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THE DEVELOPMENTAL IMPACT OF THE INDIA-PAKISTAN ARMS RACE

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The developmental impact of the India-Pakistan arms race

Stephen Josef Tibbett

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Abstract: This Working Paper examines the developmental impact of the arms race between India and Pakistan. It outlines the theoretical debate on the relationship between defence spending and economic development. It then examines the origins of the cold war between Indian and Pakistan. Next, evidence concerning defence and defence-related spending in the two countries is offered. This is followed by an examination of the development of the defence and defence-related industrial sectors in India and Pakistan. Finally, the paper examines the social implications of defence spending in India and Pakistan. It is argued that the allocation of spending to the defence and the defence-related industrial sectors is detrimental to the economic development of India and Pakistan.

I. INTRODUCTION

Over the last five decades the south Asian states of India and Pakistan have witnessed economic growth, but has failed to generate the dynamism found in other parts of the developing world. At the same time, India and Pakistan have witnessed instability in their strategic geo-political relationship. These two factors are not separate. Rather, they are related to each other through a single issue: the arms race between India and Pakistan. The arms race between India and Pakistan has led to a large military build-up between the two countries. This has stoked the threat of war, while simultaneously utilizing large quantities of scarce resources which could have been used in alternative ways. In this article we argue that defence spending in India and Pakistan has retarded economic growth by channelling scarce resources into activities which do not support the development of productivity-enhancing backward and forward linkages. Following this introduction, the second section of the article discusses the theoretical debate within defence economics on the relationship between defence and defence-related spending and development. In the third section of the paper the historical origins of the cold war between India and Pakistan are introduced. We

then briefly outline evidence detailing the military balance between India and Pakistan. In the fourth section of the article civilian-military linkages are explored. In the fifth section of the article we examine education and health provision in India and Pakistan, in light of the role played by such provision in development. In sections four and five we argue that within the two economies defence and defence-related spending have facilitated some backward and forward linkages. However, the underlying effect of such spending on development has been a negative one. The final section of the paper concludes that the security needs of both countries would be better satisfied by the targeting of resources toward economic development rather than their being diverted into a damaging arms race.

II. THE MILITARY SECTOR AND ECONOMIC DEVELOPMENT

While the theoretical debate within defence economics over the relationship between military and military-related expenditure and economic development goes back to the 1950s, it was not until 1973 that substantial effort began to be directed towards exploring the substance of any association which might exist. Emile Benoit's controversial Defence and Economic Growth in Developing Countries (1973) was crucial in establishing the terms of the argument. Benoit viewed the defence sector as a positive influence on the economy and on economic growth. This was because the creation of defence and defence-related industries represented a form of capacity-enhancing import-substituting industrialization. Granted, defence and defence-related industries could generate certain constraints on the economy. However, use of an econometric model allowed Benoit to demonstrate that as a consequence of import substitution defence and defence-related industries by and large facilitated industrialisation because of their positive impact on investment, employment and growth (Deger and Smith 1985: 50-51). The argument that there exists a positive relationship between defence and development thus focused upon the impact of defence expenditure on forward and backward linkages in the economy.

The main backward linkage would be the infrastructural development necessary to sustain a defence sector and the attendant income and employment multipliers that the creation of such infrastructure generates. The main forward linkage from the import-substituting domestic production of defence and defence-related systems would be through income and employment multipliers. The impact of these forward linkages is accelerated through spin-offs from the defence sector into the civilian economy.

Spin-offs encompass more than just technology. They also encompass the capacity to promote 'learning by doing': that is, skills which are learnt by being imported or copied from the processes involved in the production of armaments and munitions and which have as a consequence the enhancement of domestic capabilities (Deger and Smith 1985: 52-53).

For example, the know-how and technology involved in the production of an indigenously developed tank can arguably be utilised in the production of tractors, bulldozers and trucks (Sawhney 1995: 1b). At the same time, it is argued that military production involves greater labour discipline, which through the routinization of the labour process is also conducive to economic development. A related area of benefit from the creation of defence sector comes from the reduction of defence costs and indeed the potential for exporting arms to earn foreign exchange and help sustain the balance of payments. In a sense, the creation of a defence sector through orthodox import substitution can facilitate a shift into export-oriented industrialisation (Kaplinsky 1985: 73-74). Thus, through both backward and forward linkages defence and defence-related production is argued to be a major boost to the general level of demand in the economy (Roy-Chaudhury 1995: 3b), fostering widespread industrialization and dynamic economic growth.

As opposed to the argument that defence expenditure promotes economic development, it is increasingly the case that writers, activists and organizations contend that such spending is a wasteful use of scarce economic resources. There are two strands to arguments detailing the detrimental impact of defence spending on economic development. The first is based upon the inevitable tradeoff that occurs between spending priorities (Defence, Science & Technology Policy Team 1991: 33). Defence expenditure has an opportunity cost; that is, expenditure devoted to defence cannot be spent on other areas of activity. It is thus argued that military spending diverts scarce foreign exchange and limited government resources into unproductive activities, resulting in investment blockages which have negative implications for economic growth. These implications are worsened if defence and defence-related spending are sustained through a reliance upon foreign assistance, as the debt which is acquired is not channelled into fostering productivity improvements. Moreover, it is argued that defence spending 'crowds out' the social spending necessary to foster development. In 1992 the overall expenditure of developing countries on defence was over US\$136 billion (UNDP 1995: 183). Such expenditure does little to improve the education and health of a population.

The second strand deals with the impact of military technology on the development process. Lock and Wulf (1979) have argued that defence and defence-related production harms the process of development. The establishment of defence and defence-related production programmes increases dependence on the owners of the technology which is transferred and, perhaps more importantly, politicises the trading relationship between the source of the technologies and the developing country. The infrastructural development brought about by the development of a defence and defence-related industrial sector may be inappropriate. Infrastructure that evolves for defence requirements can leave the civilian sector with

inappropriate transport and communications systems by prioritizing military goals at the expense of developmental ones (Collinson 1989: 51). Moreover, human capital formation can be distorted by an excessive degree of militarization of an economy, as public and private educational processes develop with military rather than civilian objectives. The development of defence and defence-related production can thus constitute a 'determining factor in the continuation of uneven development and underdevelopment' (Lock and Wulf 1979: 226).

