

# Financing The Sri Lankan Conflict

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## 1. The costs of armed conflict

Armed conflicts in developing countries occur very largely between a government and opponents who aspire to take over control of the state. These armed conflicts affect countries in a number of ways. There are the direct and indirect human casualties, the latter (much larger than the former) occurring largely as a result of reduced food supplies and access to health facilities. There are longer-term impacts on human beings who have experience war, including post-traumatic stress and other psychological effects, the loss of skills and the impact of malnourishment in infancy and childhood on subsequent adult productivity. There is loss or damage to physical capital and infrastructure, in part the direct result of war and in part a consequence of disrupted or neglected maintenance work. In a number of countries, the widespread use of anti-personnel mines has rendered former agricultural areas unusable and continues to inflict casualties on civilians decades after the war is over. Environmental damage in some war zones has been extensive and long lasting. A recent review of such costs may be found in Stewart (1993).

This article considers another type of long-term cost which relates to the way in which any particular war is financed. Table 1 outlines the major sources by which a government can finance a war. Governments can raise war revenues internally by increasing taxation and borrowing more from the public. It can release more of its revenue for the war effort by reducing expenditure on other government functions. It can supplement internal sources by tapping foreign savings which, given that they come in the form of foreign exchange, can be used to import military equipment and supplies. It can seek more foreign aid, which will be forthcoming if a donor country supports the government side in the conflict, and which can be used directly or indirectly to finance the war; or it may borrow funds from foreign commercial banks which, again directly or indirectly, may be used to finance the war. It can try to increase exports, although this may be difficult given the disruptions to production likely to occur as a result of armed conflict. Finally, it may divert foreign exchange away from non-military imports.

Each source has its disadvantages: taxation can alienate the population; borrowings need to be repaid in the future and external borrowings require repayment in foreign exchange; reallocation of government expenditures and reduced imports may lead to a deterioration in human and physical capital; increased exports may occur through the exploitation of natural resources at excessive rates and with long term environmental damage; and foreign aid may create political obligations to the donor country.

A point of some importance is that government expenditure on war does not represent the entire financial cost. The opposing forces have their own sources of finance, often less orthodox, but still costly in resource terms to society as a whole. The Khmer Rouge, for example, support their armed forces largely by the extraction of gems and

forest resources from areas under their control; UNITA rebels in Angola finance arms supplies from the proceeds of diamond smuggling; the Tamil forces in northern Sri Lanka use a range of unofficial tax measures and receive aid from Tamils abroad; and Mujahideen forces in Afghanistan received extensive aid from both the United States and Muslim countries.

## 2. Asian armed conflicts during the 1980s

One way of measuring the significance of a conflict is by the number of deaths which result. Table 2 summarizes broad estimates of war-related deaths for major armed conflicts in Asia (those resulting in 20,000 deaths or more) between 1945 and 1992. It is worth commenting here that deaths resulting from structural violence (e.g. malnutrition, disease) occurring independently of armed conflict far outweigh those from war. William Eckhardt (1989), who made the estimates on which Table 2 is based, suggests that structural violence worldwide has killed between 15 and 19 million people (mostly children) in each year of the twentieth century, compared with one million year by armed violence.

Overall, the thirteen Asian countries represented in Table 2 had 7.5 million civilian and 3.7million military deaths over the 48-year period. During the 1980s-the period on which this article concentrates - major armed conflicts occurred in Afghanistan, Cambodia, Indonesia (East Timor), the Philippines and Sri Lanka. Of these countries, there are virtually no data available for Afghanistan and Cambodia for the 1980s. The conflicts in Indonesia and the Philippines are relatively small in terms of their impact on the whole economy, and military data from Indonesia are highly unreliable (Ball 1984a). Data from Sri Lanka, however, has been regarded as relatively accurate and comprehensive, and we therefore focus on this country as a case study in war financing. In brief, the Sri Lankan armed conflict erupted in July, 1983 and involves Sri Lankan military forces against Tamil separatists seeking an autonomous state, principally the Liberation Tigers of Tamil Ealam (LTTE).<sup>1</sup> To date, total casualties are estimated at around 30,000; between June 1990 and December 1991, an upsurge in fighting resulted in an estimated 1500 government soldiers, 3500 LTTE soldiers and 6000 civilians being killed. In 1993, casualties were estimated at a little over 2000 (SIPRI 1994, p.92). This paper is not concerned with the conflict per se, but with its financing.

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<sup>1</sup> Up to 60,000 deaths, very largely Sinhalese, occurred in the late 1980s in Southern and central Sri Lanka, as government-sponsored death squads battled supporters of the Sinhalese People's Liberation Front (JVP).

