

STRATEGY

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A Trillion Dollars and Counting: Paying for defence to 2050

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A Trillion Dollars and Counting: Paying for defence to 2050

An ASPI policy report



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North Korean soldiers march during a parade in Pyongyang, celebrating the 70th anniversary of the founding of North Korea's People's Army. AP via AAP/Katsumi Kasahara © 2002 The Associated Press

Director's introduction

The interplay between a nation's economy and its level of defence spending can be very important.

Take the Soviet Union for example. Its unexpected disintegration in 1991 had as much to do with the nation being bled dry by the Cold War as it did with the inherent inefficiencies of a centrally planned economy. Had the vast and crippling expense of maintaining military parity with the West been avoided, the Soviet Union might have delivered its people a standard of living only a little more miserable than working-class Britain in the years immediately following World War II.

Although it was carefully hidden at the time, the Soviet Union spent something like 20%, and by some estimates up to 30%, of its gross domestic product (GDP) on defence right through to the late 1980s. This was a massive diversion of wealth away from providing for the population. Even more critically, it deprived the Soviets of the investment essential for future prosperity. As they strove ever harder to match the West in high-tech armaments, the living standards of their citizens slipped further and further below Western levels, and any hope of catching up vanished as investment in non-military infrastructure dwindled. Whatever else it may have been, the Cold War was a poverty trap that helped undermine the viability of the Soviet Union.

Having observed the demise of its Soviet mentor, North Korea is only too aware of the strategic nexus between defence spending and the economy. Pyongyang's logic is difficult to fault, even if the consequences are unpalatable. Maintaining a million soldiers under arms as a bulwark against the capitalists in the south is too costly—as widespread famine and crippling poverty attest—and the regime must find either a security guarantee or a less expensive defence strategy. Unfortunately, North Korea assesses that the surest path to either goal is by going nuclear, with the added bonus that we might pay them for their wickedness.

It's highly unlikely that Australia's defence spending will ever rise to a level that would cause the deprivation experienced by the Soviets, or force the manic choices contemplated by North Korea's communist despots, but the zero sum game still applies. Although domestic defence spending adds to Australia's economic and industrial capability, every defence dollar has been diverted from somewhere else, where it could have raised today's living standards or been invested to more directly generate tomorrow's prosperity. Conversely, as Australia's economic performance rises and falls so too does the ease with which the government can sustain a given level of defence spending, all other things being equal.

With so much debate in Australia on our long-term defence strategy, including frequent calls for substantial and sustained increases to defence spending, we think it's time to look closely at the future prospects for defence costs and Australia's ability to pay. If there's going to be a train smash between our military goals and financial means, the sooner we know the better. Hence this report.

We have drawn heavily on Treasury's 2002 Intergenerational Report in preparing this report. In fact, without its bold example, we probably wouldn't have contemplated looking at defence costs decades into the future. This report has also benefited from the generous input of many in government and academia who gave their time freely. To them I extend my appreciation. Finally, my thanks go to Mark Thomson for authoring yet another publication on the Defence budget.

As always, the views expressed in this report are not to be taken as expressing the views of ASPI as an institution: responsibility for them rests with Dr Thomson, and with me.

Hugh White

Director



Photo courtesy Australian Picture Library.

Executive summary

Back in the fifties Australia spent less than \$5 billion per annum on defence as measured in today's dollars. This year we will spend more than \$15 billion. The increased cost has nothing to do with the number of personnel, which is roughly the same now as it was then. Nor does it reflect a big increase in the scale and breadth of our armed forces. In fact, in some ways they have narrowed, the RAN operated two very expensive aircraft carriers in the latter half of the fifties and none today. The simple fact is that the cost of maintaining our military forces has increased substantially over the last fifty years.

So what does the future hold? Will we be able to afford our current range and scale of military forces through to 2050 as Australia's population ages and the cost of military capability mounts? And will there be enough young people to maintain the size of the force anyway? These are critical questions given the 30 to 40 year gaps between the conception and final disposal of many items of military equipment. Future generations will have to live with, and pay for, the decisions we make today.

