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From conflict to reconstruction: Reviving the social contract

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From Conflict to Reconstruction: Reviving the Social Contract

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Abstract

Contemporary civil wars are rooted in a partial or complete breakdown of the social contract, often involving disputes over public spending, resource revenues, and taxation. A feasible social contract gives potential rebels something akin to a transfer. When this is improbable, and the potential spoils are rich then warfare is more likely. Grievances, not just pure greed, motivate war. But peace deals can also break down when commitments are not credible. Successful reconstruction after war must rebuild the social contract. The chances of success increase if the economy can achieve broad-based growth. If grievances can be satisfied by absolute improvements in living standards the present donor focus on absolute poverty reduction will be conducive to reviving the social contract. But if grievances are expressed in relative terms, governments and donors must also address inequality and regional gaps.

Keywords: conflict, contract, civil war, reconstruction

JEL classification: C72, O15, O23.

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A Dead Statesman

I could not dig: I dared not rob:

Therefore I lied to please the mob.

Now all my lies are proved untrue

And I must face the men I slew.

What tale shall serve me here among

Mine angry and defrauded young?

Rudyard Kipling (from Epitaphs of the War 1914-18).

Introduction

Kipling's poem still rings true today. More than 4 million people have perished in violent conflicts since 1989, and 37 million people have been displaced either inside their countries or outside as refugees (World Bank 2000). But with the exception of the Eritrea-Ethiopia war of 1998-2000—in which up to 100,000 soldiers perished in First World War battle conditions—civil wars have largely replaced inter-state warfare as the major form of armed conflict today. Of the 37 active conflicts in 1999, 33 were intrastate in nature (Wallensteen and Sollenberg 2000: 635). And Kosovo, although it eventually took on an inter-state dimension, had primarily internal causes. Moreover, while warfare between rich states dominated the first half of the 20th century, most contemporary conflicts take place in the world's poor countries—Asia and Africa accounted for 14 and 16 respectively of the 33 conflicts in 1999 (Wallensteen and Sollenberg 2000: 638). Indeed, civil wars and conflict are among the major causes of development and growth failure in today's developing world, a point increasingly emphasised by aid donors such as the UK's Department for International Development, the World Bank, and the United Nations (DFID 2001, World Bank 2001, United Nations 2000).

What explains conflict, its intensity, and its duration? What are the chances of achieving a durable peace? What are the problems in reconstructing from war? A wide variety of methodologies exist to answer these major questions. Our focus is on work in economics and rational-choice political science, both of which see conflict as amenable to analysis using choice-theoretic behaviour.

The work of Francis Edgeworth, writing in the late 19th century, provides a useful starting point in understanding the economic rationale for violence. Edgeworth distinguished between consent—and its absence—in human economic interaction:

> The first principle of Economics is that every agent is actuated only by self-interest. The workings of this principle may be viewed under two aspects, according as the agent acts *without*, or *with*, the consent of others affected by his actions. In wide senses, the first species of action may be called war; the second, contract. (Edgeworth, 1881, pp 16-17)

Or, as Garfinkel and Skaperdas (2000) put it: in securing an income, humanity has a choice between production and predation, the relative returns being in part determined by the cost of ‘swords’ relative to ‘ploughshares’.

But, war is far from being the ‘one against all’ phenomenon of Hobbes anarchical state of nature. Competing groups are formed when collective action problems can be overcome (Olson, 1965). Ethnicity, whether based on language, religion or other distinctions, is often a superior basis for collective action in contemporary conflicts in poorer countries than other social divisions such as class, that featured in the internal conflicts of early twentieth century Europe.[1] Moreover, as Azam (2001) indicates organisation or action along ethnic lines is often a product of the failure of the state to provide public goods. Thus, conflicts rooted in grievances—over one group's standard of living relative to another—can take an increasingly ethnic dimension, as leaders mobilize followers by appealing to ethnic differences (for instance the appeal to religious affiliation in Nigeria's local-level conflicts). So too with greed, over valuable natural resources; Angola's rebel movement (UNITA) has increasingly emphasised ethnicity to organise support among the Ovimbundu people so as to win control over the country's diamonds and oil.

But this is not to say that competing groups necessarily favour all-out war. Many contemporary conflicts feature extended periods of low-intensity struggle, and again this is another difference from the last century's world wars. Indeed, rival groups often find it profitable to collaborate at times, in order to facilitate mutually profitable trade (the looting of Cambodia's valuable tropical hard woods, for instance) or to prey on civilians and humanitarian aid—the case in Sierra Leone today (Le Billon 2000).

Thus, what at first appear to be situations of outright anarchy (Somalia in 1992-94 for instance) are often marked by temporary contracts between otherwise belligerent groups. Nevertheless we can still view today's conflicts as rooted in a partial or complete breakdown of the social contract—the agreed upon rules of the game that govern the distribution of resources and obligations across society—and the concomitant mechanisms for settling disputes. The social contract, its collapse, and its reconstruction therefore provide the organising themes of this paper.

The paper is structured as follows. Section 1 is concerned with conflict and the breakdown of social contract, including possible reasons why a peaceful social compact or agreement might become infeasible. Section 2 analyses conflict motivated by competition over natural resource rents, but where poverty and injustice also play a role. Once again open conflict is a result of the failure of peaceful dispute-settlement mechanisms. Section 3 is about the uneasy peace following a conflict, where there is a risk of conflict re-igniting because it is not in the interest of at least one party to remain peaceful. Section 4 discusses ‘post-conflict’ reconstruction, and how its design can rebuild a peaceful social contract. Finally, section 5 concludes with suggestions for future research.