### 3. Military expenditure data

The principal sources of data used in this article were the Stockholm International Peace Research Institute's World Armaments and Disarmament (SIPRI Yearbooks); the US Arms Control and Disarmament Agency's World Military Expenditures and Arms Transfers 1991-1992 (WMEAT); the IMF's Government Finance Statistics (GFS); and the World Bank's World Development Reports and World Tables. Table 3 reports military expenditure data from several sources. Columns 1 to 3 give estimates of military expenditure in current and constant US dollars. In 1991, WHEAT estimated military expenditure at US\$432 million (column 1). Column 2 and 3 report constant price estimates from WHEAT and SIPRI; there is a broad similarity between the two, although SIPRI's estimates (even allowing for different base years) are much higher for 1986 and 1987, whereas the WHEAT figures are greater for 1988-91. Columns 2,3 and 6 indicate a six fold increase in military expenditures between 1981 and 1991. When it comes to current rupee expenditures (columns 4 and 5), there is a very wide divergence between SIPRI and GFS figures, with the latter being 2.5 times greater. Column 6 presents GFS data in constant price terms.

Table 4 presents military expenditures as proportions of gross national (or domestic) product (GNP or GDP) and central government expenditure (CGE). There is a close similarity between SIPRI and WHEAT as regards the military expenditure/GDP ratio (the 'military burden'), except for 1986 and 1987 when the SIPRI ratio was much higher. The GFS ratio was much lower than the other two until 1985-87, when it was similar to WHEAT; thereafter it was well below the other two sources. Overall, the military burden increased more than three fold between 1980 and 1991 to 4.8 per cent (SIPRI and WHEAT) or 2.7 per cent (GFS). There was wide divergence between the military expenditure/CGE ratios reported by GFS and WHEAT, except for the years 1985-87. GFS data indicates that the ratio increased nine fold, to 17.2 per cent, between 1981 and 1992; WHEAT data suggests a four fold increase, to 15.0 per cent in 1991. For all developing countries, GFS data show that military spending as a proportion of CGE fell from 14.9 per cent in 1980 to 11.8 per cent in 1990.

How might these differences be explained? The GFS data derive from finance statistics correspondents in the relevant government or central bank hopefully in accordance with IMF definitions and procedures, and are generally accepted by the OIMF at face value. WMEAT and SIPRI, however, adjust the official statistics in the light of additional information derived from a range of government and non-government sources. SIPRI uses national budgets and statistical publications, the publications of international organizations, specialist journals, annual reference volumes and newspapers. It gives priority to 'providing a uniform definition over time for each country to show a correct time trend' (SIPRI 1992.269, emphasis original), rather than encouraging cross country comparisons or adjusting figures for single years according to a common definition. Recent SIPRI Yearbooks (e.g. 1992, p269) report a decline in data reliability, over time, despite a considerable increase in the quantity of information available, and the 1993 Yearbook does not include the military expenditure estimates which have been a feature

of the publication since its commencement in 1969/69.

A further point to note is that official military expenditure figures may index-estimate actual expenditures. Nicole Ball (1984a; 1984b) suggests five mechanisms by which this may occur: double bookkeeping; use of extra-budgetary accounts; highly aggregated budget categories; military assistance; and government manipulation of foreign exchange.<sup>2</sup> The last involves part of the foreign exchange earned by exports not being entered into official trade statistics, and being used by governments for arms imports. Sri Lanka is not among the countries listed as offenders in one or more of these respects, but the research was carried out before the Sri Lankan conflict commenced.

Ball (1984b) has made a close examination of the three main sources discussed here (GFS, SIPRI and WMEAT), together with the International Institute of Strategic Studies (IISS), which publishes *The Military Balance* annually. The IISS is generally regarded as the least reliable (1984b, pp.9-10); WMEAT and SIPRI rely heavily on World Bank and IMF sources (including the GFS); and the IMF accepts on face value the statistics supplied to it by governments (1984b, p.14). Given all this, and the ways used to under-report military expenditure mentioned earlier, Ball compiled her own military expenditure series for 48 developing countries based on readily available data located in the Library of Congress, Washington and in the files of the US Agency for International Development. In her opinion, 'data to exist which are being ignored and which, if properly analysed, could contribute greatly to our understanding of security expenditure in the third world' (1984b, p.34). Her figures for Sri Lanka were derived largely from the annual Estimates of the Revenue and Expenditure of the Government of the Republic of Sri Lanka for the Financial Year and run from 1951 to 1977; they are not therefore useful for purposes of this article. Ball estimated Total Security Expenditure, made up of expenditure on Military Forces plus Police/Paramilitary Forces.<sup>3</sup> SIPRI and WMEAT estimates were very similar until 1973 and very close to Ball's figures for Military Forces; they were therefore well below her figure for Total Security Expenditure.

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<sup>2</sup> A recent example concerns IMF attempts to limit military spending in Cambodia to 4 per cent of GDP. The government has attempted to get around this by transferring revenues earned by log sales from the Ministry of Finance to the Ministry of National Defence (*The Economist* (London), August 6, 1994, p.22).

<sup>3</sup> Ball (1984b,36) quotes a United Nations definition which includes in paramilitary forces 'those units, formations, etc. that are organized, equipped and behave in a similar way to the armed forces and which could carry out combat actions of the same nature... as those performed by the armed forces.' Between 1951 and 1977, military forces made up around 60 per cent of Total Security Expenditure and police/paramilitary forces made up 40 per cent.