Demographics

The good news is that there will be more than enough people to sustain an ADF of the size we have today. Current projections of the Australian population indicate that the number of young people of recruitment age will remain more or less static out to 2050. This is because the ageing of the population entails a growing number of older people, rather than a falling number of younger ones. Even in the more pessimistic projections, there will continue to be more than 2 million people of recruitment age from which only around 6,000 people need to be found each year.

However, this is not the full picture. If the current adverse trend in full-time workforce participation by young males continues, it will get more difficult to maintain the ADF with current recruitment and retention rates. But this is ultimately a recruitment and retention problem, not a demographic one. Provided the ADF is agile and responsive it should be able to attract and keep the people it needs.

One of the first things to do is to make the ADF more representative of the broader community in terms of gender and cultural background. For example, there's a big opportunity to be had with women only accounting for 13% of the full-time ADF, and female workforce participation rates set to rise in the coming decades.

Money

Where the ageing of the population really becomes important is through its fiscal impact. Treasury's 2002 Intergenerational Report projected that by 2042 the gap between Federal revenues and spending will rise to around 5% of GDP due to a number of factors including escalating health and age related spending. This estimate assumes that defence spending will remain at around 2% of GDP. So how safe is this assumption?

There are several factors driving defence costs. Salaries continue to grow faster than inflation, just as they do in the wider economy. As do the medical and housing costs which the ADF has to cover. But the biggest cost driver is the rising cost of acquiring and operating successive generations of increasingly high-tech military equipment. We've modelled the impact of these factors and our best estimate is that by mid-century defence spending will have increased almost three-fold. Although, this implies that defence's GDP share will only grow to a bit over 2% once Australia's projected economic growth is taken into account. However, if we allow more pessimistic assumptions about the rate at which defence costs will increase, this estimate quickly rises to beyond 3% of GDP. As a result, defence spending is unlikely to lessen, and may even worsen, the government's financial woes mid-century. Given these long-term financial and economic trends, Defence efficiency is not just good housekeeping it's a strategic necessity.

In practice, the emerging fiscal gap will force policy changes in the coming years: it's simply not possible to run an ever-increasing fiscal deficit year after year. No area will be immune from the imperative to contribute to a balanced budget, including Defence. Given the long lead-times for defence capability, we need to be looking now for ways Defence can deliver military capability more efficiently.

Defence has undertaken, or rather has had imposed on it, a number of efficiency initiatives over the past fifteen years, including the Commercial Support and Defence Reform Programs. However, Defence currently has little incentive to increase its productivity. While large private sector firms routinely have to reduce their costs by hundreds of millions of dollars in response to economic pressures and market competition, Defence can always go back to government with a list of 'budget shortfalls'.

One of the key reasons for this is that Defence has an internal command economy not unlike the old Soviet Union. While the service chiefs are responsible for delivering their respective military capabilities, they can hardly be held fully to account for efficiency when much of their logistics, administrative support and facilities are managed by others over whom they have little control. It's matrix management on a \$15 billion a year scale with all the dispersed accountability that implies.

With this in mind, there are two things that can be done to improve the prospects of Defence delivering real and enduring productivity gains:

First, the efficiency with which military capability is delivered needs to be measured and goals set for its improvement. This should include benchmarking against foreign militaries, and where practical, comparable commercial entities.

Second, the service chiefs should be given full control over the resources they need to deliver their respective military capabilities. And they need to be made fully accountable for delivering productivity through incentives and sanctions.

This approach relies on the leadership and organisational skills of the military, which have been repeatedly confirmed in recent operational deployments. This is surely a better bet than relying on the current bureaucratic arrangement to prepare us for the next half century.



HMAS Melbourne, Australia's last aircraft carrier, which was decommissioned on 30 June 1982 after 26 years service in the RAN. © Defence Dept.



Chapter 1

DEFENCE AT ANY COST?

To many commentators, the question of defence spending is all too simple. You work out what is required so that the Australian Defence Force (ADF) can fight and win in any credible circumstance and you simply pay the bill. And you do this irrespective of competing demands for health, education and prudent economic management. In this view, the government (and ultimately the electorate) retains a steady appetite for national security, no matter what the cost.