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[1] On the complexity of the relationship between ethnicity and violence see Bates (2000), among others.

1 The collapse of the social contract

What happens when no social contract exists? Hirshleifer (1995) presents a simple model of low-intensity conflict between symmetrical groups in a Hobbesian anarchical state. The struggle to acquire or safeguard valuable natural resources may cause the conflict. This may be pure greed, or alternatively 'ecoviolence' as groups seek to protect or add to the soils, pastures, and water that support their livelihoods (Diehl and Gleditsch 2001). In this and other models of conflict based on strategic interaction, scant attention is paid to collective action problems and each group's behaviour mimics that of a unitary agent.[2] But we could assume that each group is bound together by ethnicity. Each group (i) has a total resource availability, R, which is a combination of fighting effort F and productive effort, E (the model is also interesting due to its representation of 'conflict technology'):

$$R_i = a_i E_i + b_i F_i \tag{1}$$

where a and b represent the resource costs for producing a unit of productive and fighting effort respectively. Utility comes from income related to productive effort and the total resources available, some of which may be acquired through fighting. Success in fighting is related to the contest success function, where the probability (π) of winning depends on the individual group's fighting effort relative to the total effort of all groups:

$$\pi_i = \frac{F_i}{\sum_i F_i} \tag{2}$$

A fighting efficiency parameter to differentiate the quality of fighting effort between the two groups can also be added (equation 3).

The equilibrium level of conflict is described as in a Cournot-Nash non-cooperative game, with each side choosing symmetrical levels of conflict given similar levels of fighting efficiency. The number of groups involved in the conflict may be endogenised to the total amount of resources available, R. This would amount to a 'Malthusian' outcome. There will be a stand-off in terms of low-intensity warfare, unless one particular group becomes overwhelmingly strong.[3] Thus in Afghanistan and Somalia,

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2 The objective functions of the various groups to a conflict might represent the interests of leaders of the competing factions, as in 'warlord' competition. Leaders in a conflict will, however, have to satisfy the participation constraints of their henchmen and soldiers. Often this is done by allowing soldiers to loot the civilian non-combatant population, see Azam and Hoeffler (2000).

3 In many instances conflicting groups have evolved into today's nation states, and the international political system is fine-tuned to preventing prolonged and repeated armed conflict between nation states. Competing nation states maintain a form of armed peace with each other. They also tend to reach some accommodation over common resources. Explanations of the outbreak of war between nation states therefore focus on uncertainties and misperceptions.

centuries of localised low-intensity conflict ignited into widespread carnage—the result of initial military assistance from the Cold War superpowers and, eventually, the collapse of their client regimes leading to the release of advanced weapons onto the local market.

A related notion concerns warlord competition (Somalia and Colombia are examples) as analysed in Skaperdas (2002). Warlords compete with one another over the right to control rents and the economic surplus. They need to pay the warriors in their employ, and offer the civilian population a modicum of security in return for taxes, tributes or the right to regulate commerce. The fewer warlords there are, the greater the level of social welfare as competition between warlords diminishes total output.

But, as Skaperdas (1992) points out, competition over resources, or between warlords, does not necessarily explain armed conflict. Groups who know each other's characteristics could, as we saw earlier, come to an agreement over the allocation of resources. Warlords might agree to divide the spoils, and maintain standing armies in a state of armed peace which serve to punish infringements on agreements to divide the surplus. The breakdown of contracts then needs to be explained in terms of misperceptions, uncertainties, and incomplete contracting. Nevertheless, some temporary contracts between conflicting parties may eventually form the basis of a social contract, leading to the formation of the nation state or a new nation state.

Within nation states, the fiscal system will secure a workable social contract if the allocation of public expenditures and the apportionment of taxes are judged to be fair (or at least not so unfair that some groups judge taking resources by force the better option). There are many examples of conflicts emerging out of fiscal disputes. Côte d'Ivoire, for instance, has become increasingly unstable with the collapse of the social contract engineered by the late President Houphouët-Boigny, in which he allocated public spending across the regions to successfully buy the loyalty of the country's ethnic groups. Disputes over the apportionment of revenues from natural resources are especially common and, as in Indonesia and Nigeria, these take on ethnic and regional dimensions.

Azam and Mesnard (2001) analyse the difficulties in sustaining social contracts that involve revenue sharing via fiscal transfers.[4] Contemporary civil wars are more often related to the *breakdown* of explicit or implicit arrangements to share resources or revenues, rather than the *absence* of an agreement to share resources or rents. One reason that a contract to share revenues encounters difficulties is the imperfect credibility with which the side that controls the 'pot' honour's its commitment. Let there be two parties to the potential armed conflict, the government and a rebel group. The government party has access to revenues and royalties, but is threatened by the excluded rebel group which may violently overthrow the government with probability π, related to a contest success function as in (2) above. On the other hand it may choose not to fight if it receives a fiscal transfer from the government. Similarly, the government has a choice between fighting the rebels and offering it a fiscal transfer. The utility function of the government (U^G) may be denoted as:

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4 The term fiscal transfer also covers broad-based social expenditure across all groups, the award of jobs and other benefits from government contracts. It could even mean power sharing.

$$U^G = (1-\pi)(\frac{\mu F^R}{F^G + \mu F^R})(Y^G - F^G - \lambda G) \quad (3)$$

Y^G is the income of the government, F^G represents government military expenditure, G the transfer to the rebels, $\theta < 1$ captures the imperfect credibility with which the government transfer is made, and the probability of the government staying in power is $1 - \pi$ which in turn is a function of the contest success function, as well as relative fighting efficiency of the rebels vis-à-vis the government θ.