The potentially negative impact of defence expenditure on developing countries has come to dominate the literature. Writers such as Sadaat Deger and Robin Luckham, international non-governmental organizations such as the Campaign Against the Arms Trade, Saferworld, and the World Development Movement, and indeed multilateral organisations such as the International Monetary Fund have come to criticize large defence budgets and the resulting militarisation of economies. Much of the growing literature on the negative impact of defence expenditure is technically rigorous. Thus

the econometric evidence indicates that military expenditure constitutes a burden and that disarmament represents a major economic opportunity...Defence spending in the Third World does...reduce growth through its adverse effect on saving, investment, foreign exchange, human capital and absorptive capacity (Deger and Smith 1985: 54).

Indeed, the IMF accepts the technical evidence that there is a negative association between military expenditure and economic development (Jane's Defence Weekly 29/7/95). In this light, it is perhaps not surprising that current debates in defence economics are taking place against a background of falling defence expenditure in most developed countries (US Arms Control and Disarmament Agency 1994). However, such an outlook is not replicated in the developing world. The 1995 Yearbook of the Stockholm International Peace and Research Institute (SIPRI) demonstrates that arms transfers between North and South have now stopped falling for the first time since the end of the Cold War (SIPRI 1995). In large part, this is due to the inability to solve several major if localized conflicts. At the same time, western companies and governments have become increasingly aggressive in promoting the sales of modern weapons systems as a means of offsetting the cycles of economic activity. As a consequence, the impact of defence expenditure on economic development will remain an important issue. The relationship between defence expenditure and development is particularly acute in south Asia. Therefore, the remainder of this article presents a comparative study of India and Pakistan.

III. THE INDIA-PAKISTAN ARMS RACE

i. The India-Pakistan cold war

South Asia has been subject to waves of invasion by various groups for thousands of years.

Such invasions have left behind powerful layers of class, ethnicity, religion and culture, which have impacted upon the development of the subcontinent. However, in terms of their impact upon the subsequent India-Pakistan arms race, undoubtedly the most important invaders were the British. The British effected the development of the India-Pakistan arms race in two immediate ways. First, and most obviously, the creation of Pakistan following the British withdrawal from India in 1947, and the conflict that flowed from the partition of the subcontinent, set the tone for five decades of hot and cold conflict. The animosities created by partition persist to this day, as they are continually stoked by politicians on both sides of the border. Second, and less obviously, the transfer of resources to the two new states in 1947 by the British meant that both countries were from the outset sufficiently well armed to seek to resolve political and ideological conflict through military means.

The basis of the conflict between India and Pakistan is usually presented in essentially ideological terms. Such terms obscure the conflicting motivations of the dominant class actors in the creation of the two states. Nonetheless, the two states were founded on a very different ideological basis: Pakistan was created as a homeland for the Muslims of what had been British India, while India remains a secular country. The differing role of religious ideology in the foundation of the two states set the stage for conflict over Kashmir; regardless of the wishes of Kashmiris, both states seek the legitimacy that would be brought about by the formal accession of that predominantly Muslim region to either state. The conflict created by partition was immediately followed by conflict over Kashmir, which crystallized ideological difference as the basis of inter-state hostility. Two more wars followed, in 1965 and 1971.

The Simla Agreement of 1972 established a cease-fire line between the two states. However, relations between India and Pakistan have remained strained (Thomas 1993: 3-6). Although war has been avoided, cold war has been the norm. The manifestations of cold war are witnessed in three areas. The first manifestation is the high level at which political tension runs between the two countries. In part, this is because for many in Pakistan India is used as benchmark. The size and economic power of India, its political and military influence within the south Asian region, and the fact that it once contained Pakistan, means that it looms large in popular perception. For many commentators in Pakistan the perception that India is the regional power is central to the maintenance of tension between the two states. As Braun (1990: 167) notes

Pakistan's political class is marked by the repudiation of India's desire for regional supremacy...It sees every Indian move in the area of arms and defence as a threat...No Pakistani government can afford to give the impression of having weakened the country's defence's against the hegemonical aims ascribed to India.

In India popular perception is different. Pakistan does not hold the same degree of significance. India's economic and political dominance in south Asia means that it looks more to China as its major regional competitor. Nonetheless, the perception of dominance leads to sustained efforts by India to maintain that dominance rather than explicitly seek to defuse tension.

The second manifestation of the cold war in south Asia is directly related to the first. Intermittent, localized conflict continues to occur along the length of the border regions of the two countries. India has accused Pakistan of fighting proxy wars against India, most notably in the Punjab in the 1980s and in Kashmir in the 1990s (Thomas 1993). This has been mirrored by Pakistani accusations of Indian interference in Sind and especially in metropolitan Karachi, where recent disturbances reached crisis levels (Bedi 1995: 3a). It is without doubt true that both claims contain an element of truth as both states seek to pursue their respective political objectives: in the case of Pakistan, to challenge the hegemony of India; and in the case of India, to maintain regional dominance.

The third manifestation of the cold war between India and Pakistan is witnessed in the ongoing arms race between the two countries since independence. The level of defence expenditure in India and Pakistan is examined below. However, it is worth noting here that many Indian and Pakistani academics and government officials explicitly question the existence of an India-Pakistan arms race. Thus, the former head of the Government-sponsored Institute for Defence Studies and Analyses (IDSA) refutes the existence of any arms race between Indian and Pakistan as 'Western propaganda' (personal communication). Amongst the Indian 'security community' there is a widespread belief that, as both a proportion of national output and a proportion of government spending, India spends less than many countries, and certainly less than Pakistan. Indeed, some argue that the Indian military is, in some ways, underequipped. For example, in the wake of the Gulf War it has been argued that much of the equipment the military has is obsolete, defective or inadequate (Sawhney 1995: 1b). Moreover, the military may lack important systems. For example, it appears that the army does not have night-fighting equipment (Sawhney 1995: 1b). Granted, the credibility of these statements may be open to question, in that such arguments, when used in conjunction with the reductions in Indian defence spending between 1992 and 1994, can be used to argue that India is committed to a level of defence which is inadequate to meet the country's requirements given the presence of what is perceived by many to be a potentially hostile neighbour. The argument that India's levels of defence expenditure are not high in comparative terms and indeed reflect the impact of an aggressive neighbour, has been made by the current director of the IDSA, who has argued that

after the December 1971 war...Indian defence planners looked forward to a prolonged period of peace...On the other hand, Pakistan undertook a massive military build up during the seventies (Singh 1994: 42).