If only defence planning was that simple. In reality, the affordability of defence is an integral consideration in strategic planning. This occurs in two ways:

First, affordability influences strategy at the highest level. There is no unique way to defend Australia and its interests, and different strategies come with different force structures and different price tags. Consequently, the affordability of military capabilities is an important consideration in formulating a long-term defence strategy. Much of the recent debate on Australia's strategic policy and its implications for the force structure of the ADF attests to this. If affordability were not a factor, the solution would be simple; we'd develop the capabilities to meet everyone's priorities without compromise.

Second, once an overall strategy is adopted, what remains is a serious game of risk management. Because it's impossible to guard against all possible contingencies, planning is focused on those possibilities where the product of consequence and likelihood is most dire. This requires us to accept that there are some circumstances in which we would not be able to guarantee our national interests. Such is the lot of an aspiring middle power. As the affordability of maintaining our defence capabilities falls, our acceptance of risk will rise.

To those who see defence spending as immune to the realities of the nation's finances, we suggest a trip to Garden Island naval base to count the aircraft carriers.

And yes, this does mean that there will be a larger number of contingencies in which the Australian Government would be impotent to respond, or our troops would be at greater risk. Like it or not, that's the way it is. To those who see defence spending as immune to the realities of the nation's finances, we suggest a trip to Garden Island naval base to count the aircraft carriers.

Of course, money is not the only resource whose availability needs to be factored into strategic planning. We also need to recognise the constraints imposed by the availability of skilled personnel. For Australia over the past fifty years, this has meant exploiting our advantage in technology rather than seeking to maintain several hundred thousand troops under arms, as some of our neighbours do.

To understand the affordability of defence spending requires both an estimate of future defence costs and the Commonwealth's ability to pay. Given that the time frame between the conception and final disposal of many military capabilities can be 30 or 40 years, this calls for heroic foresight. Luckily, Treasury's 2002 Intergenerational Report (IGR) explores the long-term fiscal impact of ageing on Australia over just that time frame.

The methodology of the IGR is simple: projections of Australia's population out to 2042 are used along with other key trends to estimate future economic growth, government revenues and spending. The IGR was focused on social and health spending, and assumed for simplicity that defence expenditure would remain constant at around 2% of gross domestic product (GDP) for the next 40 years.

The purpose of this ASPI policy report is to test that last assumption and explore the consequences. This is done in two stages. First, we explore the medium-term pressures on defence spending out to 2010 to establish the baseline cost of maintaining defence capabilities more or less at their current levels. Second, we extrapolate this baseline cost out to 2050 on the basis of trends in personnel, capital and operating expenses. We then compare the result with the likely fiscal situation mid-century, as projected by the IGR. To round out the analysis, we examine the impact of demographic trends on the defence workforce.

The biggest shortcoming of our approach is the possibility that Australia's strategic demand for defence capabilities will rise or fall significantly over the next four decades as history runs its course. There's no avoiding this, but as a matter of due diligence it's worth extrapolating future costs and affordability from current plans. In the absence of an alternative, this is the best bet we can make about what will happen.

We can't expect a precise result, but we can try to discern roughly the future burden that defence spending will impose on the Australian economy. That is, whether it will cost an affordable 2%, or an uncomfortable 5% or more, of GDP to maintain our current level of defence capability. This is a modest but important goal because the strategic posture we adopt today, and the investment commitments we make to enable it, will be paid for by future generations.



Chapter 2

THE PROSPECTS TO DECADE'S END

According to the 2003 Defence budget papers, defence spending will grow to \$16.7 billion by 2010-11 (in 2003-04 dollars at May 2003 prices). But several things have changed since then. Not only has the government released the results of its 2003 Defence Capability Review (DCR) which made marginal cuts to ADF capability, but they have also conceded that financial pressures remain which will be considered in the context of the upcoming budget.

