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Working Paper 1:

SPENDING TO SAVE: IS CONFLICT PREVENTION COST-EFFECTIVE?

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MAKING KNOWLEDGE WORK

DEPARTMENT OF PEACE STUDIES

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EXECUTIVE SUMMARY

It is often argued that it is easier and more cost effective to tackle conflicts before they reach the point of mass violence. Yet estimated costs can be different from actual costs, and preventative actions may be unsuccessful or may simply delay the onset of violence. Moreover, when considering the cost-effectiveness of conflict prevention (CP), the possibility has to be considered that, even without action, conflict may not take place.

While the general argument for more resources for prevention and peace-building has considerable attraction at first sight, therefore, a more rigorous approach to estimating its cost and benefits is needed in order to be able to operationalise the concept. Such an approach needs to take into account the predicted probabilities of conflict onset (both in the absence and presence of proposed CP measures), together with estimates of the expected costs of war and of preventative actions.

The objective of this study is to develop such an approach, and to illustrate how it might be operationalised. The project involves six case studies, three retrospective (on the Western Balkans, Afghanistan, and Rwanda) and three prospective (Afghanistan, Uzbekistan and Sudan). All twelve CP Packages (two for each case study) are calculated to be cost-effective for the international community: i.e., the anticipated cost savings from avoiding conflict exceed the costs of the CP Packages. In all but one of these cases, moreover, the breakeven reduction in conflict probability is less than half the estimated reduction in probability. This provides strong evidence for the finding that, in these studies, conflict prevention is cost-effective.

Breakeven Probabilities for cost-effectiveness of CP Packages

Probability of conflict (over 15 year period)	**Breakeven Probability for international community: CP Package 1**	Breakeven Probability for all parties (IC, territory & neighbours): CP Package 1	**Breakeven Probability for international community: CP Package 2**	Breakeven Probability for all parties (IC, territory & neighbours): CP Package 1
Balkans	**11%**	1%	**27%**	3%
Afghanistan Past	**7%**	5%	**50%**	32%
Rwanda	**16%**	3%	**15%**	3%
Sudan	**7%**	1%	**29%**	5%
Uzbekistan	**10%**	1%	**28%**	2%
Afghanistan Future	**7%**	6%	**12%**	9%

Two of the more cost-effective Packages are Sudan Package 1 and Uzbekistan Package 1, both of which take place in the 'gestation phase' of conflict, but estimates of conflict probability reduction depend critically, in both cases, on the willingness of political authorities to allow implementation. The ability of the IC to carry out cost-effective CP packages in the 'gestation phase' may therefore depend on its willingness to incur unquantified costs e.g. arising from trade-offs between short-term interests in co-operation with existing governments and long-term CP objectives.

Perhaps the most effective CP package amongst those studied is the second Rwanda package. The proposed military action was clearly feasible, did not depend on host government approval, and would almost certainly have achieved its defined objective of stopping the genocide, with all the other consequences that followed. More generally, the cost-effectiveness of preventive military action is likely to be greater when the potential for

effective resistance is relatively small, and the size and duration of deployments can consequently be more limited.

In determining the cost-effectiveness of CP to the IC, costs are divided into 'discretionary' and 'non-discretionary' costs. The willingness of the IC to incur 'discretionary costs' is usually proportional to the level of 'non-discretionary costs' that could be incurred. Countries with oil supplies, terrorist bases, high levels of foreign investment or large populations of potential migrants are more likely to be candidates for CP by the IC than countries with few of these global linkages.

In all the studies, the costs of conflict to the directly-affected territory exceed those to the IC and to neighbours, usually by a very large margin. While the main focus of this study is on the benefits and costs to the IC, taking into account the levels of costs to the directly-affected territory and its neighbours has a dramatic effect on the cost-effectiveness of CP. The 'breakeven probability' for all parties is less than 10% in eleven of the twelve cases being studied, and 5% or less in nine out of twelve. In all the non-Afghan case studies, the costs of conflict to the directly-affected territory exceed those to the IC and to neighbours, usually by a very large margin.

One consequence of basing costs to the directly-affected territory on GDP loss is that it leads to higher per capita cost estimates for middle-income conflict-affected countries, compared with low income countries. Further work is needed to generate more equitable cost-estimation methods, perhaps including the development of direct indicators of conflict impact on human security.

The framework outlined here provides a new way to think about how to conceptualise CP policy and thereby can assist in the prioritising of activities, and in processes of reflecting on lessons learnt from previous successes and failures. At the same time, further work is still needed to develop the methodology used in this study, e.g. in relation to conflict probability estimates, GDP costs to directly-affected territories, and non-discretionary costs to the international community. An initial discussion of these topics is included in the three attached Briefing Papers.

This report has been made possible by funding from the UK Department for International Development.

1. INTRODUCTION

The objective of this study is to provide an evidence base concerning the costs and benefits of conflict prevention (CP) activities (defined as those activities undertaken primarily to reduce the risk of conflict), compared with those of engaging after large-scale conflict has begun.

It is often argued that it is easier and more cost effective to tackle conflicts before they reach the point of mass violence. It is now widely argued that it is easier and more cost effective to tackle conflicts before they reach the point of mass violence. The UK Government, for example, recently argued that 'preventing conflict is better and more cost-effective than resolving it'[1] yet this claim is comparatively under-researched. Existing studies on the cost-effectiveness of prevention tend to point to cases where *ex post* the cost of inaction considerably outweighed the cost of hypothetical conflict prevention[2] yet the results of such analysis can be misleading, since the results of inaction can never be known in advance and so the *estimated* costs are likely to be very different from the *actual* costs. Conversely the benefits of prevention are also unknown. Preventative actions may be unsuccessful or may simply delay the onset of violence. Alternatively, even without preventative action, conflict may not have taken place.

While the general argument for more resources for prevention and peace-building has considerable attraction at first sight, therefore, a more rigorous approach to estimating its cost and benefits is needed in order to be able to operationalise the concept. Such an approach needs to take into account the predicted probabilities of conflict onset (both in the absence and presence of proposed CP measures), together with estimates of the expected costs of war and of preventative actions.

The primary objective of this project is to be forward-looking, help in to inform decisions on investments on CP. On a macro-level, it should contribute to discussions about the overall effectiveness and efficacy of conflict prevention, and to assessments about the circumstances in which particular instruments might prove more or less effective. At a micro-level, it may also suggest lessons about how the international community might shape its current responses to particular potential conflicts.

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1 DFID, FCO and MoD, The Global Conflict Prevention Pool: A joint UK government approach to reducing conflict, The Stationery Office, London, 2003, p. 3.

2 M. E. Brown and R. N Rosecrance (eds), *The Costs of Conflict: Prevention and Cure in the Global Arena*, Carnegie Commission on Preventing Deadly Conflict, 1999; M. Renner, *Budgeting for Disarmament; The Cost of War and Peace,* World Watch, Washington DC, World Watch Paper 122, 1994; Hugh Miall, Oliver Ramsbotham and Tom Woodhouse, *Contemporary Conflict Resolution; the prevention, management and transformation of deadly conflicts,* Cambridge, Polity Press, 2000.

2. KEY FEATURES OF METHODOLOGY

The project involves six geographical case studies, which are published in two separate working papers in this series. This paper provides an analysis of the results. Three are retrospective case studies (for the period 1988-2003) on the **Western Balkans**, **Afghanistan** and **Rwanda**. All three locations experienced major conflicts during this period, but the nature of international response differed widely. In Rwanda, response was limited and took a primarily humanitarian form. In the Western Balkans, there was a wide-ranging international engagement in the conflict from the beginning, culminating in the deployment of international military force to bring the conflict to an end after 4 years of bloodshed. In Afghanistan, the international community's involvement was limited in character during 12 years of large-scale internal conflict, despite the massive flows of refugees into neighbouring countries. Large-scale military intervention only took place in response to the events of September 11 2001.

Three prospective case studies (for the period 2004-2018) have also been completed, on **Afghanistan**, **Uzbekistan** and **Sudan**. For each of these, we ask the question: what mix of CP measures and instruments adopted by the international community would be most cost-effective in preventing conflict if adopted now? How do these compare with the possible costs of conflict? The prospective studies were chosen to represent the range of scenarios with which international CP policy is expected to deal. Sudan and Afghanistan have experienced protracted conflicts, but have now seen, or expect, important peace agreements. There are, however, very different current levels of international engagement. Uzbekistan, by contrast, is not currently experiencing major armed conflicts. Yet it faces serious governance and development challenges, which could over time create the conditions for large-scale conflict.

For each of the geographical case studies, we have calculated the net benefit/cost of particular hypothetical 'CP Packages' to the international community. The international community (IC) is defined to be all countries outside the immediate neighbourhood of the territories 'directly affected' by conflict. For the purposes of the calculations in the study, the IC is assumed to be a unitary actor. As we discuss in a later section, however, many of the obstacles to effective CP may arise because this is often far from being the case.

The study also calculates the net benefit/cost of conflict and CP to the directly affected territories and to neighbouring territories. These territories are defined in each case study. For each of the case studies, the specialist authors (in co-operation with the team leader, Malcolm Chalmers) constructed two plausible packages of CP measures that could have been (or could still be) undertaken by the international community, over and above actual or current efforts. The packages are chosen so as to be reasonably representative of the main choices which, in principle, might have been (or still are) open to the international community.

Each package is then broken down into its main components and its annual additional costs for the whole international community over the period of the study are estimated. It is not assumed that any CP package would definitely have prevented, or will prevent, conflict. Rather, case study authors are asked to estimate by how much the package in question would have reduced the probability of conflict, and to justify their estimate.

In order to estimate the costs of conflict to the international community, as well as to the directly affected territory and its neighbours, two scenarios are constructed for each case study: a 'peace scenario' and a 'conflict scenario'. These are chosen to be representative of a much wider range of possibilities. The peace scenario sketches a plausible path to avoidance of large-scale violent conflict (although smaller-scale localised conflict is not excluded). The conflict scenario sketches a plausible path to the emergence of large-scale violent conflict (or, in the case of the retrospective studies, what actually took place).

In order to facilitate standardised comparisons between them, all case studies are limited to a study of a period of 15 years: 1989-2003 (inclusive) for the retrospective studies and 2004-2018 (inclusive) for the prospective studies. This has meant that some of the CP packages that have been suggested to us (for example, in relation to Yugoslavia or Rwanda in the early 1980s) could not be considered. In some cases, a significant part of the costs of conflict (and of CP) fall outside the 15-year time frame. This is less of a problem in the retrospective studies, where the major conflict episodes occurred in the early 1990s (though Afghanistan is a partial exception to this rule). In those prospective studies where major conflict is more likely to take place after 2010 (e.g. Sudan and Uzbekistan), however, this may tend to understate the costs of conflict. Where the 15-year rule significantly affects our findings, therefore, we make this clear.

All the financial data used has been converted into 2004 US dollars, using the US GDP deflator index to convert from cash dollar figures for retrospective case studies. This reflects the value that society attaches to present, as opposed to future, consumption.

In accordance with recommended HMT practice, we have also used a 3.5% real discount rate to calculate the Net Present Value (NPV) of costs and benefits.[3] In principle, it would be possible to apply a different discount rate for directly-affected territories and neighbours, compared with the international community. This is unnecessarily complicating for a study of this nature, and we therefore assume a uniform discount rate for all actors.[4]

On the basis of available information and the elaboration of the relevant peace and conflict scenarios, each case study estimates annual cost figures over a 15-year period, which are then translated into NPV figures (in $2004) for the following:

- Total NPV costs of conflict to the international community.
- Total NPV costs of conflict to the directly-affected territory.
- Total NPV costs of conflict to neighbouring territories.

Each of these is calculated by estimating the net additional costs of the conflict scenario to the parties in question, compared with the peace scenario.

Each case study also estimates the following:

- Total NPV costs of CP Package 1 to the international community.
- Total NPV costs of CP Package 2 to the international community.

Annex 1 summarises the mathematical representations of these variables.

This is not a study of possibilities for CP measures by the directly-affected territory or by neighbours. No estimate is therefore made of costs of CP Packages to these parties (though in some cases, co-funding might be a key part of the process).

The spreadsheets contained as Annexes to the case studies summarise the cost estimates made for these variables in the six case studies. It then shows how these estimates are used to assess the cost-effectiveness of the CP Packages in question. To do this, each case study estimates the probability of large-scale violent conflict (represented by the conflict scenario) taking place (at some time during the 15 years) in the absence of the Package being studied. In the case of the retrospective studies, this probability is, by definition, 100%.

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[3] HMT *The Green Book*, Annex 6

[4] In countries with higher rates of consumption growth and/or lower life expectancy, one might expect higher real discount rates.