#### 4. Military imports

Part of military expenditure, averaging a quarter of total military expenditure in developing countries, goes on capital expenditure. For most developing countries, such expenditures are made up almost completely of imports of arms and military equipment, and for foreign exchange thus used is not available for other imports, including essential inputs into productive activity. Shortfalls in foreign exchange have to be made up by tapping foreign savings i.e. by borrowing from commercial banks or international agencies, foreign direct investment or aid.

Sri Lanka suffered a severe adverse balance of trade during the 1980s; between 1980 and 1991, imports of goods and services exceeded exports by an average of 51 per cent. Military imports, at face value, made up only a small proportion of total imports: based on WMEAT 1991-91, they were zero prior to 1984 and, from 1984 to 1991, average only 1.2 per cent of total imports; this compares with a figure for all developing countries during the 1980s of 6.9 per cent (Harris 1994a). It should be noted, however, that arms import figures are estimates of a fairly gross kind. As WMEAT (1991-92, p.154) comments,

Frequently, weapons prices do not reflect true production costs. Furthermore, much of the international arms trade involves offset or barter arrangements, multiyear loans, discounted prices, third-party payments, and partial debt forgiveness. Acquisition of armaments thus may not impose the burden on an economy, in the same in other years, that is implied by the estimated equivalent US dollar value of the shipment. Therefore, the value of arms imports should be compared to other categories of data with care.

SIPRI's arms trade data derive from a wide range of sources and cover five categories of weaponry (aircraft, armored vehicles and artillery, guidance and radar systems, missiles and warships). They exclude, for example, small arms and ammunition, artillery under 100mm in calibre and naval patrol craft with a displacement of less than 100 tonnes (unless they carry cannon with a calibre of 100mm or above). Like WMEAT, SIPRI emphasizes the need for caution in placing values on arms imports, emphasizing its use as a device to measure trends in the volume of weapons flows and their geographic pattern, rather than reflecting purchase prices:

The SIPRI valuation system is not comparable to official economic statistics such as gross domestic product, public expenditure and export/import figures. The monetary values chosen do not

correspond to the actual prices paid, which vary considerably depending on different pricing methods, the length of production runs and the terms involved in individual transactions. For instance, a deal may or may not cover spare parts, training, support equipment, compensation, offset arrangements for the local industries in the buying country, and so on. Furthermore, to use only actual sales prices - even assuming that the information were available for all deals, which it is not - military aid and grants would be excluded, and the total flow of arms would therefore not be measured.

(SIPRI 1993,p.520)

Table 5 presents estimates of the values of conventional weapons actually delivered to Sri Lanka between 1987 and 1992. The large difference between SIPRI and WHEAT estimate can be noted. In 1991 US dollars, WHEAT estimates a total of \$241 million for arms imports between 1984 and 1991. Table 6 reports a compilation of SIPRI's listing of arms imports between 1980 and 1993. In summary, 25 naval craft, 85 aircraft, 81 armored vehicles and 18 artillery pieces were delivered during the period. In addition, around 100 armored vehicles have been manufactured in Sri Lanka (ISIS 1988-p.154). The vary large deliveries of equipment in 1991 are clearly not reflected in WHEAT's estimate of arms imports in that year (US\$50m.), and SIPRI data are not presented in annual terms.<sup>4</sup>

## 5. Financing military expenditure, 1983-92

Thus far, we have seen that Sri Lankan military expenditure increased six fold, in real terms, between 1981 and 1991 and that this represented an increase of between four and nine times, depending on data sources, in the proportion which mile made up of GEE. We now turn to examine, recalling Table 1, how this increase in expenditure may have been financed. The words 'may have been' are deliberately chosen. There is no way of being certain of what would have happened to various economic variables if there has been no conflict. All that can be done is to examine the data and indicated possibilities and probabilities. Nor is this examination meant to imply a consistent plan over time on the part of policymakers; they may well be surprised to find that patterns have emerged.

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<sup>4</sup> Recent financial stringency has caused the postponement of some capital works, cancellation of a US\$72 million order for second-hand military equipment from Russia and the Ukraine and a temporary ban on discretionary government expenditure (*Far Eastern Economic Review*, November 10, p.30).

### Increased domestic revenue

In real terms, GFS data show that tax revenue increased by 64.6 per cent between 1980/82 and 1990/91 although the proportion this comprised of GAP remained virtually unchanged. There was also no change in the proportion which tax revenues made up of government current revenue. There were important changes in the composition of tax: taxes on domestic goods and services rose, as a proportion of total revenue, from 36.0 per cent in 1981-82 to 47.0 in 1991-92, whereas the respective figures for taxes on international trade and transactions were 36.0 and 26.8. Such changes, however, were part of Sri Lanka's macroeconomic and trade strategies and has little or nothing to do with the armed conflict. It does not appear that the war has been financed from increased taxation revenues. Nor does it appear that increased domestic debt has been important source: Its size, as a proportion of total expenditure plus lending minus repayments, changed hardly at all between 1981-82 and 1990-91. Indeed, total government revenue as a proportion of GAP remained constant over the period at around 20 per cent. It does not appear that increased revenues from domestic sources have been important in financing the war.