The rebel utility function (U^R) is given by:

$$U^R = Y^R - F^R + \lambda G + \pi(.)(Y^G - F^G - \lambda G) \quad (4)$$

The income of the rebel group is described by Y^R, and the cost of waging a war represented by F^R. A great deal can be said about the sources of income and war finance for the rebel side. The rebels may obtain an income from natural resources they control (illegal diamond mining in Sierra Leone for example), by raising external finance by promising commercial concessions once they seize the state (the strategy of Laurent Kabila when he overthrew Mobutu Sese Seko in DRC/Zaire in 1997), criminal activities such as drug trafficking (Colombia), or sympathetic contributions from Diasporas (Albania, Armenia and Sri Lanka).

A feasible social contract favouring peace must give the rebels as much utility via a credible transfer as they would get in the event of a (probability weighted) overthrow of the state. A social contract favouring peace in return for a transfer is infeasible if, at a critical level of $\pi = \theta$, the probability of toppling the government by war is greater than the chances of its credibly making the transfer, θ.[5] Also the social contract is less likely with regimes that prefer military expenditure F^G over making a fiscal transfer to the rebels (a common outcome in countries with powerful militaries, such as Sudan and Indonesia). Note that for the government no transfer is made in the case of a civil war, and in the case of a credible transfer being possible there is a saving in military expenditure. There is, therefore, a trade-off between military expenditure and a credible transfer. For the rebels, there is the transfer and no fighting expenditure if there is peace. When the transfer is highly improbable, and the potential spoils are rich, warfare is more likely (the situation in Angola and Sudan today). We return to the issue of credibility in section 3, and to restoring social contracts in section 4.

2 Natural resource conflict

Many conflicts occur amidst natural resource riches, an issue we have already touched upon. But there are important complexities, that are critical to strategies for ending conflict, and thus further discussion is essential. First, it is not natural resource endowments per se but the *type* of natural resource that seems to matter. *Point resources*

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5 Alternatively, the 'contract' governing the transfer from the government to the rebels may be highly incomplete. This is likely to arise in the context of state failure, and where government actions are non-transparent.

are non-renewable and geographically concentrated (e.g. diamonds and oil), whereas *diffuse resources* are renewable and geographically spread (e.g. soils and water), being most valuable when they are used to produce marketable crops and livestock (Auty 1998). Conflict does occur in countries with diffuse-resource endowments when access and ownership are highly unequal (e.g. Guatemala and Zimbabwe), but its probability falls when asset redistribution is undertaken (e.g. land reform in North-East Asia in the 1950s), and is certainly less evident than in countries richly endowed in point resources (e.g. Angola, Congo-Brazzaville, DRC).

Exactly how point-resource endowments increase the chances of conflict is now vigorously debated. One mechanism is simply the difficulty of managing the macro-economic consequences of resource windfalls, resulting in boom and bust cycles that ultimately lower the rate of economic growth—where low (or declining) growth in employment and living standards is a factor in generating conflict (as found by Nafziger *et al* 2000 and evident in the role of the youth unemployment crisis in violence in Algeria and Jamaica). Another, is the incentive of political insiders to deliberately undermine state institutions (such as budgetary systems) in order to conceal the siphoning of resource revenues. This leads to the collapse of the state from within, together with its ability to exercise social control and defend itself against usurpers (as in Mobutu's Zaire). The government's commitments take the form of highly imperfect contracts. Additionally, opposition groups attract the finance of unregulated international trading networks interested in capturing valuable natural resources (giving rise to merchant-capital wars, such as those in West Africa, which receive arms and finance from entrepreneurs based in the Middle East and the former Soviet Union).

An additional complexity is that conflicts in point-resource rich countries are not just characterised by pure greed. Deep grievances usually exist as well, examples including the Delta region in Nigeria, Aceh in Indonesia, and southern Chad (a point made by Collier & Hoeffler 1999). A step towards integrating grievance and greed is the model in Addison *et al* (2000). This focuses on motivation to engage in peace (fighting is therefore treated as its inverse), thereby facilitating the modelling of a continuum of peaceful behaviour (or its converse). This captures, in particular, the low-intensity that characterises many contemporary conflicts.

The expected utility of the government side is given by:

$$U^G = \pi(a,e)U^G{}_P(T) + (1-\pi)(\cdot)U^G{}_P(H + B^G) - C(a) \qquad (5)$$

Where $U^G{}_P$ and $U^G{}_C$ denote utilities or pay-offs in peace and conflict respectively, weighted by the probabilities of the two states. T is the revenue obtained by the government in peacetime (which could also include foreign aid). H is the pay-off during war, and B^G stands for any booty accruing to the government.[6] C is the cost function of undertaking the action, a, which increases the probability of peace, π. Note that the pure pay-off or utility in a state of war, H is less than in times of peace, T due to the cost of conducting a war. Also, $\pi_a > 0$, but $\pi_{aa} < 0$. Both $C_a > 0$ and $C_{aa} > 0$.

6 Note that the gains from booty are not weighted by the chances of success in obtaining it. We omit this feature for the sake of algebraic tractability.