In the case of the prospective case studies, the probability varies somewhat, from 70% in Uzbekistan to 80% in Sudan. Each case study then estimates the reduction in conflict probability that is achieved by the package under study. In Sudan, for example, CP Package 1 reduces this probability from 80% to 30%, and CP Package 2 reduces it from 80% to 15%. In the special case of Rwanda, where the second package is intended only to prevent the 1994 genocide (and not the 1990-94 civil war) the estimate of a 78% probability reduction refers to the estimated reduction in the NPV cost of the total conflict scenario.

The case studies have drawn on various sources (including lessons learned from other conflicts and understanding of key conflict actors and events) to estimate these probabilities. Yet the margins of uncertainty in these estimates (shown below) are, in some cases, considerable.

The margins of uncertainty are relatively lower, for example, in two of the cases (Balkans CP2 and Rwanda CP2) where the preventive deployment of well-equipped military force is a central element of the package, but not in the second Afghanistan package, where this is also an important element. This will be discussed further later in this paper.

Table 1: Conflict Probabilities and CP Packages

Probability of conflict (over 15 year period)	**Without** CP Packages	**With** CP Package 1	**With** CP Package 2
Balkans	100%	40%	20%
Afghanistan Past	100%	80%	40%
Rwanda	100%	17%	22%
Sudan	80%	30%	15%
Uzbekistan	70%	25%	10%
Afghanistan Future	80%	40%	20%

In order to further assess the cost-effectiveness of various CP packages, and reduce dependence on the specific probability estimates made above, the study also calculates a 'breakeven probability' for each of the packages. This is the reduction in probability of conflict which a given CP Package has to achieve in order for its additional cost to be equivalent to the likely savings to the international community. Thus, in most cases, the estimated cost of a conflict to the IC is much greater than the cost of a Package designed to prevent it. Yet if a package only reduces the probability of conflict by x%, the average savings to the international community are only x% of the NPV costs of conflict, while the full costs of the Package will have to be met.

It is important to emphasise that it is the difference in probabilities brought about by the Packages that is of relevance to an assessment of their cost-effectiveness. The example of Sudan CP Package 1 may help here. In the absence of either of the Packages, the estimated cost to the IC of this conflict, if it takes place, is $18.2 billion. But there is an estimated 20% probability that conflict will not take place, thereby reducing the total mean estimated cost to 0.8 x $18.2bn = $14.6bn. If Package 1 is put in place, it costs $1.3b, but reduces the probability of conflict to 30%. The total mean estimated cost to the international community is then $1.3bn + 0.3 x $18.2bn = $6.8bn: a savings of $7.8bn. Thus the methodology employed here takes account of both (a) the possibility that conflict might not have occurred, even without the CP Package, and therefore that the Package turns out to have been 'wasted'; (b) the possibility that conflict will still take place, even with the Package, and therefore that, again, it might be seen as a failure.

Calculations of breakeven reductions in probability of conflict have been calculated only in relation to the costs to the IC. Yet all the conflicts studied impose costs on the directly-affected territory that are significantly higher than those that fall on the IC. To a much lesser but still significant extent, costs also fall on neighbours. The assessment of the net benefits of the packages therefore estimates the likely savings to these parties of the Packages being examined, adjusted for the estimated reduction in conflict probability as a result of those Packages. Thus, for example, Sudan Package 1 is estimated to save the international community a total of $7.9bn, but it would also save the directly-affected territory (i.e. Sudan) $37.8bn and its neighbours $2bn. We have not sought to weight the benefits accruing to these different parties.

3. KEY FINDINGS: COST-EFFECTIVENESS OF CP PACKAGES TO THE INTERNATIONAL COMMUNITY (IC)

Of the twelve CP Packages examined, all are estimated to be cost-effective for the IC: i.e., the anticipated cost savings from avoiding conflict exceed the costs of the CP Packages. **In all except one of these cases, moreover, the breakeven reduction in conflict probability is less than half the estimated reduction in probability**. This adds to the robustness of the finding that conflict prevention would have been significantly cheaper than cure in all these cases.

The one exception to this latter finding relates to the second retrospective CP package for Afghanistan (a similar finding is anticipated for the prospective Afghanistan study). In this case, it has been assumed that the most propitious time for CP would have been in the immediate aftermath of the withdrawal of Soviet troops in February 1989, when a unified international intervention might have prevented the subsequent descent into a new civil war. But the main reason for the relatively high level of expense of CP in this study, and thus its poor cost-effectiveness, is that Afghanistan had already experienced a decade of civil war, had been heavily armed (on both sides) by foreign powers, and was facing considerable obstacles to a negotiated peace, not least because of this preceding conflict. The sheer scale of the second CP Package (involving an initial deployment of 30,000 troops, and the provision of a level of ODA that would probably have made Afghanistan the world's largest aid recipient in absolute terms) means that its projected costs are almost four times as great as those of the next largest of the other eleven Packages (the second Balkans package).

The cost of this CP Packages may have been overstated, and it is worth noting that it is still marginally cost-effective to the IC, on the assumption that the probability of conflict can be reduced by 60%. Crucially, however, the case for the retrospective cost-effectiveness of CP for the international community in Afghanistan rests entirely on the assumption that Afghanistan's war had a significant effect on the scale of international terrorism (including the 9/11 attacks) and/or the global drugs problem. If such a relationship did exist, making even modest inroads into the costs of these global problems would have made CP worthwhile. In this study, we assume that the creation of a peaceful Afghanistan in the 1990's would have reduced the probability of 9/11 by 50%, reduced the total costs of dealing with international terrorism by 20%, and reduced the total costs incurred as a result of the international drugs trade by 5%. On these assumptions, both CP Packages would have been worthwhile to the IC at relatively low breakeven probabilities of success. If these costs are excluded, on the other hand, the retrospective cost-effectiveness of intervention to the IC in Afghanistan is very low indeed.

It is also possible to devise a measure of relative cost-effectiveness, based on the ratio between expected NPV cost savings to the IC and estimated CP costs. This is summarised below:

Table 2: Cost-effectiveness of CP Packages[5]

Comparison of CP costs with anticipated savings to IC (NPV, 2004$ b)	Cost of CP Package	Net saving to IC as a result of Package	Gross Saving/Cost Ratio[5]
Balkans CP1	15.4	66.7	5.33
CP2	37.1	72.4	2.95
Rwanda CP1	1.5	6.0	5.00
CP2	1.4	5.6	5.00
Afghanistan Retro CP1	19.9	36.2	2.82
CP2	139.4	28.8	1.21
Sudan CP1	1.3	7.9	7.08
CP2	5.3	6.6	2.25
Uzbekistan CP1	0.2	0.7	4.50
CP2	0.5	0.6	2.20
Afghanistan Prosp CP1	21.1	93.9	5.45
CP2	34.1	138.5	5.06

On the basis of these figures, two of the more cost-effective Packages are Package 1 for Sudan and Package 1 for Uzbekistan. From this, **one might be tempted to draw the general conclusion that CP is particularly cost-effective when it takes place in the 'gestation phase' of the conflict cycle**, i.e. well before an anticipated conflict (even in Sudan, the probability of a revival of the central conflict in the short-term is assessed to be relatively low). In both cases, the proposed CP Packages focus primarily on a combination of measures intended to promote accountable government, develop security sector reform processes, and encourage peaceful conflict resolution. This conclusion should, however, be treated with some caution. We believe that the estimates of cost are reasonable in both cases, and the confidence margins are not especially large. **But the estimates of conflict probability reduction depend critically, in both cases, on the willingness of local political authorities to allow their implementation**. For example, external support of any kind to opposition groups, human rights groups or independent media in Uzbekistan might well meet resistance. Similarly, the government is unlikely to view favourably the opening of OSCE field offices in the Ferghana Valley. The ability of the IC to carry out highly cost-effective CP packages in the 'gestation phase' of conflicts, may therefore often depend on its willingness to incur unquantified costs, e.g. arising from possible trade-offs between short-term interests in friendly co-operation with existing governments and longer term prospects of CP. These other costs should not be overstated, and our view is that (in Sudan and Uzbekistan at least) there are many potential entry points for effective CP that could be exploited given sufficient IC commitment. If the IC is unwilling or unable to incur these other costs, the prospects of effective CP of this sort will be correspondingly reduced.

Both the proposed CP packages for Rwanda also have very high benefit/cost ratios to the IC. Package 1 is designed to take advantage of the opportunity that existed to terminate the civil war in late 1990, before it escalated and before it led to the militarisation / radicalisation of Rwandan society.

It consists of a united international initiative to broker a peace settlement, backed up by an arms embargo, a small peacekeeping force and some limited financial support designed to soften the social impact of the economic crisis. Package 2 is a military intervention in 1994 that would have terminated the genocide in Kigali before it spread to the rest of the country, thereby avoiding not only mass killing, but also the subsequent destruction of infrastructure

[5] The net savings figures are calculated by subtracting Package costs from gross savings. For the purposes of calculating a benefit/cost ratio, however, the gross figure is more appropriate.

and the refugee crisis. The key to understanding the high (retrospective) cost-effectiveness of these packages is that 92% of the costs of the conflict scenario to the IC relate to the genocide and its consequences and only 8% to the civil war that had been underway since 1990.[6] The first CP Package is estimated to have only a 50% probability of stopping the civil war, but would have reduced the risk of the genocide by 90%. Without the risk of the latter, the first package would have had a benefit/cost ratio to the IC of only 0.5: well below break-even point.[7]

Perhaps the most obviously effective CP package amongst those studied, therefore, is the second Rwanda package. The proposed military action was clearly feasible, did not depend on host government approval, and would almost certainly have achieved its defined objective of stopping the genocide, with all the other consequences that followed.

The nearest parallel to the second Rwanda CP Package is the second Balkans CP Package. This involves the provision of a security guarantee to Bosnia and Croatia in 1991, as part of the decision to recognise them as independent states, and to underpin this with the deployment of sufficient military force to ensure the credibility of this guarantee against both external and internal opponents. It is supported by a substantial programme of long-term development assistance, designed to consolidate the peace and prepare for the integration of the region into the wider European community of states. This package is similar to the Rwandan one insofar as both involve the deployment of robust military force in order to contain an immediate crisis, neither required prior permission of all the parties to the conflict and both are assessed to have had a high probability of successfully achieving their objectives.

Yet the second Balkans Package is also by far the most expensive of all the clearly profitable CP packages examined here. The high cost of its military component reflects the assumption of a force equivalent in size and capability to the NATO force eventually deployed in Bosnia in 1995/96. By comparison, the Rwandan 'Package 2' force is a tenth of the size and less heavily-equipped. This may partly reflect undue caution in the Balkans case study and arguably even a force half the projected size could have had the required deterrent effect if deployed early enough. But it largely reflects the greater military capability of potential adversaries in the Balkans compared with Rwanda. A similar consideration applies in the retrospective Afghanistan study, where the large military force deployed in CP Package 2 reflects the perception (reinforced by US and NATO experience since 2001) that Afghanistan is a very difficult military environment in which to deploy. Insofar as there is a lesson from these studies, therefore, it is that **the cost-effectiveness of preventive military action is likely to be greater when the potential for effective resistance is relatively small and the size and duration of deployments can consequently be more limited**.

There may be another factor that explains the disparity in estimated costs of military intervention. In both the Balkans and retrospective Afghanistan studies, the military costs of CP are derived, in considerable measure, by reference to the costs of later post-conflict interventions (in 1995 and 2001 respectively). By contrast, studies that assume forceful military intervention in cases where none has taken place (e.g. Rwanda Package 2 and Sudan Package 2) generally assume a much lower level of cost.

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6 By comparison, 23% of the costs to Rwanda itself relate to the civil war.

7 The first CP Package would, however, have been cost-effective if the costs to Rwanda itself are taken into account. Whereas this difference may have led to over-caution in estimating Balkan and retrospective Afghanistan costs, it may have led to over-optimism in Sudan, where the exact nature of the military challenges faced in Package 2 are hard to specify or cost.

Both the Balkans packages illustrate the considerable expense that can be involved in using economic assistance as a CP tool. The first package is designed to stabilise the Yugoslav economy in its period of crisis in 1989-91 and thereby prevent the rise of extreme nationalism that subsequently led to war. The second package also involves, in addition to security guarantees, substantial development assistance to the newly independent republics of former Yugoslavia. In both cases, however, the costs involved in immediate economic stabilisation are relatively modest, and mostly take the form of partial write-off and rescheduling of external debts. More crucial than the absolute size of the development programme provided in addition to this stabilisation package, moreover, would be its allocation in a conflict-sensitive manner. Indeed, given the continuing potential for intra-republican and inter-republican conflict, it would be essential that the programme is managed in such a way as to reduce rather than increase these tensions.