In this chapter we examine the prospects for the Defence budget out to decade's end on the basis of what is publicly known about the results of the DCR and the budget pressures faced by Defence. The DCR examined both current and future ADF capabilities in the light of changing strategic priorities, along with the cost pressures faced by Defence. But while the broad military capability outcomes of the DCR were made public, the financial details were not, except for the acquisition cost bands given for projects in the new 2004 Defence Capability Plan (DCP).

Given the fragmentary and uncertain nature of the data, we can't hope for precision. The best we can hope for is to estimate a ballpark figure for defence spending at the end of the decade.

We begin by looking at the various cost pressures on the Defence budget.

Rising costs

It's convenient to discuss spending in terms of expenditure on personnel, capital investment and operating costs, and that's how we have structured the discussion that follows. Historically, personnel costs have accounted for around 40% of expenditure, while operating costs consume a little over 30% and capital investment a bit under 30% of the Defence budget.

... updates of the Defence budget from year to year failed to recognise the increasing cost of personnel.

Personnel cost pressures

Personnel costs are a prime risk area because they account for the largest share of Defence's spending, currently \$6.5 billion per year. Every 1% increase in personnel costs translates into another \$65 million that has to be found somewhere. This can mount quickly.

Throughout the 1990s, rising per capita personnel costs put pressure on the Defence budget because the indexation received by Defence did not keep pace with the real rate of increase in costs. This should not be taken to imply that Defence salaries increased out of line with community outcomes. In fact, throughout the decade the rate of increase of Defence civilian and military pay was nothing out of the ordinary. It's rather that updates of the Defence budget from year to year failed to recognise the increasing cost of personnel. Aiming to avoid this problem in the future, the 2000 White Paper allocated funding to cover 2% real growth in annual per capita personnel costs (that is, 2% above the indexation used to account for the impact of inflation).

There's just one problem: this additional funding does not begin until 2004-05. Therefore, for the first three years of the White Paper, Defence has had to find roughly \$130 million per year from elsewhere in its budget to cover the increasing real cost of personnel. By the end of this financial year, this will have compounded to create an almost \$400 million budget pressure. Beyond 2004-05, the 2% supplementation will kick in to fund future cost increases. However, this will do nothing to redress the problem that has been accumulating over the past three years, and if the recent strong growth in non-salary expenses like housing, workers compensation and health costs continues, Defence personnel funding will stay tight for the rest of the decade.

Aside from escalating per capita costs, personnel expenses can grow because of increased numbers of personnel. On the military side this is not a problem, because ADF personnel numbers are already factored into the projected budget through the White Paper and subsequent Budget initiatives.

Costs for civilian Defence personnel are another matter entirely. In the past couple of years, unplanned growth in civilian numbers has created a short-term pressure on the Defence budget. The plan is to remove the pressure by shrinking the civilian workforce from 18,400 to 17,200 over the next few years, but so far progress has been slow. A cut of more than a thousand civilian personnel was budgeted for this year, but revised estimates now predict a very slight increase because of slippage in contracting-out of 695 jobs and an unplanned net growth in positions elsewhere.

Assuming that Defence eventually manages to contain growth in personnel numbers, the key budget pressure will then be the accumulated \$400 million from rising per-capita costs, with some prospect of a modestly growing pressure from non-salary personnel expenses.

In the past couple of years, unplanned growth in civilian numbers has created a short-term pressure on the Defence budget.

Capital investment cost pressures

At the core of the 2000 Defence White Paper was a ten-year schedule of new capability development called the DCP. Defence has just released an updated version of the plan which estimates the total investment at around \$50 billion. But this does not guarantee that sufficient funds have been put aside for the acquisitions. In the past, the consistent trend has been for initial estimates to be well below the final cost of projects. So why does this happen?

First, the costs rise as the milestone of government approval looms and the full (and often expanded) scope of projects is finalised in the light of hard commercial realities. Comparing the projects or phases of projects carried forward from the original DCP to the latest version, the total aggregate cost increase amounts to 20% in only three years.

