

# **THE DEMAND FOR MILITARY SPENDING IN SOUTH AFRICA<sup>1</sup>**

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## **Introduction**

From the early 1960s, following the imposition of apartheid policies and the use of the military to defend white minority rule, the South African state and society became increasingly militarized. This process of militarization gathered momentum in the 1970s and 1980s, which was shown by increasing levels of military spending and the establishment of a domestic arms industry. However, since the late 1980s and early 1990s, a distinct process of demilitarization in South and Southern Africa has emerged. This was the result of the end of the cold war, the dismantling of apartheid, and South Africa's democratic transition. This process of demilitarization included dramatic cuts in military spending, the downsizing of the armed forces, and the strengthening of civilian control over the armed forces. Between 1989 and 1996 South Africa's defence budget was reduced by more than 50% in real terms, with most of the reductions affecting the procurement budget which was cut by more than 70% in real terms. Despite the budget cuts, South Africa remains the continent's largest military spender in absolute terms, and in 1995 accounted for more than 70% of total military spending in Southern Africa.

This history makes South Africa a valuable case study for research on the demand for military spending. It is a society that has undergone rapid and extensive militarisation and is now experiencing a relatively rapid reduction in military spending. The South African case provides a unique opportunity to investigate whether a general theory of the demand for military spending can explain the pattern of spending, or whether the individual factors within the economy and society preclude the use a general model.

To this end this paper considers the process by which South Africa's military burden became extremely high and analyses the manner in which the country's defence budget was cut. *Section 1* considers the trends in military spending in South Africa since 1961 and discusses the reasons for the defence cuts since 1989. *Section 2* examines the trends in government finances since 1989, both in terms of expenditure and revenue. *Section 3* analyses the changing structure of the defence budget since 1989 and *Section 4* specifies and estimates an econometric model of the demand for military spending in South Africa. Finally, *Section 5* presents some conclusions.

### **1. Trends in Military Spending, 1961-1996**

Since the 1960s the primary determinants of the demand for military spending in South Africa have been: threat perceptions and resulting national security policies; the state of civil-military relations; the relative size of the armed forces, particularly the issue of mandatory conscription for white males; and socio-economic conditions within South Africa. However, an analysis of demand for military spending during this period cannot be adequately undertaken without looking further back in history.

#### ***The Period Prior to 1961***

Between the establishment of the Union of South Africa in 1910 and 1961 when the country became a Republic, South Africa's military planners were largely concerned with internal threats. These included sporadic uprisings, such as a military rebellion of 1914 and various miners' strikes between 1913 and 1922. Following the National Party's rise to power in 1948 the policy of apartheid was methodically enforced. Domestic opposition to apartheid

was ruthlessly crushed as was reflected by the Sharpeville uprising in 1960 in which 69 people were killed and 180 injured. As a result of the domestic situation, the Permanent Force component of the Union Defence Force (UDF) was increased from just over 5,000 personnel in 1940 to 18,000 in 1960 (Seegers, 1996). In the years after 1960 the military's function became very closely intertwined with that of the South African Police (SAP).

External threat considerations only became important during the two World Wars, where South Africa was obliged to make significant contributions to the Allied war effort. In World War I South Africa sent some 76,000 soldiers to the European, North African and East African fronts. It also successfully invaded the German colony of South West Africa (now Namibia) at Britain's request and set up its own colonial administration. During World War II South Africa committed just over 400,000 military personnel to the Allied campaign. This had a dramatic impact on the share of defence spending in total government expenditure, which rose from 1.6% in 1935 to 33.8% in 1940 (Standish & Abedian, 1983). During the 1950s military spending increased significantly as a result of armaments purchases for the UDF and because of South Africa's participation in the Berlin Airlift and the Korean War.

### ***1961-1989***

Between 1961 and 1996 there have been wide variations in military spending in South Africa, in absolute terms, as a share of GDP and as a share of total government expenditure (see Appendix 1). South Africa's military burden (military spending as a % of GDP) was just over 1% in the early 1960s, but increased quite quickly to over 3% by 1964/65. This increase was a result of the start of the ANC's armed struggle and the South African security forces' attempts to contain it, as well as the South African government's efforts to circumvent the first UN arms embargo that was imposed in 1963. For instance, the size of the permanent force component of the South African Defence Force (SADF) almost doubled between 1960 and 1970. In addition, from 1960 to 1965 the defence share of total government expenditure increased from 3.2% to 7.4% (Standish & Abedian, 1983). The presence of the voluntary UN embargo severely limited the country's access to international arms sources; and provided the impetus for the establishment of a domestic arms production capability, which included the creation of the Armaments Development and Production Corporation (Armscor) in 1968.

Up until 1970 issues of civil-military relations and manpower concerns increasingly influenced the demand for military expenditure. During the late 1960s the Minister of Defence exercised a high degree of control over the domestic arms industry. In 1967 the SADF assumed political and financial control of the Department of Defence with the result that the civilian-staffed Defence Secretariat was liquidated. In 1967 the previous ballot system of conscription was abolished, with all white males becoming eligible for compulsory national military service for a period of 9 months.

During the next few years military spending declined from over 3% of GDP to around 2% in 1970/71 as the South African government was able to contain political opposition to apartheid within South Africa and Namibia.

From 1972 military spending began to increase again as a result of growing external and internal opposition to apartheid. In 1973 large-scale strikes in Durban constituted the first serious challenge to the South African government. The government responded by

increasing the length of compulsory military service to twelve months. In July 1973 the SADF took over from the South African Police the function of maintaining security in Northern Namibia, particularly against infiltration by the South West African People's Organisation (SWAPO).