By far the biggest component of the economic assistance component of the Balkans packages lies in their commitment to finance a move towards now-current levels of development assistance to the region. Such a high level of assistance can be justified as CP insofar as it contributes to the long-term prosperity of the region, and helps in support its integration into the European Union, whose continuing enlargement is often, with some justice, described as its main contribution to CP. Yet arguably a much lower level of economic assistance would have been enough to produce equivalent CP gains, once the immediate constitutional crisis of the early 1990s had passed. Of course, such an investment might well have been justified in terms of the other non-CP benefits to the IC of a prosperous (ex-) Yugoslavia. Yet it also highlights **the importance, especially when examining the use of large-scale economic assistance as a CP tool, of being clear as to whether CP is the primary objective being sought**. **When this is not the case, there is likely to be an increased danger that large aid programmes, even if they contribute to other objectives (such as GDP growth) in the short term, may exacerbate the potential for violence in conflict-prone societies**.

This leads us to some general remarks, based on the case-study research, that may shed some light on the relative cost-effectiveness of different CP instruments:

- First, all the case studies showed that **the timing of the CP Packages is critical to the chances of success in the retrospective studies.** In the case of the retrospective studies, this involved the creation of packages focused on particular 'windows of opportunity' for external intervention, often coinciding with the perceived failure of domestic authorities to prevent the worsening of political, economic or security conditions. Characteristically, this occurred either (a) when the gravity of the national political and economic crisis was already apparent to many key actors, but before mobilisation for armed conflict had got under way (as in both the Balkans packages); or (b) when limited armed conflict had already begun, but had not yet escalated (as in the first (and to an extent the second) Rwanda package). This concern with windows of opportunity also informs the timing of the retrospective Afghanistan Packages, both of which focused on the opportunity, slight though it might have been, of a viable peace process in the immediate aftermath of Soviet withdrawal in 1989. Perhaps because of the timing of the conflicts in all three locations, the packages in the retrospective studies tended to give a relatively lower priority to longer-term 'structural' CP, reflecting the limited time frame in which (with the benefit of hindsight we know) they had to operate.

- The packages in the prospective case studies for Sudan and Uzbekistan, by contrast, are more concerned to promote longer-term processes of institutional and normative change that can reduce the future resort to political violence, reflecting the assessment that large-scale conflict is primarily a medium-term, rather than short-term, risk.

Both packages emphasise, however, that such longer-term processes must also be flexible and capable of rapid adaptation if they are to be successful in CP. Rather than a single fixed package of measures, they suggest a set of overarching objectives, under which a range of specific, and constantly adapting, measures are then developed as circumstances develop.

- **Both retrospective and prospective case studies, written in relation to both imminent and longer-term risks of conflict, emphasise the need for CP packages to be timely and flexible**. This in turn has important implications for the IC's capability for rapid reaction across the board of CP instruments, including diplomacy, financial assistance, and military engagement. Such a capability, in turn, requires the IC to have a sophisticated real-time understanding of the dynamics of conflict in the countries in question, together with mechanisms for identifying and contacting key actors, and for feeding 'early warning' of conflict into strategic decision making.

4. KEY FINDINGS: VARIATIONS IN COSTS OF CONFLICT TO INTERNATIONAL COMMUNITY

So far, our focus has been on comparing the merits of different CP packages in different circumstances. In determining the cost-effectiveness of CP to the IC, however, the costs of conflict are an equally important part of the equation. These costs can broadly be divided into 'discretionary costs' and 'non-discretionary costs', corresponding roughly to the distinction between 'wars of choice' and 'wars of necessity'.

'Discretionary' costs refer to the costs which the IC (i.e. the donor community or 'the West') incurs by responding to conflicts in other parts of the world. It includes the costs of refugee support, humanitarian aid and post-conflict reconstruction, as well as post-conflict military intervention. The cost-effectiveness of CP can be analysed solely in relation to these discretionary costs. Yet the IC often declines to incur many of these costs, as the experience of Afghanistan in the 1990's illustrates. Moreover, a strategy for CP that is based solely on reducing the discretionary costs of conflict to the IC faces the paradox that **increased investment in CP can actually incur increased costs if conflict still breaks out, if only because some forms of preventive action often ties the intervening states into obligations (military, political, economic) from which it is not easy for them to extract themselves**. If the sole motive of CP was to save discretionary costs, therefore, the best strategy might be to entirely disengage from countries and regions in crisis, thus saving on both pre-conflict and post-conflict costs.

Yet such a strategy, apart from being callous in its indifference to the human costs of conflict to those directly affected, also ignores the *'non-discretionary' costs* of conflict to the IC, i.e. those costs which the IC will be forced to incur, whether it likes it or not, or at least will find it very hard to avoid. Examples in our case studies include:

- Increased migration of asylum seekers from countries at war (e.g. into the EU as a result of the Balkans war);
- The direct consequences of international terrorism developing safe havens in 'failed states' (e.g. al Qaeda in Afghanistan);
- The loss of oil company profits, and reduced international welfare more generally, as a result of disruptions to supplies from countries in conflict (e.g. from Sudan);
- The increased availability of narcotics as a result of conflict and state failure (e.g. in Afghanistan).

If properly foreseen, non-discretionary costs are often likely to be greater in magnitude than discretionary costs, and may consequently be given more weight in IC deliberations. This tendency may, in some cases, be offset by the greater difficulty involved in costing non-discretionary costs to the IC compared with discretionary costs. Some 'costs' have offsetting benefits (e.g. increased immigration can have economic benefits, and increased oil prices may contribute to environmental objectives). Other costs may be difficult to quantify, especially when (as in the cases of narcotics, and to a lesser extent international terrorism) production is geographically mobile and therefore relatively impervious to 'supply side' control. On the other hand, **the willingness of the IC to incur 'discretionary costs' is usually directly proportional to the level of 'non-discretionary costs' that are being incurred**. In the Balkans, the spill-over effects of conflict on Western Europe (in migration, organised crime, disruption of trade) had a direct bearing on the willingness of the EU and NATO to devote considerable resources to post-conflict stabilisation. Despite the depth of the humanitarian crisis, the IC was unwilling to intervene in Afghanistan, and incur 'discretionary costs', until the massive 'non-discretionary' costs of international terrorism

reached the US. In Rwanda, similarly, the failure to intervene to prevent the genocide derived in large measure from the perception (fuelled by events in Somalia) that the IC could refuse to act without incurring any costs to itself.

If the main driving force in calculations of the costs of conflict to the IC is the prospective level of 'non-discretionary' costs, it follows that the IC will be more willing, other things being equal, to invest in CP in those territories from which such costs are most likely to be generated. **Countries with vulnerable oil supplies, terrorist bases and high levels of foreign investment or large populations of potential migrants are therefore more likely to be candidates for cost-effective CP by the IC than countries with few of these global linkages**.

Yet one would have thought that these considerations would have led to the focusing of CP efforts on larger countries (like Nigeria, Ethiopia, India, Pakistan and Indonesia), since their descent into conflict would be likely to have much greater economic, strategic and humanitarian consequences than similar events in smaller countries. In practice, however, both ODA and military intervention (and indeed the UK's own CPPs) have tended to be disproportionately focused on smaller countries. Our five case study countries have not bucked this trend, consisting of one small country (Rwanda) and four medium-size ones (Afghanistan, Balkans, Sudan, Uzbekistan), all with populations less than 35 million.

5. KEY FINDINGS: COST-EFFECTIVENESS TO DIRECTLY-AFFECTED TERRITORIES AND NEIGHBOURS

Although the main focus of this study has been on the benefits and costs to the IC, taking into account the levels of costs to the directly-affected territory and its neighbours has a dramatic effect on the cost-effectiveness of CP. As Table 3 shows, once costs to all parties affected by a conflict are taken into account, the 'breakeven probability', i.e. the level of reduction in conflict probability at which CP becomes cost-effective, is reduced dramatically. The resulting breakeven for all parties is less than 10% in eleven of the twelve cases being studied and 5% or less in nine out of twelve cases. **In all the non-Afghan case studies, moreover, the costs of conflict to the directly-affected territory exceed those to the IC and to neighbours, usually by a very large margin**.

The main methodology used to estimate the costs to the directly affected territory and its neighbours is to compare the level of national income in the conflict scenario with the level of income that it is estimated would have been achieved, over the 15 year period, in the peace scenario.

In addition, the case studies also estimate the additional costs, in conflict, of diverting some part of national income into conflict-related uses, including military spending and reconstruction.

This methodology helps us encompass the wide range of economic effects of conflict, while avoiding the perils of double-counting. It also takes into account the powerful effect of differential growth rates on the relative prosperity of countries (or scenarios, in this case).

Table 3: Break-even probabilities for CP Packages

Country	Balkans	Afghanistan Past	Rwanda	Sudan	Uzbekistan	Afghanistan Future
total NPV costs of conflict to IC	136,921	280,509	8,957	18,239	1,930	287,652
total NPV costs of conflict to territory	843,182	98,660	35,261	75,506	27,289	51,144
total NPV costs of conflict to neighbours	260,159	49,935	344	3,931	2,383	23,656
total NPV costs of CP Package 1 to IC	15,379	19,896	1,472	1,268	191	21,097
break-even reduction in conflict probability for international community	11%	7%	16%	7%	10%	7%
break-even reduction in conflict probability for all parties (IC, directly affected territory and neighbours) combined	1%	5%	3%	1%	1%	6%
total NPV costs of CP Package 2 to IC	37,117	139,457	1,385	5,287	542	34,098
break-even reduction in conflict probability for international community	27%	50%	15%	29%	28%	12%
break-even reduction in conflict probability for all parties (IC, directly affected territory and neighbours) combined	3%	32%	3%	5%	2%	9%

This methodology could be further refined, for example by including the costs of the human capital lost through deaths and injuries incurred as a result of the conflict.[8] Yet a significant part of this cost (up to the end of the 15-year time period) should already be included, insofar as it impacts on projected or actual national income.

One potentially worrying consequence of basing costs to the directly-affected territory on national income loss (which applies equally to calculations of the value of life based on lost potential output) is that it leads to much higher per capita figures for costs in relation to middle-income countries affected by conflict, compared with low-income countries. This is illustrated below:

[8] A useful example of such a calculation is contained in Nisha Arunatilake and Sisira Jayasuriya, 'The Economic Cost of the War in Sri Lanka', *World Development*, Vol 29, No.9, 2001, p. 1494.

Table 4: National income levels and costs to directly-affected territory and neighbours

Country	Balkans	Afghanistan Past	Rwanda	Sudan	Uzbekistan	Afghanistan Future
total NPV costs of conflict to territory	843,182	98,660	35,361	75,506	27,289	51,144
Per capita annual cost of conflict	$2,550	$263	$149	$157	$73	$136
Per capita annual income (2002)	$2,480	$185	$230	$350	$450	$185
total NPV costs of conflict to neighbours	260,159	49,935	344	3,931	2,383	23,656
Per capita annual cost	$403	$50	$0.2	$3	$14	$24
Per capita annual income (2002)	$2,630	$1,710	$160	$130	$240	$1,710

Of the conflicts studied, both the costs of the conflict to the directly-affected territory and the costs to neighbours are far higher in the Balkans than in any of the other cases: 9 and 3 times as high respectively compared with Afghanistan, and 12 and 40 times as high respectively compared with Sudan. Yet the death tolls in Afghanistan and Sudan were, or are projected to be, as high as those in the Balkans, and all three territories have comparable total populations (22m for former Yugoslavia, 25m for Afghanistan and 32m for Sudan). The main reason why the estimated monetary costs of the conflict in the Balkans are so much higher, therefore, is that its per capita income (even after a decade of war) is between 7 and 14 times as high. As a consequence, the value of lost production, or destroyed infrastructure, is much higher. A similar picture emerges when the economic impact on neighbours is examined. Albania, Bulgaria, Hungary and Romania are estimated to suffer three times as much cost from the effects of the Balkans war on their rate of growth as Iran does from hosting 3 million Afghan refugees at its own expense. As a lower-middle income country, the cost of hosting refugees in Iran (the main cost of the Afghanistan conflicts included above that relates to neighbours) is significantly higher than in low-income countries bordering Rwanda and Sudan.

While the intention of focusing more attention on this variable may be a humanitarian one, therefore, the consequence of doing so (at least if a methodology using income loss is used) would be to prioritise CP in middle-income conflict zones. In the light of these comparisons, it is clear that **further work is needed to generate more equitable methodologies for comparing potential costs to directly-affected territories if it is to become a more central criterion in comparing the cost-effectiveness of CP Packages**. Possibilities for doing so are discussed further in Annex 3 of this paper.

With these misgivings in mind, each case study has also summarised available data on more direct indicators of human security (lives lost, serious casualties, refugees) and human development (life expectancy, education enrolment and HDI levels). Yet the extent to which such data provides a useful means of comparing the costs of conflict to directly-affected territories remains uncertain. **Further work is needed, in particular, to develop direct indicators of the impact of conflict on human security**. The UNDP's Human Development Index, while a useful corrective to an exclusive focus on GDP data, fails to take into account the crucial role that violence, and fear of violence, plays in determining the welfare of the poor.