The Pakistani security community also widely denies that the country is involved in an arms race. With limited resources it is argued that Pakistan 'can't afford to play the numbers game' (Frost 1989: 427). The level of defence expenditure is thus set to reflect inflation and the level of expenditure maintained by India, as has been noted by former defence minister Syed Ghous Ali Shah:

any increases (in the defence budget) simply balances inflation. India's defence budget has been rising at a rapid rate...All the things we in Pakistan are doing are aimed only at being able to live as an independent nation (Jane's Defence Weekly 11/7/92).

In both states then it is commonly argued that it is the other side which is ultimately responsible for the level of domestic defence expenditure.

Regardless of where the responsibility for the level of defence expenditure lies, the need by both India and Pakistan to sustain defence spending led both sides to patronise cold war superpowers to sustain their military expenditure. In the 1970s and 1980s Pakistan and India were broadly aligned with the United States and Soviet Union respectively. The US was particularly concerned to court Pakistan during the Afghanistan war, when the presence of large numbers of Soviet troops in Afghanistan made Pakistan a 'front-line state' in the US effort to contain the Soviet Union. It was at this time that Islamabad received large increases in aid and loans from the US. Much of the increase was specifically for military equipment and training (Nicoll 1992).

By way of contrast, for decades New Delhi had been courted by Moscow. As a non-aligned country with socialist pretensions India appeared to be a potential ally in south Asia. At the same time, India heavily relied upon arms imports to sustain its defence capability (Smith 1994). While India has purchased weapons systems from European states such as France, most of its major weapons systems have been acquired from the Soviet Union under 'soft loans' repayable in rupees at a favourable rupee-rouble exchange rate. Moreover, there were provisions under Soviet military assistance for the licensed local production of arms and munitions (Thomas 1993: 55-56).

However, with the end of the US-Soviet cold war India and Pakistan have been treated less favourably by their former patrons. In 1990 Pakistan's US aid was largely cut off. The explicit rationale behind the Pressler Amendment was Pakistan's nuclear programme, along with its sponsorship of 'terrorism'. Such a rationale was opportunistic. As was noted by the

press 'the CIA was convinced as early as 1987 that (Pakistan) had crossed "the nuclear threshold"' (The Guardian 29/11/94). In reality the cut in US aid constituted a *de facto* recognition of the new geo-political balance (Ziring 1993: 149). As a consequence, Pakistan has been left with extensive debt that can be attributed, at least partially, to a military buildup that was supported by the US.

India has similarly had to confront a new reality. A Russian Federation short of foreign exchange has sought to aggressively use its debt leverage to secure a more favourable economic relationship with India. For its part, India began to reassess its strategic position following the Gulf War, when the disastrous performance of Soviet arms and the clear technological advantage of Western weaponry was highly apparent (Sheth 1995: 1a). Moreover, with the collapse of the Soviet Union the US also started to reassess its relationship with India. The two countries have had a series of high level meetings and agreements over technology acquisition, some with military applications, have been reached. However, despite these moves, for the present the major source of arms and munitions for India remains Russia (Braun 1990: 176-78).

The geo-political landscape of the south Asian region has clearly changed. Old allegiances are breaking down and new ones may be in the process of formation. However, impasse persists between India and Pakistan. Indeed, the period since 1990 has witnessed a marked deterioration in inter-state relations. Indian repression in Kashmir acts in Pakistan as a 'symbol of broken pledges' (Cheema 1995: 2b). A 'major discrepancy in the perceptions of India and Pakistan on the prevailing military balance in south Asia' (Thomas 1993: 49) serves to exacerbate regional insecurity and deepen the India-Pakistan cold war.

ii. The evidence

The military balance in south Asia between India and Pakistan is difficult to disentangle. However, by looking at a variety of sources it is possible to broadly assess the current situation.

According to the International Institute for Strategic Studies, India and Pakistan have large armies. The Indian army has 1,100,000 active soldiers and a further 950,000 reservists. By way of contrast, Pakistan has 520,000 full time soldiers and an estimated 300,000 reservists (International Institute for Strategic Studies 1994-5). Both countries have considerable air and naval power, as well as modern missile systems. India has 42 air squadrons with a range of technological and military capabilities. Aircraft flown include the Jaguar, the Mig-29, the Mig-21, the Mig-27 and the Mirage 2000. Pakistan has 17 air squadrons, including the French-supplied Mirage 2000. Moreover, both countries appear to be nuclear-capable

(Thomas 1993). India conducted a nuclear test in 1974 and is probably capable of assembling a nuclear device in a few days. Officially, Pakistan denies nuclear capability. However, Pakistan's nuclear research and development programme indicates that it is highly probable that the country is capable of assembling a nuclear device in a matter of days.