Turning to the rebel side, we have

$$U^R = \pi(a,e)U^R{}_P(D) + (1-\pi)(\cdot)U^R{}_C(Z + B^R) - \theta E(e) \qquad (6)$$

Again, $U^R{}_P$ and $U^R{}_C$ denote the rebel's utilities in peace and conflict respectively, weighted by the probabilities of the two states. D is the income obtained by the rebels in peacetime and Z is the pay-off during war which may be supplemented by war booty, B^R, $D > Z$. E is the cost of effort, e, which increases the probability of peace, π. Also, $\pi_e > 0$, but $\pi_{ee} < 0$, $E_e > 0$, and $E_{ee} > 0$. We introduce a shift parameter, θ which affects the rebel cost function. We postulate that $0 < \theta < 1$. The higher is θ the greater is the cost of peaceful behaviour and the lower the loss from fighting. Alternatively, the higher is θ the lower is the participation cost of the rebel group in conflict. A rise in θ could be caused by an increase in poverty or a greater perception of injustice; it serves to increase the cost of peaceful effort and raises belligerency levels amongst rebels. The parameter θ could also reflect the income gap between the government and rebels as well as historical inter-group rivalry.

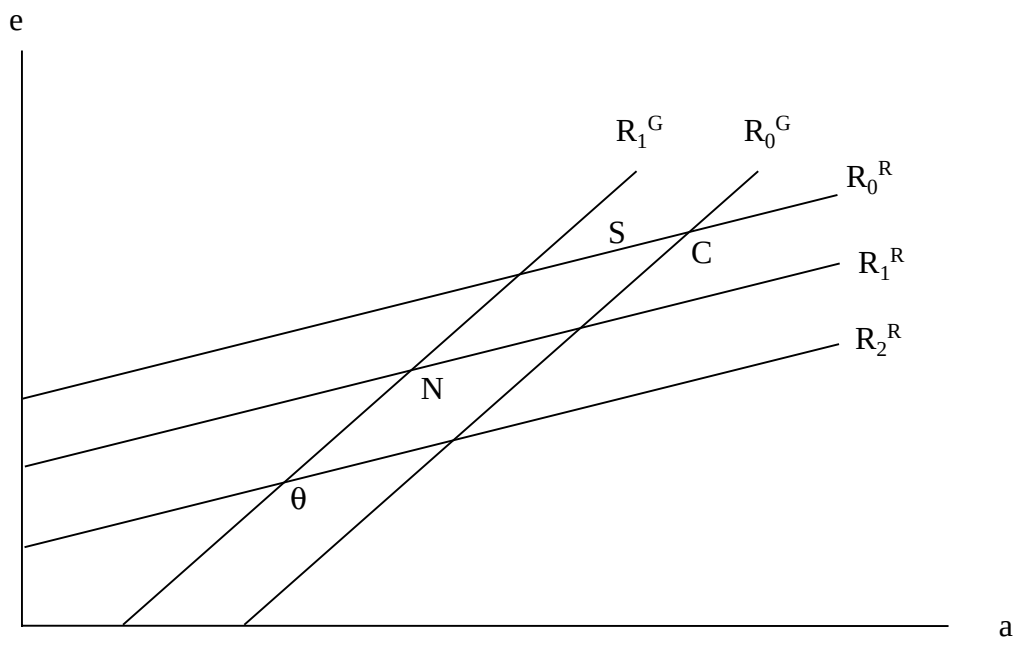
The reaction functions in a and e derived from (5) and (6) are positively sloped if $\pi_{ae} > 0$, implying that the two strategies are complements (Figure 1). This is the standard assumption in the conflict literature. However, there is the possibility that $\pi_{ae} < 0$, the choice variables are strategic substitutes, and the reaction functions could slope downwards (see Addison, *et al* 2000). This can occur because the strategy space is defined in terms of peace. Thus if one side behaves more peacefully it increases the utility of both parties, and the other side may free ride on this action by not bringing about a corresponding increase in their action. The two strategies can become substitutes the closer is society to complete peace or the lower is the state of belligerency.

In Figure 1 the non-cooperative outcome is denoted by the point N. Point C illustrates a more cooperative outcome with greater peaceful action by all sides. But even here all potential conflict may not be eliminated as greed and grievance still remain.

An increase in poverty or a greater perception of injustice will lead to more fighting. In Figure 1, a downward movement in the rebel's reaction functions represents an increase in θ, and the new equilibrium is denoted by θ. This is associated with less peace and more conflict. In general, the greater availability of point resources or other booty to both sides (as opposed to one side only) reduces the equilibrium levels of peaceful behaviour. When one side is able to capture all the booty, it will lower its action or effort accompanied by a corresponding, but less than proportionate, decline in its opponent strategic variable. In summary, a conflict such as that in Sierra Leone is characterised by a combination of greed for diamonds (a large B^R) and grievance, particularly among unemployed youth who provide ready recruits for war (very high θ).

Figure 1

Government and rebel interactions



What can be done to end such wars? Donors could make foreign aid conditional on peace: it will only be paid out in peaceful situations, augmenting *T* and *D* in (5) and (6) respectively. In Figure 1 this policy will shift the R^G curve rightwards when the government receives aid in a state of peace only (rise in *T*); when rebels receive aid conditional on not fighting (rise in *D*) R^R moves upwards. The final outcome could be at a point such as C, the cooperative outcome. Such aid conditionality is, however, notoriously difficult to achieve. It has so far failed in Angola, where two point resources (oil and diamonds) finance the government and rebels respectively, so that promises of future aid lack leverage. In contrast, promises of increased aid helped to end Mozambique's civil war, a leverage facilitated by that country's relative poverty in point resources.