### Diverted revenue

There has been considerable literature (e.g. Harris et al 1988; He's & Mullah 1988; Apostolakis 1992; Frederiksen and loony 1994) examining whether military expenditure increases in developing countries are financed by cutting other government expenditure categories. In summary, the studies have not been able to find conclusive evidence on the matter. Whilst it is clear that an increase in any one government expenditure category as a proportion of the total must be at the expense of some other category, it does not seem that military expenditure has any special capacity to win resources from other expenditure categories in developing countries.

Statistically, trade-offs may be identified via Pearson correlation coefficients ( $r$ ). A negative and significant  $r$  value suggests the presence of trade-off. Table 7 summarizes  $r$  values between defence and the other five GEE categories between 1981 and 1992. The residual 'other expenditures' category consists very largely of interest payments. Leaving aside the apparent positive trade-off between defence and social security and welfare, which is difficult to explain<sup>5</sup>, there do appear to be trade-offs between Defence and Housing/community amenities (a small category, expenditure-wise) and economic affairs and services. Comparison of columns 1 and 2 in Table 7 suggests that the increase in Defence has been matched by reductions in the Economic Affairs and Services category. This category includes fuel and energy; agriculture, forestry, fishing

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<sup>5</sup> Such paradoxical results are not uncommon in the trade-off studies. For example, Harris et al (1988) found significant positive relationships between Sri Lanka's education and health on the one hand, and defence expenditure on the other between 1967 and 1982.

and hunting, mining, manufacturing and construction; and transport and communication. Table 8 shows that between 1981-82 and 1991-92 there was a dramatic reduction in resources devoted to agriculture, both as a proportion of the Economic Affairs and Services category and in real values, and a dramatic increase in both these respects for transport and communication. Again, such changes do not appear to be related to the conflict, although it could be surmised that the increased expenditure on transport and communications had at least some military motivation. In summary, there is some evidence to support the idea that government expenditure has been diverted from economic affairs and services to defence.<sup>6</sup>

A second aspect of trade-offs concerns that between current and capital expenditures. In the face of financial stringency or other needs, governments may find it easier to defer capital projects (see footnote 4) than to cut current expenditures, given the immediate implications of the latter for services to the public and employment. This indeed occurred in Sri Lanka between 1980 and 1992 (see Table 9), although there is unfortunately no breakdown of capital and current expenditures by CGE category. The ratio of current to capital expenditures (column 3) rose dramatically, from a position of rough equality before the conflict to over three in the early 1990s. Perhaps more importantly, column 4 indicates that in real terms, capital expenditure fell significantly (i.e. by 39.5 per cent between 1980/82 and 1990/91, whereas current expenditure rose by 81.3 per cent. In fact, the increase in military expenditure in real terms in 1990-91 compared with 1980-82 (see Table 3, column 6), represents about half of the decrease in capital expenditures over the same period (Table 9, column 4). An alternative indicator of the reduction in capital expenditure is the ratio of Gross Domestic Investment to GAP, which fell from 30.5 per cent in 1980/82 to 22.3 per cent 1990/91; the respective averages for the other four South Asian countries were 19.1 and 18.4 per cent (World Tables 1993, Table 13). This reduction in capital expenditures will have negative consequences for Sri Lanka's productive capacity, and must be considered as a major cost of the conflict.

We have seen that there is no apparent trade-off between military and health expenditures. Nonetheless, an examination of current health expenditures is instructive. It is widely believed that Sri Lanka's public social expenditures are high and its 'social' performance impressive. A perusal of World Development Report data (1993, Appendix A) indicates that compared with other Asian Countries (weighted for population and excluding China and India), Sri Lankan health indicators are generally much higher than average. This is not the case, however, for public health expenditure.

The above World Development Report (1993, pp.8ff) has estimated the cost of a limited

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<sup>6</sup> A more sophisticated multiple regression approach, using defence expenditure as a proportion of GAP and rate of growth of GAP as independent variables for the period 1981-90, did not result in any significant coefficients.

package of public health measures and essential clinical interventions. The former includes immunizations against six major diseases, school-based health services, information and services for family planning and nutrition, programs to reduce tobacco and alcohol consumption, regulation information and limited public investments to improve the household environment and AIDS prevention programs. The clinical interventions, which are described as the 'minimum essential package', cover pregnancy-related programs, family planning services, tuberculosis control, control of sexually transmitted diseases, control of the common serious illnesses amongst young children and some treatment for minor infection, trauma and pain. Each measure is regarded as highly cost effective in terms of saved DALY (disability-adjusted life years, a measure combining healthy years lost because of premature mortality and those lost as a result of disability). The estimated cost for low income countries in 1990 was US\$4.20 per capital per year for the public health activities and \$7.80 for essential clinical services, and it is estimated that 32 per cent of the current burden of disease could thus be averted.