Table 1 provides evidence on defence spending, arms imports and arms exports for India and Pakistan. Table 1 demonstrates that both in terms of real absolute expenditure and in terms of real per capita expenditure India and Pakistan have increased military spending since 1985. Indeed, since 1960 the share of national output devoted to military spending has more than doubled in both countries. In the case of India, whereas in 1960 some 2 per cent of gross national product was devoted to military spending by 1990 that figure had risen to 5.5 per cent. In the case of Pakistan, whereas in 1960 some 3.1 per cent of gross national product was devoted to military spending by 1990 that figure had increased to 7.7 per cent. There has thus clearly been a marked increase in defence spending in India and Pakistan. The increase in defence spending is confirmed by the US Arms Control and Disarmament Agency (1994). For the period 1988-1993 the average annual rate of growth of military spending in India was 3.8 per cent, while in Pakistan over the same period the average annual rate of growth of military spending was 2.7 per cent. Table 1 also provides evidence of the significance of arms imports and exports to India and Pakistan. Current SIPRI figures indicate that over the 1990-94 period India was the fifth largest importer of arms in the world; Pakistan was the eleventh largest importer of arms (SIPRI 1995: 494). According to the United Nations Development Programme between 1988 and 1992 India and Pakistan accounted for over 18 per cent of the world arms imports (UNDP 1994). Finally, between 1971 and 1985 India and Pakistan were responsible for over 8 per cent of all arms exports to the developing countries.

Although India spends less on defence in per capita terms than Pakistan, the much larger size of the Indian population means that in absolute terms India's defence budget is three times the size of that of Pakistan (Bhinda 1994: 71). Defence spending accounted for more than 13 per cent of India's Budget in 1994-95. This represents a considerable decline over the proportion of the budget devoted to defence during the 1960s and 1970s, in that during the 1960s defence spending accounted for an average of 22 per cent of central government spending (Government of India Ministry of Finance 1995: 22; Singh 1994: 45). Moreover, these figures overstate the proportion of total government spending accounted for by defence expenditure. They are expressed as a proportion of central government expenditure, and much of India's public expenditure comes from the state governments (Singh 1994: 45). Finally, in common with other developing countries budgetary allocations to defence should not be taken to equate with arms purchases. Sixty per cent of the defence budget is allocated

-- The India-Pakistan Arms Race --

Table 1: Trends in defence expenditure: India and Pakistan		
	India	Pakistan
(1) Total defence spending		
1985	6263	2076
1992	7550	3253
(2) Per capita defence spending		
1985	8	22
1992	9	27
(3) Defence spending: % of GNP		
1960	2.0	3.1
1990	5.5	7.3
(4) Average annual rate of growth of defence spending		
1988-1993	3.8	2.7
(5) Value of arms imports		
1992	1151	210
(6) Share of world arms exports to developing countries		
1971-1985	6.1	2.0
Notes: All figures in US dollars;		
(1) in millions of 1985 US dollars;		
(3) in millions of current US dollars;		
(5) in millions of 1990 US dollars.		
Sources: UNDP 1995; Sivard 1992; US Arms Control and Disarmament Agency 1994; SIPRI 1994, 1987.		

to wages and salaries (Sheth 1995: 1a).

As a proportion of central government expenditure Pakistan spends more than double that of India. In 1991 defence spending accounted for 38 per cent of central government expenditure (Singh 1994: 58-59). Large as this figure is, it does represent a decline in the share of government spending allocated to defence. In 1966-67 defence spending accounted for a remarkable 74 per cent of central government expenditure. Some of the disparity between the Indian and Pakistani figures can be attributed to the far smaller size of the overall Pakistani budget, as well as the fact that Pakistan's defence spending is much more import-intensive than that of India. However, it is worth stressing that many believe Pakistani defence spending to be greatly in excess of the officially declared figure. Quoted estimates of the actual proportion of central government defence expenditure accounted for by defence spending range from 50 to 70 per cent (Chowdhury 1989: 13). For example, the quoted figure is not believed to include certain military imports and arms purchased with American aid (Jane's Defence Weekly 16/7/94). Moreover, Pakistan does not give a detailed accounts of defence allocations and procurements.

At the same time, although India has more transparency in its defence budget than Pakistan there are also questions raised about the official Indian figures. Certain items are not included which probably have a military component: the nuclear, missile and space programmes for one; certain technology development programmes for another; and spending on paramilitary security forces are a third missing component (Smith 1994: 135).

Table 1 and the discussion in this section permit four conclusions to be drawn. First, that defence spending is a large part of national expenditure. Second, that defence spending is growing. Third, that defence spending is becoming more important in the economic structures of India and Pakistan. Fourth, that estimates of defence spending may underestimate the true cost of military expenditure to the Indian and Pakistani economies. The comparative effects of this defence expenditure are now examined.

IV. DEFENCE SPENDING AND LINKAGES IN INDIA AND PAKISTAN

India has a large economy. Indeed, with a population of over 900 million it has a potentially huge internal market. However, in per capita terms India and Pakistan are both poor countries. India's real purchasing power parity GDP per capita expressed in 1992 prices is US\$1230. Pakistan's real purchasing power parity GDP per capita expressed in 1992 prices is US\$2890 (UNDP 1995). Both countries are witness to inadequate levels of private and public investment in industry, infrastructure and education. Investment gaps are compounded by foreign exchange gaps. However, in part because of its much greater size India does not

face exactly the same sorts of structural constraints as does Pakistan. At the same time, the absolute size of government resources available for development in India greatly exceed those in Pakistan. As a result, the impact of defence spending on the economies of India and Pakistan are likely to be dissimilar.

As outlined above, within defence economics the main effect of military and military related-spending is to be found in the impact that such expenditure has on aggregate resource availability. For some analysts, defence spending reduces the quantity of resources available for developmental spending and in so doing deepens structural constraints upon economic growth. For other analysts, the linkages created by import-substituting military production and procurement should lead to an expansion of the aggregate quantity of resources available and in so doing should weaken any structural constraints upon growth. It is therefore necessary to carefully examine the impact of the indigenous production of military goods in south Asia. The Indian record is considered first, followed by Pakistan.

