winning country will go down. Hence voters of a richer democracy who believe that the unified country will lead to wealth redistribution should be against the war, and hence only weak contenders should remain interested in wars. However, weaker countries will generally have less interest in entering a conflict to begin with due to a low probability of success.

5. Endogenous Power

So far we have not talked much about the incentives of countries to arm. It is important to recognize that the probability of war depends on prior investments in arms, and that in turn the incentives to arm depend on how arms affect future incentives to go to war or to bargain. Thus, to fully understand decisions to go to war, such decisions cannot be divorced from the broader endogenous armament environment in which they reside.

There are studies of armament decisions in the case where conflict is inevitable (or bargaining is inevitable), such as that of Hirshleifer (1989, 1995) and Skaperdas (1992). The case were both decisions, whether to arm and whether to attack, are present

is analyzed in Powell (1993) and Jackson and Morelli (2009). The key difference in the analyses is the timing of the arming decisions. Powell's model leads to peace, and is one where countries move in alternating time periods and have their armament levels fixed for the intermediate periods. In such a setting, country 1 will set its arms at a level that it knows will be sufficient to deter the other country. The other country when called upon to move must then set its arms at a similar level, to deter future attacks when the first country can readjust its arms. This results in constant positive armaments and perpetual peace. In Jackson and Morelli (2009), the armament decisions are simultaneous, so that there is a sense in which countries cannot fully react to each other's armament levels but must anticipate them. In that setting, for a range of scenarios, countries randomize²² between a variety of strategies that must include hawkish, dovish, and deterrence armament levels. Of course, this is in the absence of commitment, as otherwise countries would sign binding agreements not to attack each other and the question of armament would become moot. The intuition behind why war is inevitable and some variation in arms levels necessarily result is fairly straightforward. A complete lack of arms on the part of both countries is not a stable outcome, since a country that anticipates that the other will be completely unprotected, would prefer to arm and attack (presuming that the costs of war are not overwhelmingly high, in which case perpetual peace and no arms are an equilibrium). Let us then consider the other extreme, where both countries arm to a high level, and mutually deter attacks. This also fails to be an equilibrium point. Given that there is a positive cost of war, it is true that if the countries are both heavily armed, then neither wants to attack the other. However, given the costs of war, deterrence is still assured if one country slightly reduces its arms. Given the savings of arms costs, then it cannot be an equilibrium for mutually high levels, as one country should lower its arms level to a slightly lower deterrence level. This incentive then ends up ratcheting down the arms levels, as it is always better to have slightly lower arms than the other country given that war will not occur if arms levels are close enough to each other. However, if we keep

²² It is a bit strange to think of countries randomizing in armament decisions. In fact, it is not at all necessary that the country randomize, but just that its decision making process not be fully predictable to the other country. What is critical is that the other country be unsure of the precise armament level that its opponent will take.

ratcheting arms levels down so that the countries are not arming very much, then we return to the first reasoning that one of the countries should deviate to arm heavily and go to war. So, there is no stable pair of arms levels, and the equilibrium must involve some randomization, and over at least several types of arms levels. Jackson and Morelli also investigate comparative statics when there is a probability that the countries will have an opportunity to bargain (in a credible way) to avoid a war. Increasing the probability of a bargaining opportunity leads countries to make less use of deterrence armament strategies and more use of hawkish and dovish strategies, so the possibility of potential conflict increases. The idea is that as bargaining becomes more likely, deterrence strategies become less valuable, all else held equal, as do hawkish strategies, while dovish strategies become more valuable. To ensure stability, one needs to increase the use of dovish strategies, which then reestablishes value to the hawkish strategies and increases their use, which then also maintains a reason to have at least some deterrence activity. The overall comparative statics that come out of this are that there is a lower probability of war due to the increased bargaining opportunities; however, there is a higher probability of war conditional on bargaining not being feasible.

Interestingly, peaceful outcomes are not necessarily the efficient ones in such endogenous-arms settings. Arms are wasteful, and so having many periods of peace but with costly armament levels can be worse than simply having an early conflict and then thereafter living in a unified country with peace without the need for arms.²³

Another interesting case is the one in which arms remain unobservable even after the investment phase has ended and war is about to start. Meirowitz and Sartori (2008) analyze this case, and they also show that war cannot be avoided even if bargaining technologies exist. In their case, the source of the positive probability of war is asymmetric information, whereas in Jackson and Morelli's observable case the bargaining failures fall under the category of commitment and enforcement frictions.