4 The uneasy peace

Often factions in a civil war are induced to sit across a table via a process of mediation, and may eventually be goaded into making peace. But peace agreements to end civil war often fail—much more often than agreements to end inter-state wars—and often several attempts are necessary before a lasting peace is established (Walter 1999). Why is this so? Authors such as Walter (1999) have pointed out that the greatest impediment to the resolution of disputes is the inability of the belligerents to make *credible* commitments to peace. In turn the credibility of a peace offering or agreement hinges on the *reputation* of those making the offers. The upshot is that peace agreements are not sustainable when peace is not incentive compatible for one side entering into the agreement. Furthermore, when a bad reputation is inherited even genuine attempts to make peace will break down, as commitments are not credible.

Again we have two sides whom we refer to as government and rebels.[7] One side is either tired of fighting or it has an interest in peace. This group is the government in our example. The other side, the rebels, may have something to gain from the resumption of fighting such as rents from resources (as in Angola). The roles played by the government and rebels in the games that follow can be reversed without altering the results. Both sides have entered into a peace deal. The government side derives no benefit from breaking this agreement. Consider the utility function of the rebel group *(U^R):*

$$U^R = -(1/2)c_1 w^2 + Bc_2(w - w^e) \tag{7}$$

The first term on the right-hand side of equation (7) is the pure cost of conflict in quadratic (squared) form, where w represents warfare or belligerent behaviour and c_1 is the parameter measuring the direct cost of warfare. The negative sign before it is to indicate the cost or disutility from fighting. The quadratic form of the cost indicates that the costs of war rise more than proportionately as the level of *w* rises, implying that the low-intensity conflict is 'less low'. The second term on the right hand side of (7) indicates the gains to the rebels from reneging on a peace agreement, or the benefit from a 'surprise' war, where the level of actual conflict (*w*) exceeds the level of conflict *expected* in advance (w^e). In other words, the spoils of war can only be wrested via the ruse of peaceful intentions. The parameter c_2 captures the magnitude of this effect, the higher is c_2 the greater is the gain from feigning to make peace first and looting later. It may also be viewed as a subjective measure of *greed*. In addition to this the greater the abundance of lootable resources (*B*), or rents to be extracted, the higher is the gain from surprise war.

The rebels maximise their utility in (7) subject to *w*, which leads to:

$$w = Bc_2 / c_1 \tag{8}$$

This result can be interpreted in the following manner: the equilibrium choice of warfare is greater the higher is the element of pure avarice, c_2, the higher the availability of lootable resources, *B* and the smaller the direct cost of fighting, c_1.

As far as the government is concerned, its utility function could take the form:

$$\begin{aligned} U^G &= -(w - w^e)^2 \forall w \geq w^e \\ and &= (w - w^e)^2 \forall w < w^e \end{aligned} \tag{9}$$

The government's utility is declining in surprise warfare when actual war is greater than expected; however, it is the opposite when actual levels of war fall strictly below expectations. We will focus attention to cases applicable to the former, as the second line pertaining to instances where the actual levels of belligerency are below expectations (pleasant surprises) are largely irrelevant. The disutility from surprise war arises because the government has to engage in unforeseen military expenditure that diverts income from other types of public expenditure or increases its need for foreign loans or aid. For example, Angola's government had to sharply raise military

[7] A more detailed version of the analysis in this section can be found in Addison and Murshed (2001).

expenditure following UNITA's return to war in 1998, much of it financed by oil revenues and foreign borrowing.

Now assume that the rebels enjoy a first mover advantage and can announce complete peace and then engage in surprise warfare. In this case the actual and expected levels of warfare would diverge, $w = Bc_2/c_1$ and $w^e = 0$ in equation (7). This involves cheating on a pre-announced commitment. At this juncture reputation becomes important. The government forms a view of the rebel announcements based on the past behaviour of the rebels. This implies that, for the rebel group, there exists a future cost of cheating in the context of a low-intensity conflict. The cost is equal to the loss of reputation for honesty, but this cost comes in the future.

In summary, the socially optimal policy of zero warfare ($w = 0$) is *time inconsistent* or incentive incompatible, and thus will not be a possible outcome. The optimal policy of no conflict is infeasible, as it is not consistent with the incentives and expectations of the parties to the game. More particularly, the government knows it is in the interests of the rebels to renege on a pre-announced policy of total peace, and thus will not find any peace offering credible. Furthermore, there will be a range of possible conflict intensities that are feasible equilibrium outcomes. Thus multiple equilibria are possible. A rise in war booty raises the minimum conflict threshold. Also situations where the future is heavily discounted are likely to raise the fighting threshold associated with the best enforceable outcome.

We now consider policies to reduce conflict. Much of this implies manipulating the attitudes of the rebel leadership via sanctions, arms controls, trade restrictions and foreign aid. Consider a reformulated version of the rebel utility function where we embed external conflict prevention policy parameters, and an additional cost component associated with an implicit or explicit international agreement:

$$U^R = -(1/2)c_1(M_1)w^2 + Bc_2(A, M_2)(w - w^e) - c_3(M_3)(w - w^e) \qquad (10)$$

Aid (A) may be utilised by a foreign power to reduce greedy attitudes, c_2. Similarly, trade sanctions (M_2) on items such as ‘conflict’ diamonds, money laundering and the activities of foreign entrepreneurs (in supplying arms and finance) might have the same effect. International controls on arms transfers (M_1) and/or sympathetic assistance from non-residents could be utilised to raise the direct cost of war, c_1. Another way of reducing conflict and belligerent behaviour is through an international agreement or understanding. Unfortunately, truly successful examples of these, such as NATO or the European Union, are exclusive to the developed world. The last term in (10) represents such a *commitment technology* or *delegation*, and c_3 measures the costs of reneging on peace agreements as a function of sanctions (M_3) imposed by other signatories or parties to the agreement.