Some important health warnings are also appropriate in relation to costs to neighbouring territories. In some cases, estimates of these costs can be remarkably small, for example in Rwanda and Sudan. This partly reflects the relatively self-contained nature of the conflict in those territories, or at least the complex nature of any possible spill-over effects. But it also reflects the reality that the IC often picks up most of the cost of dealing with cross-border refugee flows, with migrants as a consequence often having net positive effects on their adopted homes. As the case study of Rwanda's subsequent interventions in Congo illustrates, moreover, spill-over effects can be economically beneficial, at least for the intervening state. Nor are neighbours usually passive victims of conflict. Like the IC, they are often active participants in the conflict, with a stake in a particular outcome and/or particular factions involved in the conflict. Indeed, for example in the case of Afghanistan, one of the main obstacles to the success of the retrospective CP packages is the difficulty in reaching a consensus between Afghanistan's neighbours (Russia, Iran and Pakistan) as to the best political solution for that country. Intervention by an outside power (the US) can sometimes override this regional conflict dynamic, but only at considerable cost.

6. BURDENSHARING, LEADERSHIP AND IMPLICATIONS FOR THE UK

Our framework is based on the assumption of a single international actor. Yet no such unitary actor exists, making it more difficult to generate the international and inter-organisational agreement that is needed to undertake timely CP. In practice, therefore, prompt action is more likely if a single powerful state (or, in some circumstances, organisation) takes a leading role in organising a response. One of the clear conclusions from the literature on international intervention and CP is that prompt action is more likely if a single powerful state (or, in some limited circumstances, organisation) takes a leading role in organising a response: the US in Sudan and (in 2001) in Afghanistan, the UK in Sierra Leone, France in Ivory Coast. Where national stakes are relatively limited, governments often seek to free-ride on the efforts of others, and nothing gets done. This was certainly a key obstacle to effective CP in all three of our retrospective case studies. Yet the problem is not simply one of apathy and free-riding within the context of shared objectives. In some cases, for example Rwanda in 1991-94 and Afghanistan in 1990, the key international actors involved were pursuing objectives that were in direct conflict with each other, making any unified IC response impossible and greatly increasing the chances of conflict.

States therefore undertake their own national cost-benefit calculations on the relative merits of different forms of intervention and non-intervention. In order to assess whether the national cost/benefit relationship for CP measures for the UK (or indeed another outside power) is different from that for the international community as a whole, it is therefore necessary to estimate what share of costs and benefits are met by, or accrue to, the UK. Were the UK to consider taking a leading role in CP in one or more countries, it would find itself meeting most of the costs of CP, but only benefiting from a relatively small share of the benefits of peace, most of which would accrue to other international and domestic actors. 'Spending to Save' is therefore difficult to operationalise for the UK in isolation, unless it is able to mobilise IC partners to fully share the CP burden. UK leadership is most likely to be viable where the UK has a strong stake in a particular territory, e.g. as a result of ongoing ODA programmes and economic interests.

At the same time, however, UK CP initiatives can arguably have wider benefits to the UK beyond the conflict in question, enhancing its global standing, responding to domestic political pressures for humanitarian actions, and building up credit with partners that can be spent on other issues of value to the UK.

It is not easy to assess whether the UK currently contributes disproportionately to global CP, given its economic weight, and might thus feel others are 'free-riding' on its efforts. When CP is financed through multilateral organisations, such as the UN or OSCE or EU, costs are shared on the basis of standard scales of assessment, and the UK's share of the costs is therefore roughly proportional to its economic weight. When the UK provides other resources on a bilateral basis, its share varies considerably. The UK spends more than the EU average or than Japan on defence, but less than the US. It spends above the OECD average on ODA, though below the EU average. In any case, most defence and ODA spending does not have a connection to CP, and it is therefore hard to estimate what share of global CP spending is met by the UK.

The area in which the UK contribution to international security, including CP, is most clearly disproportionate is involvement in military operations. During the last ten years, the UK has borne a share of the costs of overseas military operations that is well above its relative economic weight, and it maintains a higher proportion of its armed forces outside national territory than any other state in the world. Were this trend to continue, the UK has more to gain than other countries from measures that reduce the need for future military operations. On the other hand, it means that the UK could also be called upon to make a disproportionate contribution to the military dimension of CP activities. This is especially the

case for the initial high-intensity phase of peace enforcement operations, in which the UK retains a significant comparative advantage.

In principle, given the UK's high share of military intervention costs, a particularly cost-effective form of CP expenditure might therefore be programmes designed to provide other countries with increased capacities for peace support operations. Whether this is true in practice, of course, depends on whether the programmes deliver on their objectives.

UK overseas military operations and ODA flows are geographically focused, and the extent of UK contributions to CP efforts will often depend on the synergy with, and between, these and other policy instruments. The extent of the UK involvement in CP will also vary depending on the extent to which the region/country in question is seen to be of particular strategic/economic/etc interest. Yet the scope of these interests at present are very broad, with, e.g., MDG interests in sub-Saharan Africa and South Asia, strategic and economic interests in the Greater Middle East, and growing economic and geopolitical interest in China and India. A more helpful criterion may therefore be: where can a distinctly UK contribution to CP add value to efforts led by others? In some cases, e.g. in North-East Asia, it may be that UK (and indeed European) contributions will remain marginal to those of more deeply engaged powers.

7. AREAS FOR FURTHER DEVELOPMENT

Further work is required to refine the methodology and sources used for the case studies. We have identified three areas in particular where more research would be of value:

a. **Objective and subjective measures of conflict probability**. Econometric literature is already available on the correlates and incidence of conflict. It should be possible to situate the findings of this study in the context of this literature, explore how far econometric results can be used to inform conflict probability estimation in the model, and suggest 'rules-of-thumb' that might be used to systematise conflict probability estimation.

b. **Valuing the costs of conflict to the directly affected party.** This study uses loss of GDP as its main proxy for the cost of conflict to directly affected territories and neighbouring states. This has the effect of valuing the cost of conflicts to directly-affected middle-income countries at a higher rate than in low-income countries. Further work could explore whether this relative weighting is consistent with other IC policy commitments (e.g. the MDGs), and could explore how an alternative valuation methodology might be developed. This has important implications, not only for this study, but across the range of UK and international CP activities.

c. **Non-discretionary costs to the IC**. Much of the increased interest in CP relates to the possibility that conflict might generate costs to the IC that are unrelated to post-conflict intervention, for example through international terrorism, narcotics supply, oil supply disruption, etc. Yet there is very little literature available that seeks to quantify these costs in relation to CP decisions.

Annexes 2-4 of this paper provide some initial thoughts on each of these areas.

Table 5: Summary of Findings (all values at $m NPV, 2004 prices)

Country	Balkans	Afghanistan Past	Rwanda	Sudan	Uzbekistan	Afghanistan Future
total NPV costs of conflict to IC	136,921	280,509	8,957	18,239	1,930	287,652
total NPV costs of conflict to territory	843,182	98,660	35,261	75,506	27,289	51,144
total NPV costs of conflict to neighbours	260,159	49,935	344	3,931	2,383	23,656
total NPV costs of Package 1 to IC	15,379	19,896	1,472	1,268	191	21,097
break-even reduction in conflict probability	11%	7%	16%	7%	10%	7%
estimated reduction in probability as result of package	60%	20%	83%	50%	45%	40%
net savings to IC as result of package	66,774	36,205	5,962	7,851	678	93,964
savings to directly affected territories	505,909	19,732	29,267	37,753	12,280	20,458
savings to neighbouring territories	156,095	9,987	286	1,966	1,072	9,462
total NPV costs of Package 2 to IC	37,117	139,457	1,385	5,287	542	34,098
break-even reduction in conflict probability	27%	50%	15%	29%	28%	12%
estimated reduction in probability as result of package	80%	60%	78%	65%	60%	60%
net savings to IC as result of package	72,420	28,848	5,601	6,568	616	138,493
savings to directly affected territories	674,546	59,196	27,504	49,079	16,373	30,687
savings to neighbouring territories	208,127	29,961	268	2,555	1,430	14,194

Annex 1: Methodological Note

The purpose of each case study is to assess the relative cost-effectiveness to the international community of two alternative CP packages (CP_1, CP_2), compared both with each other and with a baseline case, which is an estimate of what would happen with no CP, case CP_0. In order to answer this question, each case study makes best estimates, based on the evidence available to them, of the following:

P_0	The cumulative probability of large-scale organised violence in the absence of the CP packages under study;
P_x	The cumulative probability of large-scale organised violence taking place, at some time during the 15-year time frame, if the CP package CP_x under consideration in the case study are adopted;
S_0 (t) to S_0 (t+15)	The estimated annual monetary costs of the setback to the development of the directly affected territories as a result of the conflict scenario;
C_0 (t) to C_0 (t+15)	The estimated annual additional costs (for years x, x+1…x+n, where x+n<t+15) incurred by the international community in overcoming the setbacks to development of the directly affected territories as a result of this conflict, adjusted for the probability that the international community will accept responsibility for bearing these costs;
I_0 (t) to I_0 (t+15)	The estimated annual additional costs (for years x, x+1…x+n, where x+n<t+15) incurred by the international community in intervening after the onset of large-scale organised violence, in the absence of the CP packages under study, adjusted for the probability that the international community will intervene;
PR_1 (t) to PR_1 (t+15)	The estimated annual additional costs (for years x, x+1…x+n, where x+n<t+15) incurred by the international community in undertaking the CP packages under study;
I_1 (t) to I_1 (t+15)	The estimated annual additional costs (for years x, x+1…x+n, where x+n<t+15) incurred by the international community in intervening after the conflict has begun to involve large-scale organised violence, if the CP packages under consideration in the study are adopted, but conflict still takes place, adjusted for the probability that the international community will intervene.

Assumptions and conventions

- Although in practice decision makers may be faced with the risk of a wide variety of possible conflicts, of varying magnitudes, lengths and frequencies, we simplify this by asking case studies to use a single conflict scenario (in terms of magnitude, length and frequency) for the baseline, as well as a single peace scenario.

- In order to calculate the NPV's, we use the discount rate recommended in the HMT Green Book. All monetary values are in 2004 $.

- In prospective case studies, t = 2004. In retrospective studies, t = 1989.

On the basis of these assumptions and estimates, the following numbers are calculated in Annex H:

NPVIC (C_x)	The net present value to the international community of the conflict scenario under consideration, compared with the peace scenario, calculated over the period t to t+15.
NPVTER (C_x)	The net present value to the directly affected territory of the conflict scenario under consideration, compared with the peace scenario, calculated over the period t to t+15.
NPVNEI (C_x)	The net present value to neighbouring territories of the conflict scenario under consideration, compared with the peace scenario, calculated over the period t to t+15.
NPVIC (CP_x)	The NPV cost to the international community of the CP package under consideration, calculated over the period t to t+15.

Break-even reduction in conflict probability for the IC	$B(CP_x) = NPVIC(CP_x) / NPVIC(C_x)$
estimated reduction in probability as result of CP_x	$\Delta PR(CP_x) = P0 - Px$
Net savings to IC as result of CP_x	$= NPVIC(C_x) \times \Delta PR(CP_x) - NPVIC(CP_x)$
Savings to directly affected territories	$= NPVTER(C_x) \times \Delta PR(CP_x)$
Savings to neighbouring territories	$= NPVNEI(C_x) \times \Delta PR(CP_x)$

Annex 2: Objective and subjective measures of conflict probability

The purpose of this annex is to situate the findings of the Spending to Save study in the context of recent academic literature, exploring how far econometric results are consistent with conflict probability estimation in the model, and suggest 'rules-of-thumb' that might be used to systematise conflict probability estimation in further case studies.

The global probability of conflict over a 15-year period

There is an extensive academic literature seeking to map trends in the incidence of conflict. For the purposes of data comparability, we use the widely-accepted definition of 'major armed conflict', which refers to all armed conflicts in which at least one of the actors is a government, in which there are at least 1000 battle-related deaths in total and in which there at least 25 battle-related deaths per annum.[9]

Perhaps the most influential recent contribution to this quantitative work has come from studies of the causes of civil war by Collier, Hoeffler and associated researchers at the World Bank and elsewhere. Using data covering 161 countries for the period 1960-99, Collier et al (2002) estimate that the typical developing country faced a risk of civil war outbreak of around 17% in each 5-year subperiod. This probability is, however, highly path-dependent, with the probability of civil war outbreak in each time period being greatly increased if a civil war had recently taken place. In order to translate this figure into a 15-year probability, therefore, it is necessary to construct a 'risk tree', in which the likelihood of repeated civil war outbreaks is taken into account. We assume, using Collier et al (2002) data, that, if a country suffers civil war outbreak in the first 5 years of the 15-year period, it will have a 44% chance of suffering further outbreak in the second 5 years (and similarly for the second and third five-year periods). Consequently, countries that avoid civil war in one five-year period will have a lower than average (i.e. 17%) chance of subsequent civil war. **Taking this path dependency into account, Collier et al's data suggest that an estimated 34% of all developing countries will experience the outbreak of civil war at least once over a 15-year period**.