The independence of Angola and Mozambique in 1975 and the establishment of Marxist governments in both these countries changed the geo-political nature of the Southern African region dramatically. In addition, South African and Namibian liberation movements began to use these two "front-line" states as springboards for their guerrilla operations. In August 1975 the SADF invaded Angola "covertly" via northern Namibia and engaged the MPLA (Popular Movement for the Liberation of Angola) government forces, the FAPLA (People's Armed Forces for the Liberation of Angola) in an operation code-named Savannah. The SADF invasion was short-lived. The material assistance promised by the United States never materialised, and by January 1976 Operation Savannah was terminated and the South African troops withdrawn (Seegers, 1996). For the next two years SADF operations into Angola were limited to cross-border "hot-pursuit" raids and providing financial and material support to UNITA (National Union for the Total Independence of Angola), the Angolan rebel movement.

In 1977/78 military spending peaked at 5% of GDP, and over 18% of total government expenditure. This was in response to the following developments: the 1976 Soweto uprising, which resulted in a major security crackdown within South Africa; the South African government's purchase of large amounts of weaponry prior to the imposition of the mandatory UN arms embargo (1977), and the government's implementation of "Total Strategy".<sup>2</sup> In addition, the late 1970s also saw the period of national military service being increased to two years, the start of South Africa's secret nuclear weapons programme, and the creation of homeland militaries, all at the expense of the South African taxpayer.

Military spending declined quite dramatically between 1977/78 and 1980/81 as the government successfully repressed domestic protest and unrest. However, from the mid-1980s, as a result of South Africa's increasing military involvement in Angola, Namibia and Mozambique, and the deteriorating internal security situation brought about by violent domestic opposition to apartheid, the defence budget increased again. From 1984 SADF troops were deployed in many of the country's black townships in an attempt to quell the growing political unrest, and in 1985 a state of emergency was declared. Military spending peaked again in 1989/90 at 4% of GDP and 13% of total government expenditure, and then declined quite dramatically after 1989.

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<sup>2</sup> Key decision-makers within the South African security establishment, influenced by the Cold War mentality, saw South Africa as an intrinsic component of Western society, whose duty it was to repel the global spread of communism. These policy makers perceived South Africa to be of vital strategic importance to the West due to its geographic location, mineral wealth, highly developed infrastructure, strong economy, and its anti-Communist stance. The impact of this perception was that a security ideology that envisaged the South African state as the target of a "total communist onslaught" directed from Moscow began to develop within Pretoria's corridors of power. As the Soviet Union was engaged in a "total onslaught", the South African State's response needed to be equally comprehensive, co-ordinated and total. In order to achieve this co-ordinated response an elaborate network of security committees called the National Security Management System (NSMS) was established as a shadow or clandestine administration.

Between 1989/90 and 1996/97 South Africa's defence budget was cut by more than 50% in real terms, and declined by an average of more than 9% per annum between 1989/90 and 1996/97. Defence spending as a share of total government spending declined from 13% in 1989/90 to less than 6% in 1996/97 and as a share of GDP from 4% to less than 2% during the same period. By 1996/97 military spending in South Africa was at the same level as it had been during the early 1970s (see table I).

The cuts in defence spending were achieved as a result of and in conjunction with a variety of disarmament measures. The SADF was rationalised and restructured, conscription was terminated, various units were disbanded and a number of military bases and installations were closed and/or scaled down. In addition many of the SADF's major procurement projects were cancelled or postponed; large numbers of SADF and Armscor personnel were retrenched between 1989 and 1993, and the country's nuclear weapons programme was terminated in 1989. The reasons for the cuts in defence spending will be discussed in the next section.

**Table I. South Africa's Defence Budget, 1989/90-1996/97**

Figures are in Rand Million in constant 1990 prices. Figures in italics are in percentages.

| Year                     | 1989/90     | 1990/91      | 1991/92      | 1992/93     | 1993/94      | 1994/95    | 1995/96      | 1996/97      | Avg.<br>1989/96 |
|--------------------------|-------------|--------------|--------------|-------------|--------------|------------|--------------|--------------|-----------------|
| Defence Budget           | 11435       | 10070        | 8094         | 7605        | 6589         | 7153       | 6234         | 5593         |                 |
| % change                 |             | <i>-11.9</i> | <i>-19.6</i> | <i>-6.0</i> | <i>-13.4</i> | <i>8.6</i> | <i>-12.9</i> | <i>-10.3</i> | <i>-9.4</i>     |
| Defence/<br>GDP (%)      | <i>4.1</i>  | <i>3.6</i>   | <i>3.0</i>   | <i>2.8</i>  | <i>2.4</i>   | <i>2.6</i> | <i>2.2</i>   | <i>1.9</i>   | <i>2.8</i>      |
| Defence/<br>Govt.Exp (%) | <i>13.0</i> | <i>12.4</i>  | <i>9.8</i>   | <i>8.4</i>  | <i>6.8</i>   | <i>8.1</i> | <i>6.8</i>   | <i>5.8</i>   | <i>8.8</i>      |

Source: Printed Estimate of Expenditure (Department of State Expenditure: Pretoria, various years), Quarterly Bulletin (South African Reserve Bank: Pretoria, various years).

## 2. Reasons for Cuts in Defence Spending

The reasons for government's decision to cut defence spending in the period after 1989 was largely determined by a changed strategic, political and economic environment. This section examines the various reasons in greater detail.

### *The End of the Cold War*

South Africa's strategic environment changed dramatically after 1989. The end of the cold war effectively terminated superpower proxy wars in the developing world, including Southern Africa. The cessation of East-West confrontation was accompanied by a reduction in ideological tensions within and between African countries, a reduction in military related aid, and the emergence of political pluralism in certain Southern African countries, namely Malawi and Zambia (Nathan, 1993). In addition the decision-making capacity of the South African state was emancipated from the restrictive anti-communist mindset that characterized the cold war epoch.