Compared with this total of \$12, low income governments typically spend about \$6 per person for health. The Sri Lankan figure, based on the 5.4 per cent of CGE allocated to health in 1990, was \$7.20 per capita, less than two thirds than the World Bank minimum. Clearly there is scope for substantial increases in Sri Lankan health expenditures.<sup>7</sup> It may be that the impressive health indicators are built upon previously higher levels of public expenditure on health and that the consequences of lower allocations will be felt in the future. The World Bank minimum in 1990 could have been achieved by a transfer of \$81.6m. from military expenditure to health. This would have amounted to a 23 per cent reduction of the SIPRI mile figure for 1990 or a 20 per cent reduction in the WHEAT figure.

### **Increasing exports/reducing imports**

Increasing exports and/or reducing imports has the advantage of earning or saving foreign exchange, which can then be used to import desired goods and services, including weapons. It must be remembered, however, that military imports are only part of military expenditure. Developing country governments have limited influence over the level of export earnings in the short run except, possibly, via exchange rate devaluation.<sup>8</sup> Sri Lanka's balance of payments performance is summarized in Table 10. Whereas exports as a proportion of GNP remained steady over the period imports fell by 11 percentage points, at least partly in response to higher rupee prices of imports due

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<sup>7</sup> It should be noted that government health expenditures increased by 48.6 per cent in real terms between 1980-82 and 1990-91, as well as increasing from 3.7 per cent of CGE in 1981-82 to 4.8 per cent in 1991-92 (see Table 7).

<sup>8</sup> The rupee devaluated by around 155 per cent against the US dollar between 1980 and 1992.

to devaluation. The key indicator of trade performance, the current account deficit as a proportion of GAP, moved positively, falling by seven percentage points. The balance of trade as a percentage of GAP shows a similar picture. The growth rate of merchandise exports (6.5 per cent per annum in real terms between 1980 and 1992 compared with import growth of 2.5 per cent) does not suggest that the former has been hindered by the conflict. One source of foreign exchange which was severely affected was tourism; from a peak of 407,000 in 1982, tourist arrivals fell to around 180,000 between 1987 and 1989 as a result of political instability in southern and central Sri Lanka (O'Hare and Barrett 1994). For the mid-1980s, official tourist receipts represented a modest 7.2 per cent of total export earnings (from some 250,000 tourist arrivals in 1985), but 'less direct and much more pervasive... considerations such as widespread spending, the economic multiplier effect and employment opportunities' were also affected. Strong recovery in tourism has occurred since 1990.

### **Foreign aid**

Like export earnings, aid has the advantage of being received in foreign currencies. Sri Lanka received considerable aid during the 1980s, at the fairly constant level of around 9 per cent of GNP per annum. An important issue is that of fungibility, which normally means the ability of the aid recipient to circumvent donor intentions and spend some targeted aid on non-targeted programs. We are more interested, however, in the fact that aid augments government financial resources in general i.e. it has an income effect which can be used, in part, for any purpose. The question is how large a part. A study of eight major United States aid recipients between 1972 and 1987 (Khilji and Zampelli 1994) concluded that military aid was very highly fungible, with around 90 per cent channelled to the private sector for consumption or investment purposes. Non-military aid was highly fungible. Without detailed analysis, it is not possible to say much about the fungibility of Sri Lankan aid. It is possible (although this is not the conclusion reached by Khilji and Zampelli) that the additional financial flexibility allowed by foreign aid has allowed governments to spend more on the military than otherwise. If so, this provides a source of revenue for Ball's five mechanisms noted in section 3.

Personal communication with officers of the Central Bank of Sri Lanka suggests that relatively little military expenditure has been financed by aid. Their reasoning is that since total foreign aid is always well below total capital outlays, and is largely earmarked for development projects and commodity loans, there is little leeway to divert foreign aid to defence.

### **Foreign debt**

Public or publicly-guaranteed foreign borrowings may be made from official creditors (e.g. the IMF) or private creditors (usually western commercial banks). Private non-guaranteed debt disbursements (i.e. new debt actually incurred) during the 1980s were very small. Private creditors fell from around a third of disbursements at the start of the decade to about one sixth at the end. In 1990, official creditors provided 85 percent of

new public and publicly guaranteed debt. Sixty per cent of this came from multilateral sources and 40 per cent from bilateral; virtually all was borrowed on concessional terms. What matters for our purposes is not the total level of debt owed by the country, but the annual disbursements of new debt and the debt service obligations. These are summarized in Table 11 and three points of particular interest emerge. First, an amount averaging the equivalent of 79 per cent of disbursements went to meet debt service obligations on previous debt and there was a tendency for this proportion to increase over the decade. Second, military expenditure was the equivalent, on average, of 7.2 per cent of new debt incurred in 1980-82, although the proportion rose to 36.3 per cent in 1990.<sup>9</sup> Third, debt service and military expenditure may be added together as a proportion of CGE (column 5, Table 11 and column 4 of Table 4) to derive an estimate of 'unproductive' expenditures. For 1980-82, the proportion averaged 9.4 per cent and rose to 25.0 per cent in 1990-91. Sen's (1990, p.214) figures for 12 developing countries finds a mean figure of around 50 per cent. Taken as a whole, the forgoing data do not suggest that the armed conflict has been financed to any extent by greater foreign indebtedness.