The Collier et al data does not include inter-state wars, of which there were 28 during 1960-1999, primarily in the period before 1990. Nor does it include six wars against colonial rulers that took place in the period before 1980 (Armed Conflict Database, 2003). If these conflicts are taken into account, in addition to the 78 civil wars in the Collier et al model, the 15-year probability of conflict is increased. Because the bulk of these wars took place before 1990, it may not make a significant difference to the global probability of conflict. Yet it can be significant in particular countries and sub-regions. The last six years have seen several significant inter-state wars, including international community interventions in Kosovo, Afghanistan and Iraq, a mid-scale conflict between India and Pakistan, and a major war between Ethiopia and Eritrea. In these cases, and in some others, the risk of inter-state war remains relevant.

Probability estimates based on the Collier et al data can be compared with our own analysis of data for the most recent 15-year period for which complete data is available. **As Table 6 shows, 34% of developing countries experienced a major armed conflict during 1988-2002**. Of these 52 countries, only Eritrea (which became independent only in 1993) is recorded as having major inter-state war, but not major civil war, during this period. The 34% figure generated from this source is therefore comparable with that generated (for a longer time period) by Collier et al.

[9] This means that large-scale inter-ethnic fighting in which the state is not involved (e.g. Nigeria in the 1990's) is not coded as conflict. (Sambanis:19) In many cases, however, the state may be thought to have played some indirect role in such fighting, raising questions about the correct coding.

Table 6: Conflict initiation during 1988-2002 in developing countries

Income level (2002)	Major Conflict	Minor Conflict Only	No Conflict	Total
Low Income	32 (50%)	15	17	64
Of which HIPC	*20 (51%)*	*8*	*11*	*39*
Lower Middle Income	18 (33%)	4	32	54
Upper Middle Income	2 (6%)	4	28	34
Total Developing	**52 (34%)**	**21**	**77**	**152**

Note: calculated from Uppsala Conflict Data, as reported in Mikael Eriksson et al (2003). A Minor Conflict is defined as one with at least 25 battle-related deaths per year, but less than 1000 battle-related deaths in total.

Estimating conflict probabilities: Stage 1

In order to devise a 'rule-of-thumb' for calculating the 15-year probability in individual cases, it is also useful to take into account those factors that have been shown to have the clearest correlation with conflict probability. Two factors appear to be particularly important: first, whether there has recently been a conflict in the country in question; second, the country's per capita level of income.

There is a 44% probability of recurrence within five years of the end of a previous conflict. Even if the conflict risk premium declines to zero after five years, therefore, this still leaves (using a 'risk tree' analysis) an aggregate 15-year risk of conflict of 61% in countries that have recently experienced it. By contrast, in the 83% of developing countries that have not experienced conflict in the last five years, the 15-year risk is only 28%.

As Table 6 suggests for the most recent 15 years, upper-middle income countries are much less likely to suffer conflict than lower-middle income countries, who are in turn significantly less likely to suffer conflict than low income countries. The probability of conflict in HIPC countries was no higher than in other LIC's, however, so it is not suggested that HIPC status should be an extra conflict indicator.

To some extent, the correlation shown in Table 6 may reflect the extent to which end-period income levels are a consequence, rather than a cause, of conflict during the previous 15 years. Since they are historical, moreover, they are not necessarily a guide to future trends. Nevertheless, they can provide a useful starting point for the construction of a 'rule-of-thumb' based on the two main conflict-determining variables we identify here.

In Table 7, we show such an illustrative matrix. In order to construct this matrix, we have assumed that a recent prior conflict increases the probability of conflict by the same proportion in all three income groups. These illustrative figures are consistent with the 'conflict trap' model in Collier et al (2002), in which conflict is increasingly concentrated in a group of marginalised low and lower-middle-income countries. By contrast, almost all upper-middle income countries, and most lower-middle income countries, face a relatively low conflict probability over the next 15 years.

Table 7: 15-year conflict probability

Initial Income level (2002)	Major Conflict in last five years	No Major Conflict in last five years	Total
Low Income (64)	80%	37%	**50%**
Lower Middle Income (54)	61%	28%	**33%**
Upper Middle Income (34)	11%	5%	**6%**
Total Developing	**61%**	**28%**	**34%**

Table 7 focuses on the two variables that appear to be most universally linked to conflict probabilities. In order to refine probability estimates at a country level for the purposes of employing the Spending to Save methodology, analysts can use this as a baseline, and then assess whether there are specific characteristics of the country under consideration which might increase or decrease its conflict risk above the expected level for a country of a given income level and conflict history.

In principle, this assessment could include a more 'fine grain' assessment of where countries are situated in relation to the broad income and conflict categories. In relation to income levels, however, the data do not suggest a sufficiently strong relationship between conflict risk reduction and income growth to make such a differentiation worthwhile within the categories. The risk of conflict in HIPC countries is no higher than in LICs taken as a whole. Nor is there clear evidence of a lower conflict risk amongst the higher-income LMCs.[10] Moreover, it should be noted that figures for GNI per capita, both using the Atlas method (as here) or using PPP, are subject to significant margins of uncertainty, given difficulties involved in measurement, exchange rate determination and so on.

The stark division between countries that have, or have not, experienced major conflict in the last five years could also, in principle, be broken down into more fine-grained categories (with the risk of renewed conflict, for example, greater for those where a conflict took place 6 years ago greater than those who have experienced none for 15 years). It is probably more important, however, to conduct a qualitative assessment of the extent to which the problems that contributed to past conflict have been successfully addressed. This can only be done by an assessment of the country in question, looking at the nature of the peace settlement, if any, and how far progress has been made in creating a stable new political and security order.

Estimating conflict probabilities: Stage 2

We have considered the possibility of adding other variables to this matrix, but recommend that this not be done, both because of the methodological complexity it would involve, and because no other variables appear to provide as powerful an explanation of conflict probability as the two already included. As one of the co-authors of the WB Conflict Trap study has reminded us, moreover, causation does not show correlation, and case study-based process tracing is necessary if the latter is to be used to demonstrate the former (Sambanis, 2003).

It is worthwhile briefly reviewing these additional variables, however, as they are still worth taking into account in a more qualitative fashion when conducting country-level vulnerability studies. Amongst the variables that global econometric studies have estimated (or hypothesised) as correlated with conflict are the following:

[10] Five out of seven LMCs with GNI per capita of $2000-2935 (the upper band of LMC status) experienced a major conflict in the last 15 years.

- Societies where the dominant ethnic group is between 45% and 90% of the population are estimated to have a 50% higher probability of conflict. (Collier et al: 58). At the same time, a wider degree of ethnic and religious diversity may actually reduce the probability of conflict.

- Countries with a level of dependence on primary commodity exports of around 30% of total GDP appear to face a heightened risk of conflict, compared with those with significantly lower (or higher) levels of dependence. (Collier et al).

- Countries with high levels of per capita growth are less likely to face conflict than those with low or negative levels. (Collier et al)

- Countries with a larger population are more likely to suffer conflict (the death threshold for conflict is defined in absolute, not proportional, terms), but the risk and size of conflict does not increase proportionately with population size. Hence a region with many smaller countries (e.g. sub-Saharan Africa) is likely to incur a larger number of conflicts. (Elbadawi & Sambanis)

- Countries with high levels of inter-regional inequality are more prone to conflict. (Sambanis, 55)

- States face a particularly high risk of warfare in the first year after independence, as has recently been shown in the former Soviet Union, former Yugoslavia and East Timor. (Collier et al)

- Strong and authoritarian states may be less prone to civil war than average developing countries (Sambanis, 23). New and 'immature' democracies, by contrast, appear to face the greatest risk of warfare (Gurr, Henderson & Singer). Political instability also increases the risks of war, but political liberalisation can achieve a greater reduction in the risk of civil war in polarised societies than economic liberalisation. (Elbadawi & Sambanis)

- A high quality of policy and institutions, as measured (for example) in the World Bank's Country Policy and Institutional Assessment (CPIA), can reduce the chances of conflict. (C&H).

- The existence of large migrant communities in neighbouring countries, which may provide support to rebellions, increases the risk of conflict. (C&H)

- Significant neighbourhood spillover effects can be observed in many civil war outbreaks, most recently in the Balkans, West Africa, Horn of Africa, East Timor/Aceh (Sambanis, 43). The nature of these effects is often linked to the presence of cross-border ethnic communities.

- The existence of charismatic leaders, when they are particularly committed to the use of violence to achieve political ends, can increase the chances of conflict. (Sambanis, 50) The importance of individual leaders may have been a key factor, for example, in the outbreak of World War Two and in the Balkan Wars of the 1990s.

- The extent of international community involvement in providing security, either through UN peacekeeping forces or other means, will also have a (normally pacifying) impact on the risk of conflict.

There is a good case for arguing that each of the variables listed above plays a role in determining conflict outbreak. Yet their relative weighting remains highly contested and often dependent on difficult coding decisions. Rather than asking those conducting country risk assessments to include some or all of these correlations in a multiple-variable quantitative risk assessment, therefore, we recommend a mixed model, in which a check list of 'secondary risk factors' is created, and then used to make a qualitative judgement (based on country knowledge) as to whether the baseline risk assessment derived from Table 2 should be adjusted in some way. This ensures that analysts are reminded to take into account the most obvious risk factors, while also retaining the essential element of qualitative and country-based judgement.

Towards a framework for estimating probabilities within the Spending to Save model

Our proposal for the systematisation of 15-year conflict risk assessment is therefore three-fold:

- Firstly, the allocation of the country in question to one of the six baseline categories in Table 7, according to its recent conflict history and income level.

- Second, an assessment of where the country in question is placed (compared with others in the same baseline category) on other indicators of conflict-proneness.

- Third, a qualitative judgement, reached after explicit consideration of the above, of the risk of conflict over the next 15 years.

Table 8: An Illustrative Conflict Risk Assessment: Zambia

Factors	**Coding**	**Comment**	**15-year risk of conflict**
Baseline: income and recent conflict	LIC – No recent conflict		37%
Dominant ethnic group: 45-90% of population	No	Diverse ethnic groups	-10
High dependence on commodity exports	Yes	25% but falling.	+5
Decline in per capita GDP over last decade	Yes		+10
Large population	No		-5
Inter-regional inequality	Yes		+5
In first year of independence	No		-

Immature democracy	No	Better than LIC norm	-2
Political instability	No	Less than norm	-5
Low CPIA score	No	Near norm	-
Migrant communities in neighbours	No		-2
Conflicts in neighbours	Yes	Angola, DRC, Zimbabwe	+10
Violent leaders	No		-3
International peacekeeping forces	No		+3
Other factors			-7
Judgement of conflict probability			**30%**

An illustration of how this might work is shown in Table 8. It should be emphasised that the assessments here are not based on detailed study of the case of Zambia and are therefore intended only to demonstrate how the methodology might be applied.

Applying the risk assessment framework to the Spending to Save prospective case studies

The 15-year probability of conflict in the absence of CP was assessed at 80% in the Spending to Save case studies for Afghanistan and Sudan, and 70% in the case study for Uzbekistan. In Tables 9, 10 and 11 we illustrate how these estimates are consistent with the framework we have just outlined. The conflict risk in Uzbekistan is assessed at a rather lower level than in the other two cases in large part because it has not experienced a major conflict in the recent past. The probability of major conflict in Afghanistan is assessed at less than 100% only because of the large external contribution of military forces and ODA in the 'baseline' scenario. The assessment for Sudan reflects a mixed message as to the role of oil in both conflict generation and potentially conflict resolution. It should also be noted that, in this case, the probability of southern secession plays a key role in any assessment.

Modelling the duration and scope of conflict

Each case study in the Spending to Save model is organised around a single representative 'conflict scenario', which is then contrasted with a single 'peace scenario'. While, in principle, the model could incorporate analysis of a multiplicity of conflict possibilities, doing so would add a level of complexity that could detract from the utility of the approach. The probability estimates used in the case studies are not, strictly speaking, the probabilities of any conflict breaking out in the country in question, but the representative probability of the conflict scenario breaking out. In the case of Afghanistan, for example, the representative scenario is full-scale civil war, and a lesser level of conflict (say less than 300 conflict casualties per annum) would therefore be seen as conflict avoidance.