i. Military production in India

As early as 1926, the Karachi Resolution of the Indian National Congress stated that self-sufficiency in arms and munitions would be an important objective in an independent India (Smith 1994: 146-47). At independence in 1947 the interim Indian government commissioned the Blackett Report to explore the ways in which the objective of self-sufficiency could be realised. The report argued the need for cost-effective self-reliance in the defence sector and argued that this should be funded out of the resources generated by economic growth. The Industrial Policy Resolutions of 1948 and 1956, which entrenched the policy of import-substituting industrialization through state control of heavy industries, further recognized the strategic importance of the defence sector in the industrialization process. However, it was not until after India's defeat in the Sino-Indian war of 1962 that the government started to make serious efforts to develop an indigenous capability to produce a range of arms and munitions. The government set up the Department of Defence Production and over time the extent of India's domestic defence sector has become increasingly wide. Thus, whereas in 1965 a total of 17 per cent of arms acquisitions were indigenously produced by 1995 that figure had increased to 30 per cent of arms acquisitions (Government of India Ministry of Defence 1995). Moreover, in 1995 the Ministry of Defence set an explicit aim of seeking to indigenously produce 70 per cent of all arms acquisitions by the year 2005. In addition to the indigenous production of complete arms and munitions systems, the defence sector consists of the assembly of imported 'kits' acquired from foreign sources and licensed production, in which design and at times strategic components may be imported but where the bulk of inputs into locally used arms and munitions systems are indigenously sourced (Roy-Chaudhury 1994: 233). In 1965 8 per cent

of arms acquisitions were produced under licence (Roy-Chaudhury 1994: 268); by 1995 that figure had increased to 17 per cent. However, India has sought to downgrade licensed production and kit assembly in an effort to bolster self-reliance (Arnett 1993: 344). In addition to the costs incurred from such methods of arms and munitions procurement, the government has been concerned that powerful foreign suppliers might choose to withholding spare parts in times of crisis (Mattoo 1995: 2a).

The expansion of the Indian defence sector has had some notable successes. The ordnance factories and defence public sector undertakings (DPSUs) have a current combined 'target' value of production to defence customers of some Rs 42.3 billion; indeed, the Ministry of Defence feels confident enough about the defence production sector to call it the 'backbone of defence preparedness and operational efficiency' (Government of India Ministry of Defence 1995: 23). The indigenous production of missile systems, vehicles, small arms and munitions is an established fact. A direct consequence of the establishment of such a large defence sector is that whereas the direct import of complete arms and munitions systems accounted for 75 per cent of all arms and munitions acquisitions in 1965, in 1993 it accounted for only 53 per cent of arms and munitions purchases (Roy-Chaudhury 1994: 268).

These successes have come at a price. Certain indigenously designed and produced systems are little more than reverse-engineered copies of existing weapons (Bedi 1995: 3a). The LMG rifle is an example of such reverse-engineering. Moreover, certain strategic systems remain reliant on critical foreign components. Thus, the widely-touted Prithvi missile consists of 20 per cent foreign components (Arnett 1994: 350). However, perhaps most importantly many of the projects undertaken have been costly disappointments.

Two high-cost high-profile programmes have been especially disappointing: the Arjun main battle tank and the light combat aircraft. Both projects have been riddled with problems. The main battle tank has been in development for 22 years and yet still does not meet the army's requirements. The tank remains too heavy, too slow, too wide for the railway bridging system and is massively over budget (Smith 1994: 150-151). Thus, in 1989 the Auditor General estimated that over Rs. 11.8 billion had been literally wasted in the tank's development. Similarly, since the inception of the project in 1983 the light combat aircraft has 'had a number of difficulties' (Arnett 1994: 349) in its design and development. The aircraft is now widely considered a white elephant: it has been extremely expensive to develop and yet is already out of date and so is unexportable (Smith 1994). Furthermore, both the tank and the aircraft projects still require that some 50 per cent of the components used in their manufacture be imported.

Thus, the attempt by the Indian state to develop an indigenous arms and munitions sector has been at best a questionable success. The industry has been costly to develop, placing limits upon the disposal of scarce government resources. That industry which has been developed remains heavily dependent upon imports; as a result, it uses scarce foreign exchange, weakens the balance of payments position, and fails to give the independence that the policy was explicitly designed to promote. At the same time, over the period from 1985 to 1995 India remained the largest arms importer in the world (SIPRI Yearbook various issues). As Smith (1994: 176) puts it, the sustenance of an arms and munitions industry in India only amounts to preserving 'the myth of indigenisation'.

ii. Linkages from military production in India

It is widely recognized in India that 'defence production units can contribute substantially to national industrial production through research and development, and technology and industrial spin-offs, along with foreign exchange earnings' (Roy-Chaudhury 1994: 269). However, the linkages that exist between the defence sector and the civilian industrial sector are not as extensive as might be thought. Granted, the defence industry and armed forces themselves are obviously a major source of jobs. In India in addition to the armed forces themselves military production facilities employ over 283,000 people. In addition, employment would be generated for those who work for military suppliers and support services (Roy-Chaudhury 1994). Moreover, the fact that most of those employed work in the public sector means that these jobs are fairly secure. At the same time, it could be argued that it would be expected that technological linkages would be fostered by the development of defence and defence-related industries. In terms of technology, India has sought to maximize the extent of technology transfer from foreign suppliers to domestic arms and munitions producers, whether they be involved in local 'kit' assembly, licensed production or the wholesale local production of complete weapons and munitions systems. Indeed, some of the linkages between the civilian industrial sector and the defence sector may be difficult to make clear because they occur between activities which formally do not fall under the rubric of military enterprises: the space and atomic energy programmes have extensive connections with civilian production, connections which are facilitated by the efficient, flexible and innovative non-military institutions which control the programmes (Abraham 1992: 234).

However, as opposed to these potential benefits it must be recognised that defence and defence-related production is unlikely to be labour intensive. This has two implications. First, the linkages created by employment in defence and defence-related industries may be far less than might have been the case if more labour-intensive sectors had been developed. As has been pointed out, 'why go in for guns? This country needs a lot of roads...which

would provide very good gainful employment to a lot more people' (Wariwallah 1995: 1a). Second, the capital-intensive nature of military production has resulted in an increasing share of state-sponsored capital formation being accounted for by defence industries. As has been noted, 'the more money that goes to defence' the less which 'is available for investment' in basic civil industry (Deshingkar 1995: 1b). Indeed, Abraham (1992: 237) has argued that the defence sector is subject to periodic overinvestment which compromises developmental efforts.