## ***Move Toward Regional Co-operation, Democratisation and Demilitarisation***

The loss of South African air superiority in Angola and the SADF's subsequent setback at the Battle of Cuito Cuanavale (1988) was a turning-point in South Africa's regional military strategy. These developments prompted Pretoria to reassess its military involvement in the Angolan war. After a series of negotiations between South Africa, Angola and Cuba, Cuba and South Africa agreed to withdraw their armed forces from Angola and Namibia respectively, thus paving the way for Namibia's independence in March 1990 (Jaster, 1988). After 1990 South Africa formally abandoned its policy of military aggression and regional destabilization<sup>3</sup> and embarked on an ambitious programme of diplomatic and economic outreach to African states (Nathan & Phillips, 1992). These regional developments, together with the start of domestic constitutional negotiations aimed at ending apartheid and establishing a democracy in mid-1990, contributed towards a vast improvement in relations between South Africa and other Southern African states.

The healthier relations between South Africa and the rest of the region facilitated greater regional co-operation on defence and security matters. In 1992 the Southern African Development Co-ordinating Conference (SADCC), which had been established by Southern African countries to reduce their economic dependence on South Africa, transformed itself with the Windhoek Declaration into the Southern African Development Community (SADC), which included South Africa as a member state (SADC, 1992: 5). SADC committed itself to promoting greater regional integration and co-operation on a number of issues, including defence and security (Nathan & Honwana, 1995).

Between 1991 and 1994, the majority of states in Southern Africa initiated substantial political reforms, which included the creation of mechanisms that would lead to multi-party democratic systems of government.<sup>4</sup> These developments were also accompanied by the implementation of various disarmament measures in many Southern African countries, partly in response to growing pressure from international donor agencies. For example, between 1991 and 1994 full-time force levels were reduced from 58 000 to 11 000 in Mozambique, from 70 000 to 8100 in Namibia and from 54 600 to 46 900 in Zimbabwe (IISS, 1990-1995). Military expenditure levels also declined significantly in many countries in the region. In Botswana military spending fell from \$156 million in 1990 to \$126 million in 1994 (US\$ in constant 1990 prices); in Zambia from \$74 million to \$31 million; and in Zimbabwe from \$388 million to \$242 million (George, 1996).

### ***Domestic Reforms***

The election of the National Party's F. W. de Klerk as State President in 1989 was a turning point in South Africa's political history. In February 1990 de Klerk initiated an unprecedented process of reform. All opposition groups, including the ANC, were

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<sup>3</sup> Despite formally abandoning its policy of support to UNITA and RENAMO, evidence has emerged that South Africa, or elements within the South African state, continued to provide covert support to RENAMO up to the signing of the Rome Agreement in 1992 and to UNITA up to the elections in South Africa in Apr. 1994.

<sup>4</sup> The countries in question were Angola, Lesotho, Malawi, Mozambique, Namibia, Tanzania and Zambia. Botswana was the only multi-party democracy in Southern Africa before 1991.

unbanned. Political prisoners, such as Nelson Mandela, were released. The national state of emergency, which had been imposed in 1986, was lifted. Indemnity was granted to hundreds of anti-apartheid activists in exile and many of the prohibitions against political activities such as public demonstrations and marches were scrapped (Nathan & Phillips, 1992: 114-116). In 1991 the remaining legislative cornerstones of apartheid were abolished (examples required). These political reforms created the appropriate conditions for the process of constitutional negotiations, which started with the Convention for a Democratic South Africa (CODESA I) in late 1991 and ended with the holding of South Africa's first democratic elections in April 1994.

### ***Economic Conditions***

By 1989 South Africa's economic state of affairs had deteriorated dramatically. This was the result of a prolonged period of trade and financial sanctions; the dysfunctional nature of the apartheid economic system, characterized by great disparities between whites and blacks in terms of wealth, income, health, education, housing and land; and high levels of military spending (Ohlson, 1995: 121; (Gelb, 1991; Schrire, 1991; Simkins, 1994). For the next four years South Africa endured a recession, the longest and devastating since the Great Depression of the 1930s. It was influenced by the global recession, particularly among South Africa's major trading partners; the government's inability to control expenditure, which aggravated domestic inflation; a severe drought in 1992-93 which required food imports; high levels of domestic political violence which accompanied the transition to democracy; and uncertainty surrounding the possible implementation of socialist economic policies by a future ANC Government.

The deterioration in the country's economic situation between 1989 and 1993 was instrumental in bringing about cuts in defence spending. In addition the real decline in government revenue, including tax revenue, imposed severe constraints on the absolute levels of government spending. Furthermore, the government's spending priorities began to change with increasing importance being attached to social services (e.g. education, health, housing, and welfare).

Since April 1994, the new ANC-led government has continued to reduce defence spending. These cuts have been informed by the government's stated commitment to development (articulated in the Reconstruction and Development Programme); the prioritization of social spending and a commitment to fiscal discipline by reducing the budget deficit.

### **3. Trends in Government Finances (Revenue and Expenditure), 1989-1996**

Conventional thinking states that a reduction in military spending as a share of total government expenditure frees resources which can be used for other purposes. For example, these resources can be reallocated to other forms of government spending or can be used to reduce the budget deficit (Gleditsch et al, 1997). This section analyses the trends in government finances (both revenue and expenditure) between 1989 and 1996 to ascertain what happened to the resources that were released as a result of the reduction in defence spending.

On the revenue side, Table II reveals a marked real decline in government revenue between 1989/90 and 1992/3, with growth in the later period. Despite this growth the 1996/7 revenue level was only marginally higher than levels of the late 1980s. For the period 1989/90 to 1996/97 the average growth of government revenue was less than 1% per annum.

As Table II indicates, there was a slight decrease in real terms in total government expenditure between 1989/90 and 1991/92. There was a recovery in 1992/93 followed by a period of growth up until 1996/97, with the exception of 1994/95. The average annual growth of total government expenditure during this period was 1.5% per annum.