At the same time, the costs of conflict, and thus the benefits of CP, are often related to variations in the duration and intensity of conflict. Insofar as CP activities are able to reduce the duration of conflict, for example, they can reduce the number of conflicts underway globally at any one point in time. (Collier et al). If CP activities can contain the geographical spread of a conflict, or the level of damage incurred, they may also be worthwhile, even if conflict continues at a reduced level. Rather than use a multiplicity of conflict scenarios, however, the model incorporates changes in the nature of the conflict scenario in a particular case study as changes in the probability of conflict.

Conclusions

Based on a survey of the literature on the correlates of conflict break-out, this paper has suggested a framework for conflict probability assessment that could be of value in further Spending to Save case studies. Although this framework is not a substitute for country-level analysis, it does provide a useful tool for strengthening such analysis, and for facilitating cross-country comparisons.

Table 9: Applying the Conflict Risk Assessment: Afghanistan

Factors	Coding	Comment	15-year risk of conflict
Baseline: income and recent conflict	LIC –Recent conflict		80%
Dominant ethnic group: 45-90% of population	Yes	Fear of Pashtun dominance key factor	+5
High dependence on commodity exports	Yes	Opium key destabilising factor.	+10
Decline in per capita GDP over last decade	?	Recent increase, though largely narcotics	-
Large population	-	mid-sized	
Inter-regional inequality	No		-5
In first year of independence	No		-
Immature democracy	Yes	Worse than norm	+10
Political instability	Yes	Worse than norm	+ 10
Low CPIA score	Yes	Near post-conflict norm	-
Migrant communities in neighbours	?	Declining as refugees return	-5
Conflicts in neighbours	No	Not significant	
Violent leaders	Yes	Warlords, Taliban	+10
International peacekeeping forces	Yes		-20
Other factors	Yes	High ODA	-15
Judgement of conflict probability			**80%**

Table 10: Applying the Conflict Risk Assessment: Sudan

Factors	Coding	Comment	15-year risk of conflict
Baseline: income and recent conflict	LIC – recent conflict		80%
Dominant ethnic group: 45-90% of population	Yes	Central bipolar conflict	+10
High dependence on commodity exports	Yes	Rising oil dependence	+10
Decline in per capita GDP over last decade	No	Rising due to oil	-20
Large population	Yes	mid-sized	+5
Inter-regional inequality	Yes	Multiple risks	+5
In first year of independence	Yes?	Risk in event of southern independence	+10
Immature democracy	No	Not democratic	-10
Political instability	No	Norm for group	-
Low CPIA score	No	Near norm	-
Migrant communities in neighbours	No	No more than norm	-
Conflicts in neighbours	Yes	Uganda, Ethiopia, DRC,	+5
Violent leaders	Yes	Rather more than norm	+5
International peacekeeping forces	No	Not in baseline	-
Other factors			-20
Judgement of conflict probability			**80%**

Table 11: An Illustrative Conflict Risk Assessment: Uzbekistan

Factors	Coding	Comment	15-year risk of conflict
Baseline: income and recent conflict	LIC – No recent conflict		37%
Dominant ethnic group: 45-90% of population	Yes	Tajik / Kyrgyz minorities	+10
High dependence on commodity exports	Yes?	Cotton, but not conflict factor.	-10
Decline in per capita GDP over last decade	Yes	But recently stabilised?	-
Large population	?	Mid sized	-
Inter-regional inequality	Yes	Poverty in Ferghana	+10
In first year of independence	No		-
Immature democracy	No		-5
Political instability	Yes		+5
Low CPIA score	No	Near norm	-
Migrant communities in neighbours	Yes		+5
Conflicts in neighbours	Yes		+5
Violent leaders	Yes	Both government and radical opposition	+15
International peacekeeping forces	No		-
Other factors			-
Judgement of conflict probability			**72%**

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Annex 3: Valuing the costs of conflict to directly affected territories

The Spending to Save study uses loss of GDP as the main measure for the cost of conflict to directly affected territories and neighbouring states. This has the effect of valuing the cost of conflicts to directly-affected middle-income countries at a higher rate than in low-income countries. This annex will examine whether this relative weighting is consistent with other IC policy commitments (e.g. the MDGs) and will explore how an alternative valuation methodology might be developed.

Voters and foreigners

The Spending to Save project is primarily intended to look at the costs of conflict and CP for the 'international community', which is defined as being all countries other than the directly affected territories and neighbouring states. At the same time, the case studies have separately estimated the costs of conflict, and CP, to directly affected territories and their neighbouring states.

In order to estimate the relative valuation that is to be given by the IC to these two types of costs, it is reasonable to assume that the IC places some positive valuation on the welfare of the citizens of countries affected by conflict. It is less clear, however, how this valuation compares to that given to the welfare of their own citizens. If one referred only to the stated objectives of development policy (e.g. the MDGs and the poverty-focus of development agencies), then a relatively high (though not equal) weighting might be given. If aid and trade policies, rather than statements, are taken as indicative of 'revealed preferences', then the weighting is clearly much lower.

Any attempt to estimate the relative weights that decision-makers give to the welfare of foreigners and their own electorates, therefore, comes up against an apparent disjuncture between principle and practice. It is not possible to resolve this problem technically. The Spending to Save model therefore separately estimates costs to the IC, and to directly affected territories and neighbouring states, leaving it to decision-makers to decide the relative weight to give to the welfare of these different groups.

GDP loss as a measure of the costs of conflict to directly affected territories

Armed conflict typically generates a wide range of economic costs, including the destruction of public and private assets, the disruption of transport links, the breakdown of social trust, the flight of capital and people and the deterioration of economic policy. The nature and extent of these costs vary considerably, as does their distribution between individuals and groups. Even as some suffer, others might gain from conflict. Conflict might also sometimes result in improved economic performance and policy (as was arguably the case in Rwanda), although this does not appear to be the norm. (Hoeffler & Reynal-Querol (2003): 11)

Many of the economic effects of conflict are overlapping and interacting. An estimate of aggregate economic impact derived mainly from the addition of known effects, therefore, is likely to result in double-counting, as well as the possible omission of significant unquantified effects. The Spending to Save model seeks to minimise these potential methodological problems by using the loss of potential annual GDP as the basic numeraire for the costs of conflict. Information available on specific economic effects, for example asset destruction or capital flight, can then be used to inform a better estimation of GDP trends.

The use of GDP loss also helps to avoid potential problems related to the proper valuation of capital losses. The current economic value of capital assets is the NPV of the income flows that they will generate in future. In practice, estimates of asset destruction often use historic cost valuations, which may overstate potential income flows in cases where assets would

have soon become obsolete, even in the absence of conflict. Most of Eastern Europe and the former Soviet Union, for example, suffered a sharp GDP decline in the early 1990s as the peaceful transition to a market economy destroyed the value of assets designed for a different pricing structure. In order to estimate the economic loss incurred by conflict in the Balkans case study, therefore, it was necessary to assume that it would have incurred significant GDP losses even in the absence of conflict as a result of the transition to a market economy and the related obsolescence of much industrial capital. The costs of conflict were then estimated as the difference between this peacetime GDP trend and the actual war-affected GDP levels.

This use of GDP trends as the main numeraire is consistent with that used in Collier & Hoeffler (2004). The experience of writing the Spending to Save case studies in co-operation with country experts suggests that this methodology is readily understandable by non-economists and produces results that can be placed in comparative context with relative ease. The use of aggregate GDP trends is also more likely to capture the enduring impact of conflict on economic development. Historical experience suggests that countries may never regain the levels of GDP that they could reasonably have expected to reach by a given date had they remained at peace. The countries of Central America, for example, are now significantly less well-off (20 years later) than they would have been without the civil wars of the 1980s.

The shift to subsistence production

The literature on the economic effects of conflict suggests a common tendency towards a shift from production for the market to production for subsistence or barter, alongside a shift from legal to non-legal and criminal activities. Studies of possible GDP loss need to be aware of this tendency, as it has the potential for overstating the decline in human welfare as a result of conflict, and thus the gains consequent upon subsequent marketisation and legalisation. Perhaps the most dramatic example of this trend in our case studies is the growth of the narcotics economy in Afghanistan during its long civil war, to such an extent that opium production now accounts for an estimated 40% of national income. Successful CP in Afghanistan can be expected to reduce this production. In calculating the cost-effectiveness of CP for the population of the directly affected territory, therefore, the losses of opium-related income may have to be set against projected gains in legally-earned GDP.

Timescale of GDP loss

The Spending to Save methodology limits itself to a 15-year time scale: 1989-2003 for retrospective case studies and 2004-2018 for prospective case studies. It therefore understates the costs of conflict (and in some cases CP) where these can be expected to extend beyond this period. Where conflict occurs at the beginning of the period, and the main costs of conflict are incurred immediately thereafter, this may be less of a problem. In several case studies, however, conflict occurs in the middle of the period and significant costs are expected after its end. Sudan and Uzbekistan are examples of this. In the case of the retrospective Afghanistan case study, moreover, many of the costs of the 1990s civil war to the IC were incurred after 2003, in the form of high levels of ODA and military deployments. Even after a discount rate is applied, the inclusion of these post-period costs could make a significant difference to the overall cost-effectiveness of CP.

Bearing this experience in mind, future Spending to Save case studies might consider extending the time period of the cost-effectiveness calculation to 20 or 25 years, where it is felt that significant additional costs might be incurred in these end-years.

GDP diversion

In addition to estimates of GDP loss as a result of conflict, the Spending to Save model also makes an allowance for the diversion of GDP into 'non-productive' activities such as military spending. It does so by comparing the level of such spending in the conflict scenario (including the post-conflict period) with its level in the peace scenario and using the difference as a resource diversion effect of conflict. This is consistent with the methodology used in Collier and Hoeffler (2004).

Although this methodology is generally sound, it needs to be applied with care, taking into account the particular circumstances of each case study. It assumes that no additional welfare is generated from the extra military spending in the conflict scenario, except insofar as this is a direct consequence of requirements generated by the conflict itself. Yet increased military spending can, in some cases, generate other benefits, including enhancement of dual-use physical infrastructure, protection of national economic assets, improved policing and greater deterrence of future rebellions. In evaluating the diversion effect, therefore, case study authors should not assume that all domestic military spending is 'non-productive', even if increased military spending as a result of conflict can normally be so classified.

Distributional weightings within directly affected territories

The use of GDP as a measure of welfare assumes that the same utility is generated by every dollar of income, irrespective of the total income of the recipient. While this assumption is at odds with the assumption of a diminishing marginal utility of income, GDP gain or loss can still provide a useable proxy for proportional gain or loss in welfare in circumstances where the distribution of income remains constant.

Yet conflict is often characterised by rapid changes in the distribution of both income and property. The differential impact of a conflict on income groups will depend on its particular characteristics, with some conflicts disproportionately affecting urban and/or propertied classes, and others bearing most heavily on poor peasant populations. Post-conflict recovery is also often characterised by new patterns of income distribution, often very different from those prevailing in the pre-conflict period. Although the recent focus of attention has been on conflicts which hurt the poor disproportionately, this need not always be the case, e.g. when conflict settlement is accompanied by asset redistribution or state appropriation.

Where there is no strong evidence to suggest that particular income groups have suffered disproportionate income losses or gains, GDP loss remains the best indicator of welfare loss. Where evidence of considerable redistribution is present, however, it would in principle be better to adjust GDP estimates to take into account the marginal utility of income (MUI) of different income groups within the same country. It is generally accepted that marginal utility declines as income rises and recent academic research has focused on estimating the elasticity of this relationship. HM Treasury (2003) concludes, based on Cowell and Gardiner (1999) and other studies, that marginal utility is inversely proportional to the income of the recipient, i.e. 'an extra £1 of consumption received by someone earning £10,000 a year will be worth twice as much as when it is paid to a person earning £20,000 per annum.' (HM Treasury (2003): Annex 5, p. 11). On the same assumption, the loss of $10 in the income of those earning $100 per annum is worth ten times the loss of $10 by those earning $1000 per annum.

It may be difficult to apply a system of distributional weights in circumstances where data on the differential impact of conflict on income groups is not readily available. Where sufficient data is available to suggest that some income groups lose, or gain, disproportionately from

conflict, however, such a system could provide a means of adjusting GDP estimates to take these effects into account.

International distributional weightings

If one were to assume a single world 'welfare community', then one could estimate a global utility function similar to the national utility function used in the previous section. With marginal utility inversely proportional to income, an international weighting of income gains (or losses) might then look as follows:

Table 12: Weighting of marginal income, using a global utility function

Country	Mean income level 2002 (GNI per capita)	Marginal Utility of Income (where UK = 100)
Rwanda	$ 230	109.8
Bosnia	$ 1,270	19.9
UK	$25,250	1

This hypothetical utility function is very far from the stated principles, far less the reality, of current IC / OECD policy. This is because there is a sharp distinction between the (weak) nature of community and mutual obligation that exists within the global polity and the stronger (albeit variable) manifestations of such community within national societies. Governments give much higher priority to the welfare of those who elect them over that of those who do not. This also has important implications for the organisation of burdensharing within the 'international community', insofar as the UK government is likely to place as little value on increasing welfare in Japan or the US as it does in Rwanda or Bosnia, compared to the high weighting given to its own citizens. We discuss the problems this creates for burdensharing in CP in the main text of the report.