Beyond these models of endogenous power, there are also models such as that of Chassang and Padro i Miquel (2008). They do comparative statics in weapons stocks

²³ For this last observation, see also Garfinkel and Skaperdas (2000).

which sheds light on the incentives to arm and which sorts of arms and levels of arms countries might seek. They note that the advantage to a first strike affects the perceived value to the attacker, while the incentive to preemptively attack rather than risk being attacked is something that comes out of the payoffs of the potential target. Increasing the arms of just one country increases the advantage over an opponent in terms of a striking first which can increase preemption tensions. However, mutual increases in arms can lower the risk of suffering an attack and lower preemption tensions. They use this to note that extremely destructive weapons such as nuclear weapons can produce a more even balance and result in mutual deterrence, while arming with less destructive weapons might provide enough of an asymmetry that it results in incentives to strike first, and thus also an incentive to preemptively attack.

6. The duration of wars

As mentioned briefly in the introduction, part of the importance of understanding the various reasons for war is that different scenarios lead to different sorts of outcomes. To see this most starkly, consider a situation where a war starts due to a lack of commitment. In such a case a war can be protracted. A peace agreement only becomes attainable after the balance of power has shifted so that it becomes in both sides' interest to agree to peace. This can take a long time. In contrast, if bargaining is possible, but fails due to asymmetric information about the relative strengths of countries, then a bargain should be reached as soon as the relative strengths of the countries becomes clear. This may take some time, but might happen much more quickly, and with lower costs, than it would take for the balance of power to shift significantly enough to lead to self-enforcement.

Exactly how long the war might last when there is no ability to commit can depend on many factors. In the case of asymmetric information, a model that offers predictions in this regard, where a country learns about another country's strength or resolve over time, is often referred to as a war of attrition (e.g., see Smith (1974) and Bishop and Cannings (1978)). The time at which a war of attrition ends depends on the specifics of the gain from winning, the costs of staying in the conflict, the patience of

the actors, and the level of uncertainty. The basic structure is one where two opponents incur costs at some rate per unit of time as long as they stay in conflict. The first one to give up loses and the other one wins. The uncertainty can be about the value to the other from winning, or the cost of conflict, or the patience. As the conflict goes on, it reveals that the other has not yet given up indicating a higher patience, lower cost, or greater patience. Eventually one of the two sides gives up.

It should be clear that our discussion applies to many sorts of conflicts and not just to inter-state wars. For example it applies to things like civil wars, coups and revolutions, and even strikes and other social and economic conflicts. Indeed, even some of the literature that is specifically aimed at understanding conflict in one arena can shed light on others. As an example, Acemoglu, Ticchi and Vindigni (2009) provide an explanation for the long duration of some civil wars.²⁴ They explain that a government can fear having too strong a military, as a strong military can initiate coups especially in contexts where a government cannot commit to maintaining the resources directed to the military once a conflict ends. Understanding this interaction between a government and a military thus provides an additional lens into arming decisions, which then not only affects the number of conflicts that take place internally and their duration (as for instance a weaker military may take a long time to eradicate a rebel group), but then also has implications for the likelihood and potential duration of external conflicts.

7. Concluding remarks

We have presented a rich framework within which we can understand the prerequisites for war. Although our discussion has drawn mainly from the large literature on inter-state war, many of the same issues are at play in civil wars and other forms of conflict. Again, there must exist incentives for conflict and some barriers to the ability to reach an enforceable bargain. Some revolutions and coups arise from an agency problem either on the part of the current ruler or the leader of the attack. Some civil wars erupt

²⁴ See also Powell (2009) for a view on how power distributional issues can lead to specific patterns in the persistence, duration, and recurrence of conflict.

because of ethnic or religious diversities manifesting themselves in the form of multilateral bargaining failures.

Although the theoretical understanding of the various causes of wars is developing well, and there are innumerable case studies of war and analyses of particular conflicts, systematic empirical work that analyzes the origins of wars across many cases is still relatively lacking. A richer understanding of the origins of wars would help further advance the theory, and would help in sorting more frequent and important causes from those which are less so; and ultimately would help in developing policies aimed at avoiding the costs of conflict.

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