The main point of contact between the defence production sector and the civilian industrial sector occurs through the ordnance factories and DPSUs, both of which are state-owned enterprises engaged in the production of arms and munitions for the domestic and export market. Here, the linkage record is mixed. Admittedly, in 1993-94 nearly half the value of total production of all DPSUs was destined for the civilian sector. The civilian side of production within the DPSUs involved a form of cross-subsidization, wherein civilian industrial production was endowed with higher-technology defence sector inputs. Furthermore, certain defence projects involve wide-ranging co-operation which bring together the scientific, public sector and business communities. For example, the Agni medium-range ballistic missile involves co-operation between nineteen defence and civilian public sector undertakings, eleven ordnance factories, two scientific organisations and nine private businesses (Roy-Chaudhury 1994: 262). Indeed, in order to better establish linkages between the defence and the civilian sectors in 1995 an 'Army-Industry Partnership' seminar was held to facilitate the formation of a 'perspective plan' designed to foster India's 'first ever institutionalised interface between industry and the army' (India Weekly 8/9/95). This complemented ongoing efforts to increase the level of private sector involvement in defence research and production beyond its current level (Sawhney 1995: 1b; India Weekly 8/9/95). These public-private relationships are supposed to be deepened by efforts by the central institution responsible for defence-oriented research and development, the Defence Research and Development Organisation (DRDO).

However, many of the supposed linkages which exist within the DPSUs and between the defence industries and the private sector may be problematic. While the productivity levels and management culture required for the civilian production of the DPSUs may help lower unit costs for defence production, the fact remains that the DPSUs have virtual monopolies in the area of domestically-procured armaments and munitions systems. Prices for such armaments are not based upon supply and demand, but rather on a government-protected cost-plus system which fails to instill the necessary sense of competitive discipline required to equip the DPSUs with the capacity to deal with the reality of globalised trading (Abraham 1992: 234-35). This has three implications. First, many DPSUs make goods which are of

inferior quality for the civilian sector (Mattoo 1995: 1b). Poor quality also flows from the second implication: the weapons systems produced by the DPSUs through the DRDO are out of date. The DRDO operates under an excessively hierarchical structure which separates it from the competitive disciplines of civilian sector production. As a consequence, the considerable resources devoted to the DRDO show poor results (Abraham 1992; Bedi 1995: 3a). In 1991 the proportion of research and development resources devoted to the defence, space and atomic energy sectors stood at some 60 per cent. By way of contrast, science received 10 per cent. Moreover, since 1991 the proportion of research and development resources accounted for by the defence and defence-related sectors increased (Arnett 1993: 354). However, from an ever-increasing budget, the DRDO has mustered only marginal improvements in technological capabilities. As 'the pace of innovation [is] slow and adaptive' (Abraham 1992: 234-35) possible civilian by-products lack cutting edge capabilities. Indeed, the overall effect may in fact be anti-developmental, in the sense that many of the scientists from the civilian sector have moved into better-funded military-related research and development and in so doing have assisted the efforts of the government in concentrating research and development in high-technology weapons and space systems which have very limited civilian applications. Third, the inefficient production fostered by the enclave setting of the DRDO and the DPSUs mitigates against attempting to foster exports from the defence industries. Thus, in 1990 the level of arms exports in constant 1987 dollars was only US\$9 million (Sivard 1993: 43).

India has achieved a measure of self-reliance and considerable local production in the defence sector. However, the technological and economic benefits that come with the establishment of a defence 'complex' appear limited. As a consequence, it would appear to be inaccurate to assert that defence spending in India fosters the establishment of a range of developmental linkages which taken together serve to justify such expenditure.

iii. Military production in Pakistan

It is difficult to obtain reliable information on the state of Pakistan's military spending programmes and production capabilities. The government offers only a single line allocation in the budget; there is thus a lack of basic data on defence production and procurement.

However, it is widely believed in Pakistan that the basic defence sector infrastructure left by the British has not been used as fully as it could have been. Pakistan has historically sought to import most of its military equipment. The absence of a deep manufacturing base and attendant supplier networks, along with limited relevant skills, have restricted the capacity to develop an indigenous defence and defence-related industrial sector. Moreover, Pakistan's military has consistently been able to acquire relatively high quality weapons systems such

as the US F-16 and the French Mirage V. As a consequence, Pakistan has sought to rely on 'more technically developed nations...for almost 95 per cent of the items of defence hardware' it requires (Frost 1989: 427).

In light of the role of imports in meeting Pakistan's defence needs, the defence and defence-related industrial sector which has developed has derived from either foreign assistance or from reverse-engineered design in lower value-added segments of the arms and munitions industry (Nuri 1995: 2b; Mathews 1993). Thus, Pakistan makes some artillery and spare parts. However, the bulk of the indigenous defence industry is in the area of small arms, ammunition and clothing. As a consequence, Pakistan has a defence industry with the capacity to produce goods worth up to US\$400 million. Like India, the defence sector is located within the public sector, in enclave complexes at Wah, Havelian and Sanjwal. Pakistan has largely failed to attract the private sector into defence production (Frost 1989: 427). There are some private sector suppliers to the ordnance factories but very little in the way of direct manufacture for domestic consumption or export from private businesses, apart from the production of small arms in the tribal areas of North-West Frontier Province (Nuri 1995: 2b). However, despite its comparatively smaller size the sector has accumulated some areas of specific expertise: 2600 managers, scientists, engineers and technical experts.