Yet the overwhelming priority that governments give to their own citizens does not mean that the concept of a global utility function is irrelevant, only that it may only have value when comparing the welfare of different foreign countries. In the case of international organisations, moreover, all countries are 'foreign', and such a function can therefore have universal value, within the constraints of the resources which have been made available to those organisations.

Thus, for example, it would be possible to use international distributional weights to assess the relative costs and benefits of investing in CP in Bosnia and Rwanda from the point of view of the IC. This would mean that a $127 (or 10%) reduction in an individual's income in Bosnia would be valued as equivalent to a $23 (or 10%) reduction in an individual's income in Rwanda.

This rule-of-thumb would be consistent with the poverty-selectivity of donors such as the UK, which is increasingly concentrating its ODA on low-income recipients, and with the focus of the MDG's on reducing poverty, as measured by a global income threshold. By focusing policy intervention on those earning less than $1 or $2 a day, these donors are implicitly using a method of discriminating between developing countries in a manner compatible with a unified global utility function.

In practice, the impact of conflict on the GDP of the directly affected territories and neighbouring states is only part of the calculation of the cost-effectiveness of CP, with other non-discretionary and discretionary costs likely to loom much larger. Insofar as an attempt is made to take the former into account, however, utility theory suggests giving a higher weight to the absolute GDP benefits that accrue from CP in low-income countries, compared to

those in middle-income countries. **For this purpose, we recommend using the assumption that marginal utility is inversely proportional to average income**.

Taking health impact into account

Recent literature seeks to account for the human costs involved in conflict, particularly as these relate to the impact of conflict on mortality and health (Ghoborah et al (2003), Guha-Sapir and van Panhuis (2002)). These studies can usefully complement estimates of conflict-related GDP loss. Increased fatalities and ill-health are the most serious human consequences of conflict, yet are not well-measured by GDP trends. GDP is affected to the extent that death and disability reduces production of goods and services, but a measurement of welfare loss confined to production loss is clearly incomplete.

Academic studies suggest that fatalities constitute only a small proportion of the total health costs of most conflicts (Ghobarah et al (2003)). In addition to increased mortality during the conflict itself, civil war often has a strongly negative effect on public health in other ways, most notably through increased incidence of infectious diseases such as malaria and tuberculosis, widespread mental health problems as a result of post-traumatic stress, increased road accidents and increased violent criminality. The World Health Organisation has estimated that 269,000 deaths and 8.44 million disability-adjusted life-years (DALYs) were incurred in 1999 as direct and immediate effects of all wars, civil and international. A recent academic study estimates that a further 8.01 million DALYs were lost in 1999 as a result of the delayed effects of previous civil wars. (Ghobarah et al (2003, p. 189)).[11]

One method for quantifying this loss in monetary terms might be to ask how much people are prepared to pay to insure or protect themselves against other life-threatening risks (e.g. from traffic accidents or violent crime) and adjusting these (as discussed above) using distributional weights. Such an approach would be fraught with methodological complexity, not least because security from large-scale armed conflict is much closer to being a pure public good, compared to the more mixed public/private character of protection against crime and traffic accident. Nevertheless, it might be of some value in placing the risks of conflict in the context of the opportunity costs and trade-offs faced by developing countries.

A comparison of the social costs of armed conflict and traffic accidents might be of interest in this regard. Around 1 million people in developing countries were killed in 1999 by traffic accidents, and another 34 million disability-adjusted life-years (DALYs) lost: around 2-5 times the estimated annual losses from armed conflict. (WHO (2002), WHO (2004)). Crude estimates suggest that the annual cost of road crashes is about 1% of GNP in low income countries and 1.5% in middle-income countries (WHO (2004). Further research would be needed before one could compare the relative social costs of the two phenomena. Such an exercise might be of some value in informing resource allocation priorities at international and national levels.

It would be possible to include estimates of deaths and DALYs from conflicts in the Spending to Save framework, albeit with considerable margins of error involved. Based on available data for conflicts of comparable duration and intensity, case study authors could estimate many additional deaths and DALYs would be incurred in the conflict scenario, compared with the peace scenario. As with estimates of GDP losses, this counter-factual approach would provide a relatively rigorous heuristic device, and could help guard against mis-attribution of health effects to conflict, when other factors are more clearly responsible. The case for applying a discount rate to health effects appears as strong as that for applying it to GDP. In

[11] Interestingly, this study finds no impact of civil war in raising AIDS rates in the directly-affected territory, but a highly significant impact, statistically, on AIDS in neighbouring countries.

terms of ease of use, however, there might be a case for using raw figures, leaving it to decision-makers to include their own time-horizons in the calculation.

Focusing on the two variables of deaths and DALYs, as complements to estimated GDP losses, would provide a useful and relatively user-friendly means of presenting the costs of conflict. It would help to ensure that the two most serious consequences of population displacement – on health and on production – are fully taken into account, without also having to develop a comparative measure for refugee flows that fully takes into account the considerable variation in the duration of population movements and the severity of the conditions in which refugees find themselves.

A similar methodology could be developed to take into account the impact of conflict on levels of education (measured in the HDI by adult literacy and combined gross enrolment in primary, secondary and tertiary education). Again, this might measure the extent to which these variables change in the conflict scenario, compared with the peace scenario (Gupta et al, (2002)). Methodologically, however, the use of input measures (enrolments) would make it more complicated to estimate outputs (i.e. educational attainment). If a trade-off between complexity and utility is needed, therefore, **our recommendation would be to focus on health indicators to complement GDP estimates in measuring the impact of conflict on human well-being**.

Towards a Human Cost Index?

Projected increases in deaths and DALYs can be used to make cross-national comparisons of the effects of conflict, for example between the relative cost-effectiveness (in terms of lives saved per dollar spent) of intervention in Afghanistan and Sudan. It can thus provide an additional means, in addition to the distributional weights already discussed, of making equitable comparisons between countries at different income levels. By using absolute numbers of deaths and disability-affected years as indicators, it is based on the implicit assumption that deaths in low-income countries are as regrettable as deaths in middle-income countries.

For the purpose of relatively complex analyses of the impact of conflict, there may be a role for a Human Cost Index, using GDP loss and DALYs incurred as indicators and weighting them (as in the HDI) equally. This would have the advantage of including two of the key indicators of the human costs of conflict in a single measure and could thus allow further comparative work to be done.

On the other hand, for the purpose of presentation to decision-makers, an emphasis on the raw death and disability data seems preferable. As explained earlier, there are significant problems involved in adding GDP costs of conflict to the directly affected territories and neighbouring states to those incurred by the IC. Moreover, there is some evidence that Northern decision-makers view the prevention of death and injuries as the primary indicator of the effectiveness of CP.[12] Given this, we recommend that future Spending to Save studies would maintain the separation of costs to the IC from those to directly affected territories and neighbouring states, but supplement this, where possible, by estimated deaths and DALYs in the directly affected territories and neighbouring states. The issue of whether and how to include deaths and DALYs in the IC is discussed in Annex 4.

[12] The UK Government's Conflict Prevention Pools use trends in conflict-related deaths as an indicator of the effectiveness of its CP policies. Although the methodological flaws in using this information as a performance indicator are widely recognised, it reflects the high priority given to casualty reduction (compared, for example, to avoidance of GDP losses in developing countries) in the minds of UK decision-makers involved in the formulation of conflict prevention policy objectives.

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Annex 4: Non-discretionary costs to the international community

Much of the increased interest in conflict prevention (CP) relates to the possibility that conflict might generate costs to the international community that are unrelated to post-conflict intervention, for example through international terrorism, narcotics supply and oil supply disruption. Yet there is very little literature available that seeks to quantify these costs in relation to CP decisions. This annex will provide a short survey of this issue, and will outline possibilities for further research.

What is the 'international community'?

In this study, the 'international community' has been defined as the whole world outside the directly affected territory and neighbours. There is a tendency in donor circles to assume that the 'international community' is the same as the OECD, given that these countries see themselves as the main providers of ODA, finance for peacekeeping forces and global diplomatic efforts. Yet, even when the IC is conceptualised solely in terms of its role as a supplier of international public goods, an exclusive focus on OECD states is misleading. Key low and middle-income countries (such as Brazil, China, India, Russia and South Africa) provide significant international financial assistance. The UN depends on developing countries for many of its peacekeeping operations, albeit often with OECD financial support. Large developing countries play important diplomatic roles within their broader regions (e.g., South Africa in Sub-Saharan Africa, Brazil in Latin America).

Developing countries are an even more central part of the international community when analysing the global costs of conflict. Where conflict contributes to hikes in global oil prices, African importing states are amongst the worst affected. Increased supplies of heroin from Afghanistan have severe consequences in Russia and Central Asia. Worsening conflict in Palestine and Iraq has demonstration effects throughout the Islamic world, increasing the risks of terrorism in Indonesia as much as, if not more than, in Europe. There is little research on the extent of these wider 'non-discretionary costs' to developing countries, but reason to think they are substantial.

In a developed version of the Spending to Save model, it might therefore be useful to differentiate between IC costs falling on developed and developing countries, e.g. when the main concern is with the effects of conflict on development. For the purpose of calculating the cost-effectiveness of CP, such a distinction might also be of value, supplementing the distinction already made between the IC, directly affected territories and neighbouring states.

What are non-discretionary costs?

The *'non-discretionary' costs* of conflict are those costs which the IC will be forced to incur, whether it likes it or not, or at least will find very hard to avoid. Examples in our case studies include the following:

- Increased **migration of asylum seekers** from countries at war (e.g. into the member states of the EU as a result of the Balkans wars);
- The consequences (e.g. attacks on New York) of **international terrorism** developing safe havens in 'failed states' (e.g. al Qaeda in Afghanistan);
- The loss of oil company profits, and reduced international welfare more generally, as a result of **disruptions to oil supplies** from countries in conflict (e.g. from Sudan);
- The consequences of **increased availability of narcotics** as a result of conflict and state failure (e.g. in Afghanistan).

Other 'non-discretionary costs' of conflict include:

- The consequences for the international community of the use or threatened use of WMD in regional conflicts. While this category is partly subsumed under the terrorism threat, there are also considerable global costs associated with the possible use of WMD by states, e.g. India, Pakistan, North Korea, or Iran.[13]

- The consequences for the international community of the spread of infectious diseases in conflict-affected territories, especially if associated with the breakdown of cross-border transmission controls.

- The consequences of conflict on foreign ('international community') citizens and foreign property in conflict-affected territories.

In the remainder of this paper, we focus primarily on the four categories of **global ills** covered in the case studies. In order to highlight the issues involved in determining costs under these categories, we follow a two-stage process. The first stage is to examine the issues involved in estimating the costs of the global ill (e.g. terrorism, narcotics, oil supply disruption) to the IC. The second stage is to discuss how one might estimate how much of this cost can be attributed to a specific conflict.

Categorising non-discretionary costs

The total costs to the IC of global ills can be divided into at least four categories:

First, as in directly affected territories and neighbouring states, these ills can lead directly to **GDP reductions**, for example through the destruction of property in terrorist attacks, economic recession triggered by oil price increases, or declining productivity as a result of increased drug addiction.

Second are the costs involved in **diverting resources towards avoiding the consequences of global ills**, at the expense of other goods and services within global GDP. This has both a public and a private dimension. Global ills can increase demand for public services, such as refugee support, drug treatment and police spending, which in turn must be financed by reductions in public or (through taxation) private spending elsewhere. They also have a direct diversionary effect on private spending, for example by increasing the cost of corporate counter-terrorist insurance and protection, leading to increased anti-burglary protection in response to drug-related crime increases and encouraging increased private oil stocks in response to greater uncertainty of supply. Counter-terrorist measures taken in one country can also impact on incomes elsewhere, for example through the impact of post-9/11 measures on the ability of migrant workers to remit income to developing countries.

The extent of these diversion costs will depend, to some extent, on the manner in which the IC responds to new or worsening global ills. Thus, for example, the social costs of narcotics trafficking (such as increased criminality) might be reduced by providing addicts with legal alternatives.

To some observers, diversion costs may be unnecessarily high as a result of over-insurance. The direct costs of the terrorist attacks on the US in 2001, for example, were rapidly surpassed by the large resources devoted to increased counter-terrorist protection.

[13] There are also large risks associated with inadequate management of WMD assets, most clearly in Russia, but these are not a consequence of conflict *per se*.