Between 1989/90 and 1992 there was a significant increase in the budget deficit, as well as in the size of government debt. This was due to the recession and the fact that total expenditure expanded while government revenue had decreased substantially. There was a marginal decline in the size of the budget deficit in 1990/91, but between 1991/92 and 1993/94 the deficit expanded to 29% of total expenditure, its highest point ever. This was the result of the costs associated with South Africa's transition to democracy. From 1993/94, with the introduction of tighter fiscal policies, the deficit was gradually brought under control as a result of tighter fiscal policies, and by 1996/97, the deficit had almost been curtailed to the 1991/92 level.

The absolute size of total government debt (both domestic and foreign) continued to grow after 1989/90, largely as a result of the unavoidable increases in government expenditure during 1992/93 and 1993/94. By the mid-1990s South Africa was heading for a 'debt trap'. In 1995/96 government debt as a percentage of GDP peaked at 56% before declining slightly in 1996/97. Most of South Africa's government debt is domestic in origin as South Africa, due to financial sanctions, was prevented from borrowing on international capital markets during the apartheid era. For instance, in 1996/7 95% of total government debt was owed to domestic financial institutions.

**Table II. Government Finance Statistics, 1989/90-1996/97**

Figures are in Rand Million in 1990 constant prices. Figures in italics are in percentages.

| Year                   | 1989/90 | 1990/91      | 1991/92     | 1992/93     | 1993/94     | 1994/95      | 1995/96    | 1996/97     | Avg:<br>1989-96 |
|------------------------|---------|--------------|-------------|-------------|-------------|--------------|------------|-------------|-----------------|
| Revenue                | 75420   | 72116        | 68722       | 65023       | 68356       | 72416        | 74604      | 79590       |                 |
| % change               |         | <i>-4.4</i>  | <i>-4.7</i> | <i>-5.4</i> | <i>5.1</i>  | <i>5.9</i>   | <i>3.0</i> | <i>6.7</i>  | <i>0.9</i>      |
| % of GDP               | 26.3    | 25.4         | 24.4        | 23.9        | 24.5        | 25.2         | 25.3       | 26.0        | 25.1            |
| Expenditure            | 87913   | 81380        | 82480       | 90343       | 96718       | 88374        | 91659      | 96108       |                 |
| % change               |         | <i>-7.4</i>  | <i>1.4</i>  | <i>9.5</i>  | <i>7.1</i>  | <i>-8.6</i>  | <i>3.7</i> | <i>4.9</i>  | <i>1.5</i>      |
| % of GDP               | 30.7    | 28.7         | 29.2        | 33.1        | 34.6        | 30.7         | 31.1       | 31.4        | 31.2            |
| Deficit                | 12493   | 9264         | 13759       | 25321       | 28363       | 15958        | 17055      | 16519       |                 |
| % change               |         | <i>-25.8</i> | <i>48.5</i> | <i>84.0</i> | <i>12.0</i> | <i>-43.7</i> | <i>6.9</i> | <i>-3.1</i> | <i>11.2</i>     |
| % of GDP               | 4.4     | 3.3          | 4.9         | 9.3         | 10.2        | 5.5          | 5.8        | 5.4         | 6.1             |
| Deficit/<br>Expend (%) | 14.2    | 11.4         | 16.7        | 28.0        | 29.3        | 18.1         | 18.6       | 17.2        | 19.2            |
| Govt. Debt             | 110513  | 105656       | 111555      | 121211      | 135610      | 157613       | 165046     | 168945      |                 |
| % change               |         | <i>-4.4</i>  | <i>5.6</i>  | <i>8.7</i>  | <i>11.9</i> | <i>16.2</i>  | <i>4.7</i> | <i>2.4</i>  | <i>6.4</i>      |
| % of GDP               | 38.6    | 37.2         | 39.5        | 44.5        | 48.6        | 54.8         | 56         | 55.3        | 46.8            |

Source: *Budget Review 1997* (Department of Finance: Pretoria, 1997)

Between 1989/90 and 1996/97, the trends in government finances, particularly the declines in revenue and the increases in expenditure, had a significant impact on the size and structure of the defence budget.

As Table III shows, between 1989/90 and 1994/95 defence as a share of total government spending (consolidated general government) gradually declined by almost 6 percentage points, from 13.9% in 1982/3 to 8.1% in 1994/5. If there has been any 'peace dividend' in South Africa then it has been during this period.

Defence was not the only category to undergo a reduction in its share in total government spending during the period 1989/90 to 1994/95. Transport and communication fell by almost 5 percentage points, though this was mainly the result of changes in the earlier period and probably reflects the distortions caused by apartheid transport policies.

From Table III it can be postulated that the main beneficiaries of the decline in defence since 1989/90 have been education, which increased by over 2.6 percentage points between 1989/90 and 1994/5, social security and welfare, with an increase of almost 3 percentage points, and public order and safety, with an increase of 2 percentage points over the same period. The increases in education as well as social security and welfare reflect the change in government's spending priorities, that of a prioritization of socio-economic issues. The increases in public order and safety were a response to the increasing levels of crime and violence, which have accompanied the political transition. The figures for fuel and energy are ignored because they reflect a number of one off events, such as the development of offshore oil and natural gas exploration capabilities (Mosgas) and the sale of strategic oil reserves that were built up during the presence of the oil embargo.

**Table III. Consolidated General Government: Shares of Expenditure, 1982/83-**

## 1994/95

| Category                               | 1982/83 | 1989/90 | 1994/95 |
|--|---------|---------|---------|
| General Public Services                | 8.3     | 9.2     | 10.9    |
| Defence                                | 13.9    | 13.0    | 8.1     |
| Public order and safety                | 5.5     | 6.8     | 8.8     |
| Education                              | 17.7    | 17.7    | 20.3    |
| Health                                 | 9.8     | 8.9     | 9.1     |
| Social security and welfare            | 6.2     | 6.3     | 9.2     |
| Housing and community services         | 4.8     | 4.4     | 3.4     |
| Recreation and culture                 | 1.7     | 1.3     | 1.5     |
| Fuel and energy                        | 0.2     | 0.2     | 4.5     |
| Agriculture, forestry and fishing      | 3.4     | 2.4     | 1.9     |
| Mining, manufacturing and construction | 2.4     | 3.0     | 0.9     |
| Transportation and communication       | 10.1    | 6.0     | 5.1     |
| Other economic activities              | 1.5     | 2.4     | 2.7     |
| Not classified: Interest on Govt. Debt | 12.9    | 12.4    | 13.6    |
| Other                                  | 1.5     | 6.2     | 1.3     |
| Total 1985 prices                      | 36785.6 | 50735.4 | 56314.9 |

Source: South African Reserve Bank, Quarterly Bulletin, various issues.