More recently, Pakistan has sought to develop the capacity to produce weapons and munitions in the higher value-added range. The government has learnt that relying on imported foreign technology through bilateral military assistance is not without cost: transfers can be subject to changing assessments of strategic needs. Moreover, it has been argued by former defence minister Ghulam S. Cheema that the development of an arms industry can be 'a spearhead of industrialisation and the transfer of technology' (Frost 1989: 428). Finally, Cheema has also argued that Pakistan's human and technological base now 'makes it easy for us to absorb new developments' (Frost 1989: 427). As a consequence, the government through the defence sector has sought to expand local design and production into such areas such as a surface-to-surface missile, a surface-to-air missile and a laser rangefinder. There has also been some limited collaboration with the Chinese on the development of a main battle tank (Nuri 1995: 2a).

iv. Linkages from military production in Pakistan

Pakistan has low rates of investment and savings, a limited tax base, a seemingly structural budget deficit and a consequent recourse to foreign assistance with its concomitant debt-servicing requirements. Much of the budget deficit is defence related: the bulk of the equipment within the military is imported in complete form. Thus, much of the budget deficit is accounted for by current defence expenditures or by debts incurred as a

consequence of previous defence expenditure. Taken together defence spending and debt servicing accounts for more than the total tax take (Mathews 1993: 28). The combined defence and debt-servicing portion of the budget is PRs 23 billion more than net federal revenue, which is three quarters of current spending and two thirds of total spending (Economist Intelligence Unit 1995a). As a consequence, total external debt has rose from US\$16.5 billion in 1987 to US\$28.3 billion in 1995. Granted, the individual linkages generated by a particular domestically produced military product may be beneficial; however, given that the bulk of what is produced in the defence sector is low-technology support equipment and munitions the aggregate significance of linkages into the civilian economy is likely to be limited.

In Pakistan as in India, the defence industry and armed forces themselves are a major source of jobs. In Pakistan in addition to the armed forces themselves some 50,000 are employed in national ordnance factories (Hussain 1989). Again, most of this employment is in the public sector. Therefore, these jobs are fairly secure from market forces. However, the employment effects are not what they could be. Despite the numbers employed and the low-technology nature of the sector, in the Pakistani context defence and defence-related industries remain comparatively capital intensive. Thus, they do not create the same numbers of jobs in Pakistan as would a similar level of investment in more labour-intensive areas of economic activity.

Moreover, in Pakistan the employment multipliers tend to be spatially concentrated (Roy-Chaudhury 1995: 3b) around the ordnance centres at Wah, Havelian and Sanjwal. While these centres have imparted a certain sense of dynamism and industrial growth into their geographical area the majority of Pakistan's population gain little benefit (Cheema 1995: 2b). Granted, the army helps in the provision of the country's infrastructure, and in particular roads, dams and the communication system. Moreover, the technical capabilities that the armed forces may provide 'produces positive training benefits for the civil sector' (Chowdhury 1989: 15). However, it is clear that the army also uses a lot of resources.

Where some linkages have been garnered is in foreign exchange earnings. Pakistan is ranked 15 out of 30 developing countries that manufacture and export arms. The total annual value of the trade in 1989 was PRs 300 million, which is a commendable figure given the low-technology level of exports (Hussain 1989: 45). However, it is possible that an even more important source of foreign exchange is from the export of technical military expertise to countries in West Africa, South East Asia and North Africa (Hussain 1989: 37-38). Although not quantified, the earnings and remittances are likely to run into the hundred of millions of rupees.

The argument that the defence sector facilitates industrialization in Pakistan through the fostering of linkages appears unconvincing. While some linkages undoubtedly exist, they are limited to particular regions and particular forms of earnings. The fact is that Pakistan lacks the kind of industrial base necessary to develop an extensive indigenous arms and munitions sector. The argument then that such a sector could arise from a defence sector is unconvincing, because the former is a prerequisite of the latter and not vice-versa. Finally, it is worth stressing that these limited linkages have a price: the military in Pakistan exerts influence in political and economic affairs. Pakistan's powerful military has its own internal logic, a logic which is conducive to the growth of a defence sector but is not necessarily conducive to economic security or indeed the security of the country (Hussain and Hussain 1994: 69-70).

V. SOCIAL SPENDING IN SOUTH ASIA

i. India

According to India's Ministry of Defence, 'given India's size and security concerns, the outlay on defence, assessed as a percentage of either the total central government expenditure or GDP, continues to be one of the lowest amongst our neighbouring countries' (Government of India Ministry of Defence 1995: 7). However, this does not mean that defence spending fails to have an impact on the levels of social spending within India. While defence spending has fallen as a proportion of government spending, it is nonetheless the case that over the period from 1986 to 1993 the average percentage of central government expenditure allocated to defence stood at 15 per cent, whereas the average percentage of central government expenditure devoted to health and education stood at 4 per cent (UNICEF 1996: 90). It is not necessary to construct an econometric model to recognize that the general scarcity of resources, when combined with the principle of fungibility, would tend to imply that a tradeoff is at work. Resources that could be used to maintain expenditure designed to facilitate social development are instead used to maintain defence.

Table 2 presents data which compares health and education provision in India with the average level of health and education provision in developing countries. Table 2 demonstrates that the levels of provision in both health and education are well below the developing country average. Looking first at education, it is demonstrated that spending as a percentage of GNP is 20 per cent below the developing country average. Indeed, spending per capita is more than 60 per cent less than that of the developing country average. Low levels of spending are reflected in the teacher-student ratio, which is more than 40 per cent higher than the developing country average. The impact is demonstrated in literacy figures: both male and female literacy rates lie below the developing country average, and female literacy rates in particular are 40 per cent lower than the developing country average.

Table 2: Education and health provision in India		
		Developing
		country
Indicator	India	average
Education		
% of GNP	3.1	3.9
school age population per		
teacher	71	49
female literacy rate (%)	34	57
male literacy rate (%)	62	76
Health		
% of GNP	1.0	1.6
population per physician	2614	1629
infant mortality rate	94	75
underweight under-fives (%)	63	34
access to sanitation (%)	16	57
Sources: Sivard 1993; UNDP 1995.		

India's performance on health is even more telling. Table 2 shows that health spending as a percentage of GNP is almost 60 per cent lower than the developing country average. Health spending per capita is one sixth that found across the developing countries as a whole. Low levels of spending are reflected in the numbers of people per doctor, which is 60 per cent higher than the developing country average. The impact of such scarce provision is demonstrated in indicators of health outcomes. The infant mortality rate is 25 per cent higher than the developing country average, the proportion of underweight children is nearly double that of the developing country average, and only 16 per cent of Indians have access to sanitation.