In addition to large additional allocations to publicly-funded security budgets, new regulations (e.g. on visa requirements and airline security) also impacted on private consumption, diverting resources into the transaction costs involved in travel and trade. As a 2002 Congressional study concluded, these costs constitute a 'terrorist tax', as a consequence of which 'the real return on capital will decline and, over time, these costs may adversely impact both the economy's productivity growth and long-term potential growth rate' (Joint Economic Committee (2002): 3). The cost of the US's stricter post-9/11 visa regulations to US businesses alone has been estimated at $30 billion over 2 years (Alden (2004)).

Yet even if some of these measures are viewed as over-reactions (and, in this case, much depends on the extent of one's concerns about a future WMD terrorist attack), their cost is still a consequence of international terrorism. For, in the absence of a terrorist threat, they would not have taken place.

Most of the more detailed available estimates of the costs of terrorism relate specifically to the US. There is therefore a need to develop more systematic global estimates. If an effort were to be made to calculate the costs of terrorism on a global scale, however, it would be important to review the significance of distributional effects between countries. UK Universities gain, for example, from tightened student visa regimes in the US. Alternative tourist destinations may gain from reduced travel to Bali (and, if people stay at home, other leisure spending may gain). Depending on the level of analysis used, such effects may or may not be significant. At the very least, they suggest a level of caution is required in methodological design.

Third are the **direct non-monetary costs of conflict to the IC**. As discussed elsewhere with respect to directly affected territory and neighbours, deaths and DALYs are the most important indicators in this category. They include, for example, deaths in terrorist attacks and DALY losses as a result of increased narcotics misuse and related criminality. These costs can be translated into monetary terms, but there are difficult and contentious issues involved in doing so. It is debatable, for example, whether the value of life can be calculated simply in terms of lost productive potential. There are also issues surrounding whether it is appropriate to use the same discount rate for deaths as for GDP (Collier & Hoeffler (2004); Addison (2004)).

Such concerns can perhaps be overcome when developing the methodology for specialist audiences. For presentation of cost-effectiveness results to policymakers, however, death/disability costs are probably best shown as supplementary to monetary costs, rather than being subsumed within them. If one's main aim were the development of simple decision-making rules, this would create methodological problems. Yet a concern for elegance needs to be weighed against the desirability of presenting data in a form that is readily comprehensible by decision-makers. In an area as politically sensitive as the value to be attached to the lives of one's own citizens (and others) that might be lost as a result of conflict, leaders will not want to make such a judgement independent of the particular context in which these risks are taken. It matters to politicians, as well as to people in general, how lives are lost.

Fourthly, one of the most important costs of terrorism and increased drug-related crime is its **psychological cost**. A direct consequence of terrorism and crime is that general public unease and fear increases, often to a very considerable extent, in anticipation of possible future violence. The level of protective resources, i.e. the money that the public is prepared (through both state and private spending) to devote to protection against these ills, can be viewed as a first approximation of the negative value attached to these costs. This is covered in the second category above. Since protective measures are never entirely reliable, however, these costs underestimate the negative value of the ills in question. For, if the choice were available, it can be assumed that the public would be prepared to pay a larger

sum to reliably remove the threats. How large such a premium should be, however, is a matter that requires further research.

Non-discretionary benefits?

In some of the 'global ills' that might be worsened as a result of conflict, however, there may also be significant benefits to the IC, that could at least in part offset losses in welfare.

This can be seen most clearly in the case of migration, where economic analysis typically shows that the movement of workers from low-income to high-income countries leads to an increase in global economic welfare, most of which accrues to residents of the latter (Martin (2004)). There is little consensus on the direction, far less the extent, of the social effects of migration, although typically there is agreement that much depends on the skill mix and employment status of those concerned.

In particular cases (such as conflict-generated migration from former Yugoslavia to other European countries), there do appear to be significant costs involved, including both direct expenditure (housing refugees) and indirect effects (increased criminality). Yet these costs still need to be offset against the economic gains accruing to recipient countries by the contribution that immigrant workers make to their GDP, which may well exceed the level of output they contributed in Bosnia or Kosovo.

There are also long term benefits to the IC accruing from higher oil prices, since current prices do not sufficiently reflect the contribution of oil consumption to global climate change. In addition to cutting carbon emissions, increases in oil prices could also have positive security benefits in the long term. In particular, they might accelerate the transition of major economies to low-carbon energy production systems and thereby minimise the time during which the global economy is dependent on the continuing stability of a small number of Gulf states. There may be an especially strong global-welfare case in favour of higher prices in countries – such as the US and China – which have failed to introduce high levels of retail taxation.

While high oil prices may be beneficial in the long term, however, sudden reductions in supply (and consequent price hikes) typically result in substantial short-term costs. Most notably, workers resist the reduction in real wages that oil prices require and inflation results. As a result, the International Energy Agency has estimated that a $10 increase in the price of oil would, other things being equal, lower global GDP by at least 0.5% in the following year. OECD GDP would be lower by 0.5% in the first and second year, recovering thereafter. The loss of GDP in Sub-Saharan Africa would be more than 3% and in Asia 0.8%. By contrast, around $150 billion would be transferred from importers to exporters in the first year, leading to a significant gain in GDP for the latter. Over time, the global economy would adjust to the price change and environmental benefits would begin to accrue, but the transition costs would be considerable (International Energy Agency (2004)).

By contrast, it is hard to see any positive benefits to the IC from international terrorism or an increased global narcotics trade. It is possible that there will be some positive externalities as a result of counter-terrorist measures, for example increased pressure against terrorist money-laundering can also help make it more difficult for corrupt leaders to send illegally-obtained resources abroad. Whether these exceed the negative side-effects of the war on terror, however, is open to debate.

Perhaps the main lesson to be drawn from the discussion so far is that the level and nature of the costs that global ills create for the international community vary considerably, depending on the particular phenomenon that is being studied. Table 1 summarises one possible qualitative assessment of the direction and relative scale of these effects, in relation

to the four 'ills' on which we have been focused. Further research would be needed, however, to make a more informed quantitative judgement on these relative costs.

Table 13: Comparing the costs to the IC of different 'global ills':

	International Terrorism	Forced Migration	Illegal Narcotics	Oil supply disruption
GDP loss	-1 to –10	+4	-2	-5
GDP diversion into responses	-5	-2	-7	-1
Deaths & DALY's	-1 to -10	0	-7	-1
Psychological Insecurity	-6	-3	-5	-1
Other Externalities	-3 to +1	-4 to +4	0	+3

Scores out of 10 in each case, with positive ratings indicating a net benefit.

Causation: how do conflicts contribute to global ills?

Identifying the costs of various global ills is only the first part of the process of producing estimates of non-discretionary costs that can be used in the Spending to Save model. The second, and essential, part is to estimate how far the presence (or absence) of conflict in a particular territory changes the total costs of the global ill.

Once an assumption has been made as to the impact of the conflict on supplies to the global market, calculating the impact of a conflict scenario on **oil price instability** should be relatively unproblematic, using available estimates of the short and long-term elasticities relating oil prices (and consequent GDP losses) to sudden changes in supply (US Energy Information Administration (2002); International Energy Agency (2004)). One possible complication is that global GDP losses are more closely related to rapid changes in the oil price, rather than its absolute level. Conflict-precipitated supply disruption could therefore be much less damaging if it helps to shore up otherwise declining prices than if it contributes to steeper increases. Even in this relatively straightforward case, therefore, wider costs may be highly context-dependent.

As we have seen, the economic impact of **increased migration** may well be positive, both for the sending and receiving countries. Yet public attitudes about immigration in most countries (including most OECD and developing states) are ambivalent and contradictory, reflecting a mixture of cultural, distributional and social concerns. In practice, the costs and/or benefits of migration depend critically on the size and character of the migrant population and on the circumstances in which population movement takes place. Available research on the general impact of migration on economic well-being may therefore not capture the particular costs and benefits associated with conflict-induced migration. The different legal regimes through which guest workers and asylum seekers are handled, for example, may lead to significantly different economic costs and benefits. The ability of migrants to relate to pre-existing support networks in recipient countries may also affect the level of social disruption caused. Uncontrolled migration into rich countries is widely seen by political leaders as one of the costs associated with poverty and conflict in the developing world. More research is needed, however, in order to quantify this concern in a manner that can be used in a Spending to Save model.

The main potential effect of conflict with respect to **narcotics** is to increase the supply to international markets. Provided reasonably robust estimates of supply and demand elasticities can be made, therefore, it should be possible to predict what impact a x% increase (or reduction) in supply will have on the price for a given substance. This in turn impacts on demand, with a 1997 study, for example, estimating that a 1% increase in the street price of heroin reducing the number of users by 0.9%. Reduced demand, it can then be estimated, will lead to a reduction in related security, health and social costs, with attendant financial savings. The same study estimated the economic cost of drug abuse at over $120 billion per year for OECD countries. Global costs would be significantly more. (UN, 1997)

Such a method should provide a first approximation of the costs to the IC as a result of the (cut-off of) narcotics supply from a particular territory. However it also needs to take into account the multiplicity of potential substitution effects that exist on both the demand and supply sides of a complex global market. Even if the impact of sudden single-country change is dramatic in the first year, it could diminish over time as the potential for substitution into (or out of) alternative narcotics is exploited, and as production shifts into (or out of) alternative sources of production. Were opium production in Afghanistan (the world's largest producer) to cease forthwith, for example, global heroin prices would rise rapidly in response and levels of consumption would fall. However, increased prices, as well as pressure from trafficking networks, would provide an incentive for shifting production elsewhere. At the same time, opium production is currently concentrated in a relatively small number of states (Burma and Laos are the next two large producers) and rapid increases in production in these or other locations (such as Central Asia) might not be possible. Other things being equal, one might expect the risk of supplier relocation to be inversely proportional to current market concentration, but proportional to the time it takes to remove current producers from the market. While a rapid removal of Afghan opium production from world markets would have a marked impact on global supplies and prices, in other words, a longer process of reduction would give more time for new sources of production to be developed, potentially reducing the benefits to be obtained from solving the Afghanistan conflict alone. Alternative, but equally deadly, substitute narcotics might also be developed in this timeframe.

'Mobility' concerns are also key to determining the impact of conflict on **international terrorism**, defined here as attacks on non-combatant targets outside the territory directly affected by conflict and its neighbours. One of the major costs to the IC of conflict in Afghanistan, identified in our case studies, was that it provided a safe haven for international terrorists, who used it as a base from which to build the network that launched a series of attacks through the 1990s in Yemen, East Africa and, ultimately, the US itself.

Some expert commentators have argued that modern terrorism no longer needs a territorial base and therefore that the denial of a safe haven in Afghanistan is of little value. Others argue that, even if al Qaeda is now less welcome in Afghanistan, it is relocating its operations elsewhere, to tribal areas of Pakistan, North Africa, Indonesia, and elsewhere.

In addition to their role in providing 'safe havens', conflicts between radical Islamist forces and Western-allied governments also provide an ideal recruitment and training ground for international terrorists. This is certainly the case in Chechnya, Palestine and Iraq today, as it was in Afghanistan in the 1980s and 1990s. While drug production in one country often displaces production elsewhere, however, increasing support for violent Islamist forces in one place is more likely to strengthen such forces elsewhere. Recently Islamist insurgencies in Iraq, for example, have undoubtedly encouraged (and perhaps also supplied) terrorist attacks in Saudi Arabia. In calculating the costs of international terrorism that result from one particular conflict, therefore, it is also necessary to take these important transnational transmission effects.

In all of the four 'global ills' discussed in this section, therefore, there are formidable challenges involved in producing estimates of the non-discretionary costs of conflict to the international community. We have highlighted some of the ways in which such estimates might be refined, in ways that we hope might themselves have significant value in informing understanding of policy options. Not least, the 'scenario visualisation' involved in this cost estimation process can help highlight issues that might not otherwise have been examined in sufficient depth.

Conclusions

This paper has highlighted the key issues involved in seeking to systematically analyse and quantify the cost of 'global ills' on the international community. From our brief, and admittedly incomplete, literature search, we have found relatively little published in this area, with the partial exception of studies of the global oil market.

Given the extent to which the 'global ills' of terrorism, drugs and migration dominate the security policies of OECD countries, especially as they relate to the developing world, such a gap would be both surprising and disappointing. Our paper has pointed to some ways in which this gap could, at least in part, be filled. If such work were to be done, it would increase the value of the Spending to Save model and improve the contribution it can make to existing processes of conflict analysis.

Were further work to be done, it would be important that other non-discretionary costs to the international community (in addition to the four covered in this paper) should also be the subject of analysis. Key issues to address in this regard might include: the effect of conflict on international capital flows, and the subsequent distribution of costs and benefits; links to international organised crime and international environmental effects of conflict; and the global (as distinct from national) impact of increased incidence of infectious diseases.

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