The changes in shares for the various categories of government spending in Table III are reflected in the patterns of growth in real expenditure in Table IV. Total expenditure grew on average by 2.9% in real terms over the whole period, with 3.2% in 1982/3-1989/90 declining to an average of 2.7% in the later period.

While defence declined by 2.3% over the whole period, its annual average decline was much higher in the later period at 8% in real terms. In addition, mining, manufacturing and construction declined by over 15% mainly because of the reduction in regional industrial incentives and the General Export Incentive Scheme (GEIS) (Budget Review 1997), while the category non-classified "other" declined by 8% mainly as a result of the administrative costs of the transition to democracy.

In contrast, some categories showed significantly higher growth rates in the second period. Social Security and Welfare grew by almost 14%, in contrast to 5% in the earlier period, while Recreation and Culture jumped from 0.7% in the first period to nearly 6% growth in the second period. Most of the other increases were largely consistent across the two periods.

**Table IV. Consolidated General Government: Average Annual Growth Rates, 1982/83-1994/95**

Figures are in percentages.

| Category                | 1982/83-1994/95 | 1982/83-1989/90 | 1989/90-1994/95 |
|-------------------------|-----------------|-----------------|-----------------|
| General Public Services | 8.5             | 6.76            | 8.6             |
| Defence                 | -2.3            | 3.43            | -8.0            |

|  |            |            |            |
|--|------------|------------|------------|
| Public order and safety                | 7.9        | 8.20       | 7.3        |
| Education                              | 4.9        | 4.75       | 5.4        |
| Health                                 | 3.1        | 3.45       | 3.0        |
| Social security and welfare            | 9.2        | 4.99       | 13.9       |
| Housing and community services         | 1.5        | 4.32       | -2.0       |
| Recreation and culture                 | 2.9        | 0.66       | 5.9        |
| Fuel and energy                        | 95.1       | 15.26      | 171.6      |
| Agriculture, forestry and fishing      | 2.7        | 0.75       | 2.1        |
| Mining, manufacturing & construction   | -3.0       | 8.85       | -15.3      |
| Transportation and communication       | -1.8       | -2.51      | -0.6       |
| Other economic activities              | 10.7       | 13.52      | 6.1        |
| Not classified: Interest on Govt. Debt | 4.4        | 4.49       | 5.7        |
| Other                                  | 10.4       | 31.03      | -8.0       |
| <b>Total Expenditure</b>               | <b>2.9</b> | <b>3.2</b> | <b>2.7</b> |

Source: South African Reserve Bank, Quarterly Bulletin, various issues.

Overall, it would appear that the cuts in defence spending since 1989/90 have led to a reallocation amongst other categories of government spending, most notably social security and welfare, education and public order and safety. Clearly, we have not proved any causality, but have simply suggested that a reallocation resulting from the defence cuts is not inconsistent with the data. We have not conditioned on the possibility of other occurrences, which might explain the trends in the shares.

#### **4. Changing structure of the defence budget, 1989-1996**

The cuts in overall defence spending after 1989 were also accompanied by significant changes in the structure of the defence budget.

**Table V. Structure of Defence Budget, 1989/90-1996/97**

Figures are in Rand Million current prices. Figures in italics are in percentages.

| Year              | TOTAL | Personnel | % total     | Operating | % total     | Procurement | % total     |
|-------------------|-------|-----------|-------------|-----------|-------------|-------------|-------------|
| 1989/90           | 9937  | 1872      | <i>18.8</i> | 2249      | <i>22.6</i> | 5816        | <i>58.6</i> |
| 1990/91           | 10070 | 2136      | <i>21.2</i> | 2188      | <i>21.7</i> | 5746        | <i>57.1</i> |
| 1991/92           | 9187  | 2539      | <i>27.6</i> | 2475      | <i>26.9</i> | 4173        | <i>45.5</i> |
| 1992/93           | 9704  | 2707      | <i>27.9</i> | 2614      | <i>26.9</i> | 4383        | <i>45.2</i> |
| 1993/94           | 9337  | 2952      | <i>31.6</i> | 2645      | <i>28.3</i> | 3740        | <i>40.1</i> |
| 1994/95           | 11102 | 4290      | <i>38.6</i> | 3719      | <i>33.5</i> | 3093        | <i>27.9</i> |
| 1995/96           | 10535 | 3561      | <i>33.8</i> | 3460      | <i>32.8</i> | 3514        | <i>33.4</i> |
| 1996/97           | 10246 | 4292      | <i>41.9</i> | 4100      | <i>40.0</i> | 1854        | <i>18.1</i> |
| Average           |       |           |             |           |             |             |             |
| 1961/62-<br>96/97 |       |           | <i>24.3</i> |           | <i>30.1</i> |             | <i>45.6</i> |
| 1989/90-<br>96/97 |       |           | <i>30.2</i> |           | <i>29.1</i> |             | <i>40.7</i> |

Source: *Printed Estimate of Expenditure* (RP2 and 4, Second and Final Print), (Department of State Expenditure: Pretoria, various years).

Personnel spending as a share of total military expenditure grew from 18% in 1989/90 to nearly 42% in 1996/97, and averaged 30% during the whole period. This gradual increase can be attributed costs associated with the downsizing and rationalization of the SADF and the creation and development of the new South African National Defence Force (SANDF). The SANDF was initially comprised of 90 000 personnel from the SADF, 11 000 from the former TBVC (Transkei, Bophutatswana, Venda and Ciskei) defence forces, and 22 000 from the liberation armies of the ANC and the PAC.