Second, after government approval, costs sometimes increase because of changed requirements or renegotiated contracts. This second mechanism is by far the least important. Recurrent media reports of multibillion dollar defence project cost blow-outs almost invariably refer to the unavoidable impact of inflation and foreign exchange movements during the five to ten years it takes to acquire military equipment. However, substantial additional funds have sometimes been needed to deliver the capability sought, such as for the follow-on projects needed to make the Collins submarines operational.

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Thus, we expect a two-stage compounding of cost escalation, one before government approval and one afterwards. As a result, capital expenditure planned for further into the future is more likely to be underestimated given the greater number of unapproved projects.

Such a pattern emerged in a recent bottom-up examination of the Pentagon's capital acquisition program by the US Congressional Budget Office. On the basis of historical project performance, the office estimated that the first four years of planned spending are at risk of rising by around 8% while the remainder of the decade is at risk of growing by around 18%. It appears that we are not alone in having difficulty in estimating and containing the cost of projects. Just like the Pentagon, our defence planners seem unable to learn from experience when it comes to anticipating the increasing cost of future projects.

As was the case with personnel, just because project costs go up doesn't mean that the Defence budget will follow suit. Indeed, last year the government said that its review of the DCP would be budget-neutral. We now know what this means: to accommodate new projects and escalating costs, some thirty-four projects with a total value of \$3.2 billion no longer appear in the plan, and the remaining sixty-five projects from the original version of the plan have been delayed by an average of around one year. It appears that the government's approach to rising project costs and new capability demands is simple: Defence will largely have to live within the funds provided in the 2000 White Paper. So, if



Collins Class submarine under construction.
© Defence Dept.

Defence is unable to contain the cost of projects, the result will inevitably be delayed and abandoned capability.

...just because project costs go up doesn't mean that the Defence budget will follow suit.

It would be all too easy to accuse the government of stepping back from its plans to develop ADF capabilities in the light of increasing costs, but this would be unfair. To begin with, the DCR was not just about accommodating rising costs; it also sought to rebalance the priorities inherent in the plan because of changed strategic circumstances. Even so, the extent of project deferrals is hard to explain on this basis alone.

But there is another factor to be taken into account. Defence's performance in delivering acquisition projects over the past several years has been so poor that an increase in funding for new equipment at this time would be ill advised. In only three years, more than \$1.3 billion of planned capital investment has been deferred because Defence simply can't spend the money, including \$500 million announced in February this year.

Until the reforms under way following last year's Kinnaird review of defence procurement gain traction, it would not make sense to increase spending on new equipment beyond that currently planned.

Operating cost pressures

Operating costs include all defence spending other than on personnel and capital investment, and account for a bit over \$4.9 billion per year. Currently, only about 50% of operating costs can be attributed unambiguously to the direct cost of operating military equipment (repair and overhaul, inventory consumption and so on). The other 50% represents the cost of things like facilities maintenance, consultants, travel, utilities, and general goods and services. The impact of inflation on this latter category should be covered by the routine indexation of the Defence budget. After all, there is no reason why these essentially civil costs should rise any faster than costs in the broader economy. In contrast, the cost of operating military equipment—usually referred to somewhat imprecisely as logistics—is another question.

The White Paper explicitly provided funds for the operating costs of new capabilities. Nevertheless, the government allocated an additional \$1.1 billion over five years to logistics in the 2003-04 Defence budget. This new money addresses cost pressures in pre-existing and newly introduced capabilities, and covers the demands of increased preparedness. It does not, however, include the cost of operational deployments, which are funded separately and directly.

We might hope that such a substantial boost to logistics would put an end to the matter, at least for the immediate future. It may not, for two reasons. First, Defence's understanding of the cost of operating military equipment is still fragmentary, and until costs are properly understood the potential for further unanticipated increases remains. It appears that almost every time a new capability enters service it costs more than expected. Second, the recent funding boost was restricted to specific parts of the ADF and missed many areas where we might expect costs to grow as the equipment ages. This is a particular concern because the White Paper did not provide for the increasing cost of operating military equipment as it gets older.