## 6. Conclusions

This paper has investigated various possible sources from which the six fold increase in Sri Lanka's military expenditure between 1981 and 1991 has been financed. Of the sources listed in Table 1, two aspects of diverted revenue appear to be the main sources of greater military expenditure. There does seem to have been a diversion of financial resources from Economic Affairs and Services (and especially from the agricultural sub-category) to the military, and capital expenditures have fallen significantly over the decade. It should be noted, however, the increased military expenditures were equivalent to about half of the fall in capital expenditures.

The opening paragraph of this article outlines some of the more obvious costs of trying to deal with conflicts by military means. This paper has pointed to another important cost: given that the Sri Lankan armed conflict is being financed largely by diverting government expenditures from productive activities, and in particular capital expenditures, to the war effort, there will be a reduction in future economic growth. Some crude arithmetic based on the well known Harrod-Domar growth equation will illustrate this point. The equation is  $\dot{g} = s/k$ , where  $\dot{g}$  = the growth rate of GAP;  $s$  = the savings rate (domestic savings as a proportion of GAP) and  $k$  equals the capital: output ratio (the number of units of capital required to produce one unit of output). The savings rate is what is left from GAP after government consumption and private consumption (which together make up total consumption) has occurred. In fact, total consumption fell from 87.4 per cent of GAP, 1980-82, to 85.6 per cent in 1990-92. Assuming  $k$  was constant at 3.0, GAP would have grown at 4.2 per cent 1980-82 (i.e.

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<sup>9</sup> Calculated by comparing column 5 of Table 3, converted to current US dollars, with column 1 in Table 11.

100-87.4 + 3.0) and 4.8 per cent, 1990-92 (100-85.6 + 3.0). Within total consumption, government consumption (which by definition includes capital expenditures in the defence category) rose from 7.7 per cent (1980-82) to 9.3 per cent (1990-92) and private consumption fell from 79.7 per cent to 76.3 per cent. Had government consumption been at its 1980-82 proportion in 1990-92, and private consumption remained at 76.3 per cent, the rate of growth would have been 5.3 per cent (100-84.0 + 3) in 1990-92 rather than 4.8 per cent. Given that much of the increase in government consumption expenditure has been on defence, this rough calculation suggests that its impact on growth of GAP may be of the order of 0.5 of a percentage point (around 10 per cent less) per annum. This amounts a total loss of production, in 1992 prices, of 369,000 million rupees over the period 1983-92 inclusive. To place this figure in perspective, the GAP in 1992 was around 420,000 million rupees.

After completing this article, I discovered two highly relevant articles by Grobar (1992) and Grobar and Gnanaselvam (1992). The first of these presents a model in which Sri Lanka's military expenditure increase (446 per cent, 1982-88, in rupees) is compared with changes in the economic aggregates against which the increase had to be balanced. The results were as follows, with the bracketed figures being the percentage change in real terms, 1982-88: private savings (8.0), investment (-0.7), exports (18.3), tax revenues (44.0) and non-military government expenditures (-8.7). Grobar suggests that these results 'indicate that the increase in military spending was accompanied by a decline in real investment and real non-military spending' and that 'higher military spending has crowded out investment and investment-related expenditures' (1992, p.145). This is consistent with my conclusions, reached by an alternative route.

Grobar and Gnanaselvam (1992) assess the potential economic growth lost due to the war, using an excess demand model of investment and a Harrod-Domar growth model. They conclude, first, that an increase of one percentage point in the mife/GDP ratio will reduce the investment/GAP ratio by over four percentage points. Second, using a capital-output ratio of 2.5, they estimate the value of output lost due to war-induced lower investment to be 1.5 billion 1988 US dollars between 1983 and 1988, equivalent to 22 per cent of Sri Lanka's GAP in 1988. Assuming the war continued until 1995, the cost would be 11.6 billion 1988 US dollars. Whilst these figures are not directly comparable with my estimates above, the results are again consistent.

Two final points can be made. First, the costs in terms of foregone output are only a part of the total costs of the war: production will have been adversely affected for reasons other than lower investment, and there is the range of costs listed in the first paragraph of this article to be considered. Second, it is also worth considering the cost effectiveness of the attempts to impose a military solution on the Sri Lankan conflict. frankly, the conflict cannot be resolved by military means and the best the military can hope for is to contain the Tamil Tigers and restrict their activities. Non-military approaches have a far greater chance of success and are far less costly in all the aspects mentioned in this paper.



**Table 1. Principal means of financing armed conflicts**

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**Domestic sources**

Increased revenue

Taxation

Borrowing from the public (e.g. sale of government bonds)

Diverted revenue

Diversion of government expenditures towards the war effort

**Foreign sources**

Increased revenue

Exports

Foreign aid

Borrowing (from foreign commercial banks)

Decreased expenditure

Non-military imports

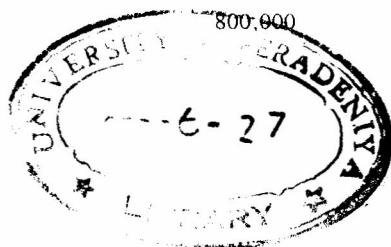
**Other sources**

Payment of armed forces in kind (e.g. looting rights)