Operating expenditure as a share of total expenditure almost doubled after 1989, from 22% in 1989/90 to 40% in 1996/97. This was due to the following three reasons: the armed forces' internal deployment in support of the police; additional costs associated with the rationalization of the SADF between 1989 and 1993; and the creation of SANDF. The share of procurement declined dramatically from 58% in 1989/90 to less than 20% in 1996/97. The cancellation and postponement of major procurement contracts and the fact that the procurement budget was the hardest hit by the cuts in the absolute size of the defence budget were the major contributing factors to this trend.

Personnel expenditure grew by an average of 2.4% per annum between 1989/90 and 1996/97. During the same period the growth of operating expenditure declined by an average of 1%, while the growth of procurement expenditure declined by nearly 22%. The overall defence budget declined by an average of more than 9% per annum.

**Table VI. Structure of Defence Budget: 1989/90-1996/97**

Figures are in Rand Million in 1990 prices. Figures in italics are in percentages.

| Year                           | Total | % change     | Personnel | % change     | Operating | % change     | Procurement | % change     |
|--------------------------------|-------|--------------|-----------|--------------|-----------|--------------|-------------|--------------|
| 1989/90                        | 11435 |              | 2154      |              | 2588      |              | 6693        |              |
| 1990/91                        | 10070 | <i>-11.9</i> | 2136      | <i>-0.8</i>  | 2188      | <i>-15.5</i> | 5746        | <i>-14.1</i> |
| 1991/92                        | 8094  | <i>-19.6</i> | 2237      | <i>4.7</i>   | 2181      | <i>-0.3</i>  | 3677        | <i>-36.0</i> |
| 1992/93                        | 7605  | <i>-6.0</i>  | 2121      | <i>-5.2</i>  | 2049      | <i>-6.1</i>  | 3435        | <i>-6.6</i>  |
| 1993/94                        | 6589  | <i>-13.4</i> | 2083      | <i>-1.8</i>  | 1867      | <i>-8.9</i>  | 2639        | <i>-23.2</i> |
| 1994/95                        | 7153  | <i>8.6</i>   | 2764      | <i>32.7</i>  | 2396      | <i>28.4</i>  | 1993        | <i>-24.5</i> |
| 1995/96                        | 6234  | <i>-12.9</i> | 2107      | <i>-23.8</i> | 2047      | <i>-14.6</i> | 2079        | <i>4.3</i>   |
| 1996/97                        | 5593  | <i>-10.3</i> | 2343      | <i>11.2</i>  | 2238      | <i>9.3</i>   | 1012        | <i>-51.3</i> |
| Average<br>1989/90-<br>1996/97 |       | <i>-9.4</i>  |           | <i>2.4</i>   |           | <i>-1.1</i>  |             | <i>-21.6</i> |

Source: *Printed Estimate of Expenditure* (RP2 and 4, Second and Final Print), (Department of State Expenditure: Pretoria, various years).

The structure of the defence budget, in terms of programmes, also changed after 1989, reflecting the country's new strategic, political and economic realities, and the defence force's new roles and functions.

As Table VII shows, the share of the Special Defence Account, which is used to fund all procurement projects, declined quite considerably from 58% in 1989/90 to 18% in 1996/97. The share of the General Support programme also declined after 1989/90 with the withdrawal of troops from Angola and Namibia. All other programmes experienced increases in their shares. The Landward Defence programme (the army) saw the most significant increase in its share after 1989/90. This was because the army became increasingly involved in supporting the police (public order policing, border patrol) and the integration of the SANDF predominately taken place within the army.

**Table VII. Structure of Defence Budget by Programmes, 1989/90-1996/97**

Figures are in percentages.

| Year                 | 1989/90 | 1990/91 | 1991/92 | 1992/93 | 1993/94 | 1994/95 | 1995/96 | 1996/97 |
|----------------------|---------|---------|---------|---------|---------|---------|---------|---------|
| Command & Control    | 2.0     | 2.1     | 2.8     | 2.9     | 3.1     | 3.6     | 4.0     | 4.6     |
| Landward Defence     | 12.6    | 17.6    | 22.0    | 22.6    | 26.0    | 37.0    | 27.5    | 34.6    |
| Air Defence          | 10.3    | 11.8    | 15.8    | 15.5    | 15.4    | 14.9    | 16.5    | 19.7    |
| Maritime Defence     | 3.8     | 4.2     | 5.0     | 5.4     | 6.4     | 5.9     | 6.3     | 7.0     |
| Medical Support      | 2.8     | 3.2     | 4.2     | 4.3     | 5.4     | 7.7     | 6.7     | 10.0    |
| General Support      | 10.0    | 4.0     | 4.8     | 4.1     | 3.6     | 3.0     | 5.6     | 6.0     |
| Special Defence A/c* | 58.5    | 57.1    | 45.4    | 45.2    | 40.1    | 27.9    | 33.4    | 18.1    |
| Total                | 100     | 100     | 100     | 100     | 100     | 100     | 100     | 100     |

Note: \* The Special Defence Account is used to fund all procurement projects.

Source: *Printed Estimate of Expenditure* (RP2 and 4, Second and Final Print), (Department of State Expenditure: Pretoria, various years)

## 5. Modeling the Demand for Military Spending

There are two broad groups of empirical studies in the literature on the determinants of military spending. First, there are the models developed from the action-reaction framework of Richardson (1960). Mostly these models are used to deal with countries undergoing arms races and are of more limited use empirically. Second, there are studies that focus upon the economic, political and military determinants of military spending. These models have tended to be more useful for developing countries, and the most satisfactory of these have tended to take a comprehensive approach combining all economic, political and military influences and operationalising as many as possible. The studies also vary from cross-country studies to case studies of individual countries. Dunne (1996) provides an overview of the literature on the demand for military expenditure in developing countries.