The presence of commitment technologies, sanctions, conditional aid, and controls in international trade lowers the optimal level of belligerency amongst rebels. This can be seen by maximising (10) with respect to w which yields:

$$w = (Bc_2 - c_3)/c_1 \qquad (11)$$

This leads to a lower level of warfare when compared to (8). There is a direct effect of the external sanction or outside commitment technology, c_3. Then we have the indirect

effects emanating from the manipulation of the behavioural parameters of the rebels, c_2. and c_1.

Our discussion indicates that establishing peace is a tough job. And the recent experiences of Angola, DRC, and Guinea-Bissau show this to be so. But even if a peace agreement can be put in place, the difficulties are not yet over for the form that reconstruction takes will also affect the sustainability of peace. It is to these issues that we now turn.

4 Broad versus narrow reconstruction

The last decade has seen substantial donor-supported reconstruction, including Mozambique (1992), Bosnia and Herzegovina (1995), and East Timor (1999). To be successful reconstruction must rebuild the social contract, otherwise conflict can reignite. Both political and economic reform are therefore necessary to change the rules of the game, these innovations being akin to the deep interventions described in Dixit (1999).

In principle, the temptation to renew conflict could be completely eliminated if the 'prize' (e.g. oil revenue) is absorbed into national income (then $w = 0$, in equations 8 and 11). The gains from capture and surprise war will vanish in rebel utility functions, as $B = 0$. Action by external actors, such as linking peaceful behaviour to aid flows, will then be unnecessary ($c_3 = 0$ in equation 10).

The implication of section 3 is that even with cooperative behaviour, involving summing of (5) and (6) into some 'grand' welfare function, the potential for conflict is not totally eliminated. This will only occur when B^G and B^R, the booty available from point-resource rents is available without contest in the peaceful non-conflictual state of the world. Moreover, the inequities associated with injustice perceptions, θ need to be addressed via transfers. The combination of the two policies will make $\pi = 1$, peace will be a certainty as peaceful actions and efforts will be endogenously equal to a level bringing this about. A social contract is created or restored.

But, promises of action are not enough. As we saw in section 2 the social contract became unviable because the credibility of a transfer (θ) is low relative to the probability of rebel success in armed conflict. Also, as in section 4, the commitment to peace may be subject to temptations to renege on the agreement. The credibility of the fiscal transfer may be restored through the creation of democratic institutions. But such institutional reform takes considerable time. A badly functioning democracy also implies incomplete contracts and imperfectly credible institutions of commitment.[8] For example, the quality of fiscal institutions may be so low—the result of destruction or neglect—that they are unable to deliver the necessary transfer even when the government is committed to making the transfer to its former opponents. And the size of the transfer (G) in (4) may be too small in per-capita terms if the income of the excluded rebel group is low.

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8 Collier and Hoeffler (1999) find that the risk of civil war is greatest at intermediate levels of democratic tradition.

Our discussion so far has been quite pessimistic, in part because peace is viewed as dependent on the distribution of a ‘fixed pie’. But peace is more likely to endure if the pie can be made to grow. Growth, by raising the tax base, increases the possibilities of redressing grievances through fiscal transfers. And growth itself provides additional income to further reduce grievance (and perhaps mitigate greed) and tightens the labour market, thereby reducing the attractiveness of joining a warlord or rebel group (a point emphasised in Collier and Hoeffler 2001: 6). The initial years of peace may offer considerable scope for growth, as the economy re-achieves its pre-war production frontier (annual real GDP growth rates of 8-10 per cent, such as achieved after the end of Lebanon’s civil war, are not uncommon in ‘post-conflict’ countries).

But just as economic growth in general can distribute broadly or narrowly its benefits across society—depending upon the initial distribution of assets and skills—so too does reconstruction-led growth. Pre-war asset and skill distributions may have been highly unequal (with the resulting grievances contributing to conflict), and can worsen dramatically during wartime. The already poor often loose the few assets they have and looting adds to the number of poor (Nafziger *et al* 2000). In contrast, warlords and their followers accumulate assets, and so while the early years of peace may see quite rapid GDP growth it can be very narrow in its benefits—unless policies are put in place to restore the productive assets and human capital of the poor. The immediate post-conflict situation may offer a golden opportunity for pro-poor asset redistribution as well (something that cannot be done easily during peace), although this can be impeded when rich 'winners' from war block the necessary measures.