Printing banknotes

**Table 2. War related deaths in Asia, 1945-92**

Country	Years	Conflict	Civilian	Military	Total
Afghanistan	1978-79	USSR intervenes in civil war	1,000,000	500,000	1,500,000
Bangladesh	1971	West Pakistan Military, famine and massacres; India invades	500,000	500,000	1,000,000
Cambodia	1970-75	North Vietnam and United States intervene in civil war	78,000	78,000	156,000
	1975-78	Pol Pot famine and massacre	750,000	250,000	1,000,000
	1978-89	Vietnam vs. Cambodia	14,000	51,000	65,000
China	1946-50	Communists vs. Kuomintang	500,000	500,000	1,000,000
	1950-51	Government executes landlords	1,000,000	-	1,000,000
	1956-59	Tibetan revolt	60,000	40,000	100,000
	1967-68	Cultural revolution	45,000	50,000	500,000
India	1946-48	Muslim vs. Hindu	800,000	800,000	800,000



Pakistan	1965	Kashmir, India vs. Pakistan	13,000	7,000	20,000
Indonesia	1958-60	Dissident military Vs. Govt.	-	-	30,000
	1965-66	Abortive coup	500,000	-	500,000
	1975-92	East Timor: famine & massacre	100,000	50,000	150,000
Korea	1950-53	Korean war	150,000	150,000	300,000
Laos	1960-73	Pathet Lao vs. govt.	18,000	12,000	30,000
Philippines	1972-92	Muslims vs. govt.	20,000	15,000	35,000
	1972-92	Communist s vs. govt	20,000	20,000	40,000
Sri Lanka	1983-92	Tamil separatists vs govt.	18,000	14,000	32,000
Taiwan	1947	Civilians vs. govt.	20,000	-	20,000
Vietnam	1945-54	War of Independen ce vs. France	300,000	300,000	600,000
	1960-65	Civil war	200,000	100,000	300,000
	1965-75	US/Sth Vietnam vs. Nth	1,000,000	1,050,000	2,058,000
	1979	China vs. Vietnam	9,000	26,000	35,000

Source: Sivard 1993.

Notes: - means not available.

Table 3. Military Expenditure Data, 1980-92

Year	WHEAT	WHEAT	SIPRI	SIPRI	GFS	GFS
1980	-	-	-	971	458	869
1981	50	75	65	1117	479	752
1982	56	78	63	1653	486	687
1983	72	97	82	2194	979	119
1984	82	106	93	5140	1275	1282
1985	167	208	214	7926	4614	4614
1986	153	186	306	10103	4351	4105
1987	201	237	362	9439	6001	5246
1988	322	365	297	8435	4732	3765
1989	323	351	238	15315	4573	3278
1990	398	413	355	17323	6736	4014
1991	432	432	357	10317	5526	
1992						10148

Sources: WMEAT, SIPRI, GFS (various issues)

Note: 1 Using the GFS GDP deflator (1985 = 100)

**Table 4 Military expenditure as a proportion and CGE**

Year	Military expenditure as a proportion of:			Defence/military expenditure as a proportion of CGE	
	GDP(SIPRI)	GNP(WMEAT)	GNP(GFS)	GFS	WMEAT
1980	1.5	0.7	1.7		
1981	1.2	1.3	0.6	1.9	3.8
1982	1.1	1.2	0.5	1.4	3.7
1983	1.4	1.5	0.8	2.6	4.5
1984	1.4	1.6	0.8	2.9	4.9
1985	3.2	2.9	2.8	8.5	8.4
1986	4.4	2.4	2.4	7.6	7.4
1987	5.1	3.1	3.1	9.6	9.4
1988	4.3	4.6	2.1	6.9	13.3
1989	3.3	4.3	1.8	5.9	13.2
1990	4.8	4.8	2.1	7.4	15.3
1991	4.8	2.7	9.4	15.0	
1992					8.5

**Table 5 Imports of major conventional weapons, by value and source (US\$m.)**

Country	SIPRI		WMEAT2
	1987-91	1988-92	1987-91
United States	12	0	10
China	158	96	70
United Kingdom	0	5	
Czechoslovakia	0	8	
Italy	3	1	
Others	101	54	60
Total	274	164	140

Sources: SIPRI(1992; 1993) and WMEAT (1991-92)

Notes: 1 In constant (1990) US dollars  
2 In current US dollars.