In the light of the discussion in *Section 1* on the trends in South Africa's military spending since 1961, and having identified some of the key political, strategic and economic events which may have influenced the trends in military spending, it is possible to investigate the determinants of the demand for military expenditure in South Africa between 1961 and 1996 using regression analysis. (The data for military expenditure between 1961 and 1996 is contained in Appendix 1).

By using regression analysis it is possible to consider the conditional impact of various factors on military spending and to determine to what extent general features of our understanding of the demand for military expenditure are of value and to what extent specific country factors might dominate them. Thus, it will be possible to identify whether the demand for military spending in South Africa is determined by specific country factors (e.g. sanctions, embargoes), or by more general features (e.g. GDP growth).

Using the standard neo-classical model of the demand for military spending outlined in Smith (1995):

$$W = W(S, C, N, Z)$$

Where welfare  $W$  is a function of security  $S$ , economic variable such as consumption  $C$ , population  $N$  and other variables  $Z$ , which pick up other relevant factors. This function is maximised subject to a budget constraint;

$$Y = p_c C + p_m M$$

where  $p_c$  and  $p_m$  are the prices of real military spending and consumption and a security function:

$$S = S(M_1, \dots, M_n, ZS)$$

Which sees security as a perceived sense of security that is unobservable but is a function of a set of other variables including the military spending of other countries, both allies and enemies, and other strategic factors  $ZS$ . Solving this optimisation problem will give a derived demand function for military spending:

$$M = M(P_m/P_c, Y, N, M_1, \dots, M_n, ZS, Z)$$

Where Z is other factors. Ignoring N, ZS and Z and assuming a Stone-Geary welfare function of the form:

$$W = \alpha \log(C) + (1-\alpha) \log(S)$$

Following Smith (1995) and assuming the state is not aggressive but faces one threatening neighbour with military forces  $M_1$  and neither has allies, its security is:

$$S = M - M^* = M - (\beta_0 + \beta_1 M_1)$$

Using the Lagrangean gives the Linear Expenditure System equations for M and C. For military spending:

$$M = (1-\alpha) Y/P_m + \alpha(\beta_0 + \beta_1 M_1)$$

Which determines military spending as a function of income, prices, preference parameters ( $\alpha$ ) and strategic parameters ( $\beta$ ). Generalising and allowing for dynamic effects following Smith (1995) the stock of military forces is defined as the depreciated sum of past expenditures

$$K_t = (1-\delta) K_{t-1} + M_t$$

where  $\delta$  is the depreciation rate. Assuming a similar measure for the other country means that security is given by

$$S_t = K_t - (\beta_0 + \beta_1 K_{1t}) = M_t - M_t^*$$

where

$$M_t^* = \beta_0 + \beta_1 [M_{1t} + (1-\delta) K_{t-1}] - (1-\delta) K_{t-1}$$

Which gives a demand function

$$M_t = (1-\alpha) (Y/P_m)_t + \alpha M_t^*$$

As stocks are not observed they can be substituted out using:

$$K_t = M_t / (1 - (1-\alpha)L)$$

Where L is the lag operator. This gives an estimating equation

$$M_t = \alpha\beta_0\delta + (1-\alpha) (Y/P_m)_t + \alpha\beta_1 M_{1t} + (1-\alpha) (1-\delta) (M_{t-1} - (Y/P_m)_{t-1})$$

In common with many studies we do not have data on military prices and so use the GDP deflator. For the moment we will ignore the military spending of other countries in the region, because of data problems. This gives us an estimating equation of the form:

$$M_t = \gamma_0 + \gamma_1 (Y/P)_t + \gamma_2 M_{1t} + \gamma_3 (M_{t-1} - (Y/P)_{t-1})$$

To operationalise this model in the present study will require some compromises because of the lack of reliable data. In common with most studies of developing countries we have no separate deflator for military spending available. Using a log linear form, this means we need to consider total output, measured by GDP in real terms (LGDP85) as well as military spending in real terms (LME85) – both are in 1985 prices. LMLGDP is LME minus LGDP85. To get a measure for military spending of the main countries which represent a threat to South Africa is very difficult given the wars in Angola and Mozambique and the unreliability of most of the data from these countries. As a proxy we use the share of military spending in GNP for the whole of Africa from ACDA (ARFMS). In addition we introduce a dummy variable for the mandatory UN arms embargo (DSANCT) which a plot of the residuals suggests is necessary. This takes the value 1 between 1977 and 1994 and zero otherwise. An analysis of the residuals suggested a further problem with the early 1960s, when South Africa became a Republic and there was a significant military build-up. We use a dummy variable (DREPUB) to capture the impact of becoming a republic in 1961.

Using a log linear form gave the following OLS results:

Dependent variable LME85  
1963 to 1994

| Regressor  | Coefficient | T-Ratio | [Prob] |
|------------|-------------|---------|--------|
| C          | -3.27       | -2.06   | [.049] |
| LGDP85     | 1.24        | 9.42    | [.000] |
| LMLGDP(-1) | .92         | 7.70    | [.000] |
| AFRMS      | .11         | 4.63    | [.000] |
| DSANCT     | -.29        | -5.30   | [.000] |
| DREPUB     | .36         | 1.53    | [.138] |

|                    |        |
|--------------------|--------|
| R-Squared          | .93641 |
| R-Bar-Squared      | .92418 |
| S.E. of Regression | .12496 |
| DW-statistic       | 2.0380 |

|                    |                  |        |
|--------------------|------------------|--------|
| Serial Correlation | CHSQ(1) = 1.0669 | [.302] |
| Functional Form    | CHSQ(1) = .16723 | [.683] |
| Normality          | CHSQ(2) = .73300 | [.693] |
| Heteroscedasticity | CHSQ(1) = 7.6722 | [.006] |

Given the simplicity of the model, it would seem to explain a surprising amount of the variance of the dependent variable, real military expenditure, with an R squared of 0.94. It suggests that there is a significant positive relation between military spending and output (GDP) with an elasticity greater than one and a positive effect of the lagged difference between military spending and GDP (which might be considered an equilibrium adjustment term). There is also a significant positive relation between South African military spending and the African military burden and a negative effect of the imposition of the UN arms embargo. This is in line with what one would expect with military spending rising with income, plus a habit persistence effect in response to external threats, an arms build up in the early 1960s and up to the imposition of the arms embargo by the UN in 1977. However,

there are problems. African military spending is a crude indicator and is dominated by South Africa's military spending and we have no military price deflator for the output term. Nevertheless, a simple model of the demand for military spending, when adjusted for some major events, would appear to provide a good explanation of the data.