However, the ‘post-conflict’ economy will be highly distorted, and this can impose an unfortunate path-dependence on reconstruction and growth. One source of distortion is the sharp increase in transactions costs (θ) resulting from war (including the destruction of transport, the planting of land mines, and institutional collapse) that drive a wedge between producer and consumer prices. Typically, production (especially agriculture) is more vulnerable, leading to a sharper increase in its transactions costs compared to other sectors such as urban-based trade and services (as was the case in Mozambique's 16 year civil war). To get a handle on this problem, consider a model with two sectors, agriculture and services, whose relative prices are P_A and P_S respectively, with transactions costs θ_A and θ_S. The transaction costs lower the supply-price of the two goods as producers have to incur this extra cost (e.g. land mines raise the costs of buying inputs and marketing outputs). Given $\theta_A > \theta_S$, relative prices shift resulting in a switch in activity from production (agriculture) to services:

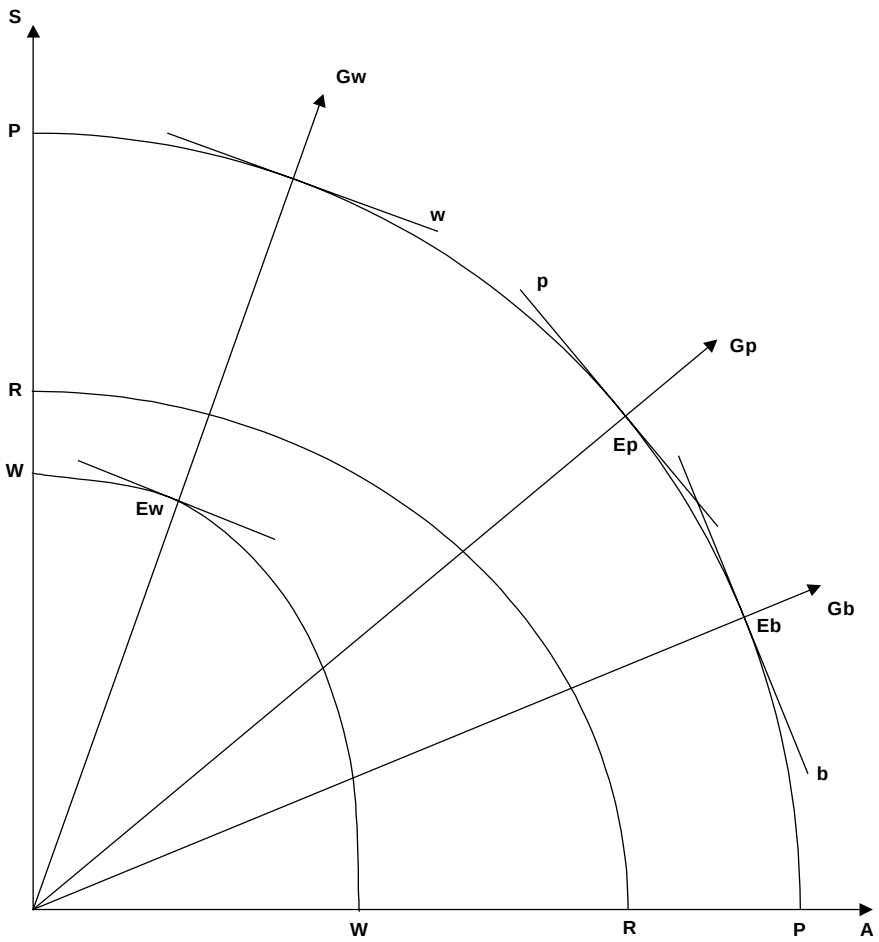
$$\frac{P_S - \sigma_S}{P_A - \sigma_A} > \frac{P_S}{P_A} \qquad (12)$$
$$if \sigma_A > \sigma_S$$

This output change is additional to the increase in production costs resulting from the direct destruction of institutions, infrastructure, and skills in the two sectors (which usually disproportionately affect production, especially agriculture). Services and trade (including profitable smuggling and other rent-seeking) heavily dominate wartime economies and, because of the relative price effect, the collapse in production usually exceeds that due to destruction alone. Smallholder agriculture—the basic livelihood of Africa's poor—is hit especially hard (Angola's agricultural output is now less than 5 per cent of its pre-war level, for example).

The result is shown in Figure 2. Three production frontiers are indicated: *PP* (peace), *WW* (war) and *RR* (recovery). These have the usual properties. Assume a peace equilibrium of *Ep* given by the relative price (with θ_A , $\theta_S = 0$).[9] Growth will be along a ray such as *Gp*, as aggregate investment pushes the production frontier outwards over time. Contemporary wars generally reduce aggregate output—in Sri Lanka the cost of the war so far amounts to two years of annual GDP (Arunatilake *et al* 2000). The wartime production frontier must therefore lie within the peace time frontier. Agriculture (*A*) is hit harder than services (*S*), and the production frontier changes shape (to form *WW* reflecting the greater difficulties of *A* production). And the relative price shift in favour of services causes a structural shift to the new equilibrium *Ew*. There may be periods of growth during wartime—from a point below the peacetime production frontier—but it will be *S*-biased (along the ray *Gw*) and is therefore unlikely to be sufficiently poverty reducing.

Figure 2

Peace, war, and recovery



9 The pre-war equilibrium will depend on policies that in turn affect the relative price, and thus the structure of output. As drawn agriculture takes a larger share of pre-war output relative to services, which is typical of a low-income country when policy does not have a large bias against farmers.