Table 6 Transfer of major armaments to Sri Lanka, 1980-93

Year of delivery	Number and type of armament	Country of origin	Comments
1980	2 Shangai-2C1 fast gunboats	China	Gift
1981	Nil		
1982	Not available		
1983	2 Model 212 helicopters	Singapore	
(1983)	4 Model 206B helicopter	USA	
(1984)	2 Model 206B helicopters	Singapore	
1985	6 SF-260TP training aircraft	Italy	
	6 Model 212 helicopters	USA	
	1 Super King Air helicopter	USA	
(1985)	2 Tupe 30M landing craft	Singapore	
	6 Samil-100 armoured personnel carriers	South Africa	
1986	2Y-12 transport aircraft	China	
	2 Type 33M landing craft	Singapore	
	2HS 748-2 transport aircraft	UK	
	4 Model 212 helicopters	USA	
1987	8 Dvora class fast attack craft	Israel	In addition to 6 delivered earlier.
	10 Y-12 transport aircraft	China	
	2 SF-260TP training aircraft	Italy	Replacing losses
	(6) SF-260TP training aircraft		Second 1986 order
	3 Model 212 helicopters	USA	
1988	( ) Y-12 transport aircraft	China	Unspecified number ordered in addition to the 10 delivered 1986-87.
	6 Dvora class fast attack craft	Israel	In addition to 6 delivered earlier.
	6 SF-260TP training aircraft	Italy	In addition to 6 in service.
	(50) Buffalo armoured personnel carriers	South Africa	
1989	2 Y-8 transport aircraft		
(1989)	9 BAC-167 Strikemaster	UK	Refurbished ex-
Kuwait	trainer/counter-insurgency aircraft		Air Force; total cost US \$11m.

(1990)	2 Dvora class fast attack craft	Israel	Ordered 1987
1991	4 F-7 fighter aircraft	China	
	2 FT-5 training aircraft	China	
	3 Y-12 transport aircraft	China	
	(18) Type 59/1 130mm towed gun	China	
	3 Shanghai class patrol boat	China	
1992	4 LA-58A Pucara close support aircraft	Argentina	Ex-Argentine
airforce.	(25) T-55 battle tanks	Czechoslovakia	
	2HS-748-2 transport aircraft	UK	In addition to 2 delivered earlier.
1993	3 Mi-17 Hip H helicopters	Russia	

Source: Derived from SIPRI Yearbooks, 1981-1993. Note:( )=uncertain or SIPRI estimate.

**Table 7 Trade-offs between CGE categories, 1981-92**

	Proportion of CGE		Pearson Correlation coefficient with defence, 1981-92
	1981-82	1991-92	
Defence	1.6	17.1	
Social security and welfare	11.4	5.9	0.63*
Education	8.5	9.2	0.37
Health	3.7	4.8	0.20
Housing and community amenities	4.0	1.4	-0.57*
Economic affairs and services	40.6	24.3	-0.61*
Other expenditures	30.2	27.3	

Source: Derived from GFS (various issues)

\* significant at the 5 per cent level

**Table 8 Expenditure within Economic Affairs and Services, 1981-92**

	Proportion of total(%)		Change in real expenditure 1981-91, in 1985 prices (%)
	1981-82	1991-92	
Fuel and energy	8.1	10.7	-19
Agriculture, forestry, fishing and hunting	69.6	28.1	-68
Minerals and mineral resources, manufacturing and construction	6.2	1.8	-74
Transportation and communication	16.5	45.5	230

Source: Derived from GFS (various issues)

**Table 9. Government Current and Capital Expenditures, 1980-92**

Year	Current expenditure* expenditure** (millions or rupees)	Capital expenditure* (millions of rupees)	Ratio of current toCapital expenditure(Millions	of rupees)
1980	12319	12123	1.02	23003
1981	14649	11252	1.30	17664
1982	18341	15427	1.20	21820
1983	22022	15863	1.39	18531
1984	24631	19915	1.24	20035
1985	32644	21530	1.51	21530
1986	33966	23236	1.46	21919
1987	39560	22816	1.73	19944
1988	46132	22878	2.01	18200
1989	56884	20750	2.74	14875
1990	71771	19161	3.75	11419
1991	83756	25968	3.23	13760
1992	84327	34475	2.45	-

Source: GFS (various issues)

\* Current rupees

\*\*In constant 1985 prices.



**Table 10 Balance of payments indicators, 1980-92**

	1980-82	1990-91
Export of goods and services/GNP (%)	35.7	34.4
Imports of goods and services/GNP (%)	52.5	41.1
Current account deficit/GDP (%)	12.4	5.2**
Balance of trade*/GNP (%)	16.2	5.6
Ratio of international reserves to imports of goods and services (months)	1.8	2.0
Terms of trade (1987 = 100)	98.1	87.8

Sources: World Bank, World Debt Tables, World Tables; IMF of Payments Statistics Yearbook (various issues). Balance

Notes: \* Merchandise imports and exports  
\*\* 1990-92

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Table 11 Foreign debt indicators, 1980-91

	Disbursements of public and publicly- guaranteed debt* (US\$m.)	Debt service (US\$m.)	Debt service as a proportion of:		
			Exports	GNP	CGE
1980	269	179	12.0	4.5	10.7
1981	388	-	13.2	-	-
1982	471	245	14.9	-	15.1
1983	372	265	15.6	5.2	16.4
1984	427	274	13.1	4.7	15.6
1985	396	320	16.5	5.4	16.0
1986	495	399	20.9	6.2	19.5
1987	392	497	23.2	7.4	23.4
1988	401	487	21.7	7.0	22.4
1989	436	422	18.6	6.1	19.6
1990	464	388	13.9	4.8	17.1
1991	-	431	14.1	4.8	16.2

Source: World Bank, World Debt Tables (various issues)

Notes: \* Current prices, \$US millions.