This is not to say that there is a negative one-to-one correspondence between social expenditure and defence expenditure. Rather, it is to focus attention on the fact that there

must be a tradeoff at work here. By devoting large amounts of scarce resources to an inefficient defence sector India has had fewer resources to devote to enhancing productivity-fostering social development. The inability to foster social development is an important structural constraint facing the Indian state.

ii. Pakistan

Between 1980 and 1992 the rate of growth per capita in Pakistan was a respectable 3.5 per cent per year (UNDP 1995: 195). However, this does not mean that Pakistan can afford to costlessly channel resources into defence. Frederiksen and Looney (1994) examined the effect of defence expenditures on the Pakistani budgetary position. They identify a lack of public resources as being offset by high levels of borrowing. However, such borrowing is used to fund consumption spending, on defence and defence-related items. Thus, the pattern of government spending is both inappropriate and unsustainable. The structural constraints produced by this pattern will worsen as the debt servicing from this defence-induced borrowing rises.

The opportunity cost of this spending has been high. As has been argued, Pakistan has

paid the cost (of defence spending) in terms of lack of development, lack of industrialisation, and lack of education...We have gone for defence expenditure too much to the detriment of economic development (Nuri 1995: 2a).

The imbalance between defence and social provision in Pakistan is most clearly seen in the two following ways. First, over the period from 1986 to 1993 the average percentage of central government expenditure allocated to defence in Pakistan stood at 28 per cent. By way of contrast, over the period from 1986 to 1993 the average percentage of central government expenditure allocated to health and education stood at 3 per cent (UNICEF 1996: 90). Second, if military spending is expressed as a percentage of the combined spending devoted to health and education the difference in favour of defence and defence-related spending is over five times higher than the developing country average (Economist Intelligence Unit 1995b). In these circumstances, it is not necessary to be an econometrician to recognize that efforts to sustain defence spending places limits upon the resources available for social development programmes.

Table 3 shows the pattern of education and health expenditure in Pakistan relative to the average witnessed in the developing countries. Table 3 demonstrates that the levels of provision in both health and education are well below the developing country average. Education as a proportion of GDP is two-thirds the average for developing countries. As a result, the school age population per teacher is more than twice that of the developing

Table 3: Education and health provision in Pakistan		
		Developing
		country
Indicator	Pakistan	average
Education		
% of GNP	2.6	3.9
school age population per		
teacher	122	49
female literacy rate (%)	21	57
male literacy rate (%)	46	76
Health		
% of GNP	0.2	1.6
population per physician	1879	1629
infant mortality rate	94	75
underweight under-fives (%)	40	34
access to sanitation (%)	24	57
Sources: Sivard 1993; UNDP 1995.		

country average. Indeed, the average level of spending per pupil is only half that of the developing country average. The impact of this level of funding is witnessed in low literacy rates. In particular, the female literacy rate stands at only 21 per cent; many claim this figure to be an overstatement, as it includes those who can only write their name. In many ways, the health care situation is even worse. Health spending comprises only 0.2 per cent of GNP, a mere one-eighth of the developing country average. The result is that the numbers of people per physician exceeds the average for the developing countries. The impact of inadequately-resourced health provision is witnessed in infant mortality rates which are twenty-five per cent higher than the developing country average. Indeed, only a quarter of the population has access to sanitation.

It is recognized in Pakistan the 'sizeable allocation to defence...is to the detriment of other

sectors' (Cheema 1995: 2b). Once again, this is not to say that there is a negative one-to-one correspondence between social expenditure and defence expenditure. Rather, it is to emphasize that there must be a tradeoff at work here. By devoting large amounts of scarce resources to sustain defence spending Pakistan has had fewer resources to devote to enhancing productivity-fostering social development. The inability to foster social development is an important structural constraint facing the Pakistani state.

VI. CONCLUSION

This paper has examined the developmental impact of the arms race between India and Pakistan. It has outlined the theoretical debate on the relationship between defence spending and economic development. It has outlined the origins of the cold war between India and Pakistan and examined the evidence concerning defence and defence-related spending in the two countries. It has examined the development of the defence and defence-related industrial sectors in both countries, and critically evaluated the forward and backward linkages created by such sectors. Finally, it has examined the social implications of defence spending, arguing that devoting expenditure to the defence and defence-related sectors must reduce the quantities of resources available for social development programmes. From the foregoing argument, it appears clear that the allocation of spending to the defence and the defence-related industrial sectors is detrimental to the economic development of both countries. The non-employment multipliers generated by the defence and defence-related industrial sector appears limited in both India and Pakistan. India remains heavily reliant on foreign technology and is marked by a lack of success in producing high technology arms and munitions systems. In Pakistan much defence expenditure continues to be devoted to imports; the defence industry that has been created occupies lower value-added branches of economic activity. Moreover, in both India and Pakistan the inherent fungibility of limited government resources means that spending on the defence and defence-related industrial sectors detracts from expenditure on social provision.

Both India and Pakistan require security. However, this paper has sought to demonstrate that the level of defence and defence-related expenditure, all too often seen in the region as immutable, is an obstacle to the economic development necessary to foster economic security. In order to boost economic security, it is necessary for the two major countries of south Asia to transcend the militarisation of their respective economies. Under the aegis of the South Asian Association for Regional Cooperation, a number of regional initiatives have led to a slight improvement in the economic relationship between the two countries. However, these limited yet significant measures have been largely offset by India's unwillingness to accede to the Non-Proliferation Treaty or to sign the Comprehensive Test Ban Treaty agreed in September 1996. The Indian government argues that it is seeking

global de-nuclearisation on a non-discriminatory basis. Unfortunately, this argument sits uncomfortably with India's consistent rejection of proposals for a regional non-proliferation agreement or a regional no-war pact (Carranza 1996). Obviously, the obstacles to achieving economic security remain formidable. However, the India-Pakistan arms race is anti-developmental. Therefore, it is necessary that such obstacles be overcome.

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