If a peace deal is signed then transactions costs start to fall. Accordingly, agricultural output recovers as relative prices shift back in its favour, and as infrastructure is rebuilt; the economy moves through a series of reconstruction frontiers such as *RR*. Although this reconstruction is characterised by a more than proportionate rise in *A*—the main livelihood of the poor—recovery's benefits may still be too narrowly distributed due to the loss of assets and skills among the poor (see de Sousa 1999 on Mozambique, for example). Moreover, the economy's pre-war structure may have been far from optimal for growth, poverty reduction, or peace due to policy distortions—for instance a history of policy bias that depresses P_A relative to P_S (the case in many African economies). Hence, significant economic reform must take place alongside reconstruction if broad, rather than narrow recovery, is to take place. In Figure 2, reform is shown as raising the return further on *A* relative to *S* activities (i.e. to the relative price line *b* so that the economy recovers along *Gb*). This is not to say that reform itself is straightforward. There is wide agreement on the need for fiscal reform to raise public spending on pro-poor basic health care and primary education, but other reforms are hotly debated (for example privatization has had mixed success).

Note that if peace is uneasy then there is an additional constraint on rebuilding the social contract via broad-based reconstruction and growth. To see why consider the net present value (*NPV*) of a private investment project in sector *i*, producing an output Q_i (Equation 13). In addition to raising transactions costs (θ) and production costs (*C*), conflict raises uncertainty about the future, and therefore the private discount rates of potential investors (*r*):[10]

$$NPV_i = \frac{\sum_t Q_i(P_i - \sigma_i) - C_i}{(1+r)^t} \qquad (13)$$

The rise in *r* has differential sectoral effects depending upon the time-profile of private benefits and costs associated with different types of activity. Thus, production sectors such as agriculture require more fixed capital than trade and services (which may only need working capital), and profits from trade can be more quickly realised than production whose profits may only start to flow after several periods (particularly in agriculture, where tree crops have a lengthy gestation periods). Hence, any rise in the private discount rate will tend to lower the NPV of investments in production relative to trade and services. This amplifies further the war-time collapse in the production sectors, and the expansion of trade, services, and the associated rent-seeking.

Restarting activity in pro-poor production activities such as agriculture can therefore be especially hard after war when the peace is uneasy, since while transactions costs can be reduced (e.g. de-mining rural roads lowers θ) and infrastructure rebuilt (lowering *C*), an uneasy peace keeps private discount rates (*r*) high. Consequently the reconstruction-growth path may create insufficient income and employment, its narrowness leading to frustration amongst large sections of the excluded population. Hence, the effectiveness of donor support to reconstruction, while lowering θ and *C*, will be reduced if parallel political initiatives (both domestic and international) are not undertaken to secure peace, and lower *r*.

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10 Moreover, conflict increases the cost of capital (as risk premia on loan rates rise and as the monetary base shrinks), acting as a further disincentive to invest.

In summary, if grievance is the main source of conflict then broad-based reconstruction (along *Gb*) is necessary to recreating a sustainable social conflict. In particular, growth raises wage levels and reduces the attractiveness of predation as a livelihood (Collier and Hoeffler 2001).

5 Conclusions

Our paper has only touched upon what is a large and urgent set of issues. More could be said—on the finance of war for example—but we hope to have convinced the reader that economics and rational-choice political science can be insightful. This is not to assume away the complexity of contemporary war, nor its deep roots in cultures and history (especially colonial legacies), nor to neglect the importance of other social science methodologies in addressing it. Nevertheless, there is a danger in seeing every conflict situation as somehow culturally or historically unique—and thus perhaps intractable—while the approaches discussed in this paper do at least provide a framework in which to identify the fundamental constraints that must be overcome to end war, as well as the trade-offs that are often involved.

To end, we highlight two areas of pressing concern that need further research. The first is the issue of grievance (the θ parameter in the rebel's utility function, equation 6). For a social group that has experienced years of decline in its absolute living standard (whether measured by income, human development indicators or both), a peace deal that delivers an absolute rise in its living standard may be sufficient to secure its withdrawal from violent conflict. In this case, the present donor focus on absolute poverty reduction will also be conducive to reviving the social contract. But grievances may also be expressed in relative terms; the rebel group may seek a closing of the gap in its standard of living with wealthier groups, not just a rise in its absolute well-being. In this case, governments (and donors) will need to be much more concerned with reducing inequality, especially across regions. For instance, Mozambique has seen some (modest) improvement in living standards in areas dominated by the rebel group, Renamo, since the end of the civil war in 1992. But, present disgruntlement among Renamo supporters—which flared into violence in 2001—reflects their perception that the fruits of reconstruction have so far been concentrated in regions controlled by the Frelimo government, so that the regional gap shows no sign of closing, and may indeed have risen. Additionally, relative differences in living standards across social groups may play a greater role in fermenting grievances in societies rich in point resources, since the monetary value of the associated flows of income is more evident than in the case of societies dependent on diffuse, renewable resources, where much of the associated output is not marketed.

Second, development economists typically classify military spending as unproductive. But donor efforts to reduce military spending, and free public money for development spending, are typically thwarted (by moving the spending off-budget) even in countries such as Uganda that have demonstrated commitment to poverty-reduction. Countries can have legitimate security interests, especially when they find themselves in bad neighbourhoods (true of much of Africa) and poor people place security high on their list of priorities. Defence spending will remain high (with large opportunity costs for development spending) until the international community can offer a credible regional peace, thereby preventing harm to countries that unilaterally contract their defence

capabilities. Yet, UN peacekeeping operations remain grossly underfunded; their cost in 2000 amounted to less than one half of 1 per cent of the approximately US$ 800 billion that member states spend on national defence (United Nations 2000: 2). If peace was credible, then the developmental impact of releasing those resources from military spending could be immense, the resulting broad-based development thereby in turn solidifying the social contract upon which peace is ultimately sustained.

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