## **Conclusions**

This paper has examined the demand for military spending in South Africa between 1963 and 1994 using regression analysis. In describing the trends in South Africa's military spending from the early 1960s until 1994, we highlighted the influence of various political, economic and strategic factors. Political factors included the imposition of apartheid policies and the regime's use of military force to defend white minority rule against internal and external threats. Economic factors included the costs associated with compulsory conscription for white males and the severe domestic recession between 1989 and 1993, while strategic factors included the imposition of UN arms embargoes, threat perceptions and South Africa's military involvement in neighbouring conflicts (Angola, Namibia and Mozambique).

The results of the regression analysis, using the OLS method, suggest that the trends in South Africa's military spending are explained by general factors such as a country's level of income (GDP), and external threats (as measured by neighbouring countries levels of military spending) as well as by country specific factors such as the imposition of UN arms embargoes.

While there are problems with the model, given the lack of reliable data for African military spending and the fact that there is no military price deflator for the output term, the model, as specified, does provide a good explanation of the data and the factors which have influenced the demand for military spending in South Africa since the early 1960s.

## **Appendix:**

Serial correlation test: Lagrange multiplier test of residual serial correlation

Functional form test: Ramsey's RESET test using the square of the fitted values

Normality test: Based on a test of skewness and kurtosis of residuals

Heteroscedasticity test: Based on the regression of squared residuals on squared fitted values. See Pesaran and Pesaran (1997) for details.

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### Appendix 1: South Africa Military Expenditure; 1961-1996

Figures are in Rand Million in 1985 prices. Figures in italics are percentages.

| Year    | Military Spending | % change | Military Spending/GDP(%) | Military Spending/ Govt.Spending (%) |
|---------|-------------------|----------|--------------------------|--------------------------------------|
| 1961/62 | 617               |          | 1.3                      | 7.7                                  |
| 1962/63 | 1026              | 66       | 2.0                      | 11.6                                 |
| 1963/64 | 1008              | -2       | 1.8                      | 10.5                                 |
| 1964/65 | 1886              | 87       | 3.1                      | 16.6                                 |
| 1965/66 | 1803              | -4       | 2.8                      | 15.0                                 |
| 1966/67 | 1932              | 7        | 2.9                      | 14.5                                 |
| 1967/68 | 1928              | 0        | 2.7                      | 13.0                                 |
| 1968/69 | 1776              | -8       | 2.4                      | 11.2                                 |
| 1969/70 | 1783              | 0        | 2.3                      | 11.2                                 |
| 1970/71 | 1627              | -9       | 2.0                      | 9.8                                  |
| 1971/72 | 1904              | 17       | 2.2                      | 9.2                                  |
| 1972/73 | 1821              | -4       | 2.1                      | 9.1                                  |
| 1973/74 | 2146              | 18       | 2.3                      | 10.7                                 |
| 1974/75 | 2757              | 28       | 2.8                      | 12.6                                 |
| 1975/76 | 3527              | 28       | 3.6                      | 14.3                                 |
| 1976/77 | 4441              | 26       | 4.4                      | 16.4                                 |
| 1977/78 | 4908              | 11       | 4.9                      | 18.5                                 |
| 1978/79 | 4122              | -16      | 4.0                      | 15.6                                 |
| 1979/80 | 3714              | -10      | 3.4                      | 14.1                                 |
| 1980/81 | 3546              | -5       | 3.1                      | 13.9                                 |
| 1981/82 | 4207              | 19       | 3.5                      | 15.0                                 |
| 1982/83 | 4000              | -5       | 3.3                      | 13.9                                 |
| 1983/84 | 4005              | 0        | 3.4                      | 13.9                                 |
| 1984/85 | 4365              | 9        | 3.5                      | 13.8                                 |
| 1985/86 | 4274              | -2       | 3.5                      | 13.0                                 |
| 1986/87 | 4439              | 4        | 3.6                      | 12.7                                 |
| 1987/88 | 5094              | 15       | 4.1                      | 14.1                                 |
| 1988/89 | 5452              | 6        | 4.1                      | 14.7                                 |
| 1989/90 | 5791              | 6        | 4.1                      | 13.1                                 |
| 1990/91 | 5120              | -12      | 3.6                      | 12.4                                 |
| 1991/92 | 4111              | -20      | 3.0                      | 9.8                                  |
| 1992/93 | 3834              | -6       | 2.8                      | 8.4                                  |
| 1993/94 | 3383              | -13      | 2.4                      | 6.8                                  |
| 1994/95 | 3657              | 9        | 2.6                      | 8.8                                  |
| 1995/96 | 3155              | -13      | 2.2                      | 7.7                                  |
| 1996/97 | 2824              | -10      | 1.9                      | 6.2                                  |
| 1997/98 |                   |          | 1.8                      | 5.9                                  |
| 1998/99 |                   |          | 1.5                      | 5.1                                  |

Sources: *Printed Estimate of Expenditure* (Department of State Expenditure: Pretoria, various years); *Quarterly Bulletin* (South African Reserve Bank: Pretoria, various issues); *Budget Review* (Department of Finance; Pretoria, various years).