...the government has announced the early retirement of the F-111 strike reconnaissance fleet in 2010 and the decommissioning of two of the Navy's frigates in the next couple of years.

As part of the DCR, the government announced the early retirement of the F-111 strike reconnaissance fleet in 2010 and the decommissioning of two of the Navy's frigates in the next couple of years. In addition, two recently acquired mine hunter vessels are to be mothballed. We estimate that the indicative savings from these three initiatives will be around \$200 million, \$100 million and \$24 million per year respectively. However, these savings will only progressively become available as the assets are retired over the next six

years. These figures assume, somewhat conservatively, that neither the Navy nor the RAAF will shed any jobs as a result. If personnel numbers are reduced, the saving will be greater.

This scaling back of capability will not only reduce the number of older platforms in the ADF, but it will also free up around \$324 million for other purposes by the end of the decade. It's not known how this money has been redirected, although indications from the investment profiles in the 2004 DCP are that the money has not been allocated to the purchase of military equipment. It follows that the funds are most likely to be used to address logistics and personnel funding pressures.

Foreign exchange exposure

Defence is quarantined from the impact of foreign exchange movements through a no-win no-loss funding arrangement. Over the past few years, Defence has received several hundred million in additional funds to maintain its foreign purchasing capacity. But what goes around comes around and Defence has already handed back more than \$200 million this year as a result of the appreciation of the Australian dollar. This might not be the last time this happens. Without any convincing way to predict the value of the dollar over the next decade, the best we can do is note the risk of greater, or indeed of lesser, defence spending, due to foreign exchange movements.

Deployment costs

Defence is funded for the net additional cost of operational deployments, and this has required substantial additional funds from the government in recent years. While it makes no sense to maintain a contingency fund within the Defence budget, it's worth estimating the likely cost from a whole-of-government budget perspective.



Australian troops in Iraq © Defence Dept.

While it's impossible to accurately forecast future deployment requirements or their cost, we can be confident that the answer is not zero.

Indicative annual costs based on deployments that have arisen over the past five years are \$350 million per year for East Timor, \$200 million for the War on Terror, \$20 million for border protection and \$600 million for Iraq. Even the seemingly modest non-combat effort in Solomon Islands cost a hefty \$111 million this year. While it's impossible to accurately forecast future deployment requirements or their cost, we can be confident that the answer is not zero. Even if the cost of deployments runs at half that of the past few years of high operational tempo, it will still amount to some \$300 million per year.

What will defence cost at the end of the decade?

To model defence costs out to mid-century, we need to assume a starting point in 2010-11 based on the existing budget, known cost pressures and recent decisions. Here's what we know:

- Cost pressures on the personnel budget are around \$400 million per year, and attempts to contain civilian numbers are proving far more difficult than first thought.
- The capital investment program appears to have been rearranged more or less within the pre-existing resource envelope, with any cost increases over the past three years absorbed by deferring or cancelling projects.
- Pressures on operating costs are likely to continue because of ageing military equipment, and the ongoing discovery of just how much it costs to operate new equipment. However, this was at least partially alleviated by the extra \$1.1 billion allocated to logistics in the last Budget.
- Reductions in current capability will progressively save something like \$324 million by decade's end.
- Ongoing operational deployments will continue to require supplementation of several hundreds of millions of dollars per year.
- Defence is having trouble spending the money it has for new equipment, with more than \$1.3 billion deferred in the past three years.

With as many factors pushing up on the budget as there are pushing down, it's difficult to estimate the net impact.

With as many factors pushing up on the budget as there are pushing down, it's difficult to estimate the net impact.

We'll assume that the projection provided in last year's Budget papers is our best bet for the Defence budget in 2010-11. This is not to say that Defence will fail to get some additional funds in the next Federal budget. Many of the pressures on the Defence budget are immediate and pressing, whereas most of the planned savings don't arise until later in the decade.

All this assumes that our strategic circumstances will not deteriorate, prompting a rethink on the overall level of defence spending. This would require some sort of crisis because defence funding usually follows, and very rarely anticipates, a downturn in national security.



Chapter 3

THE LONG TERM—DEFENCE BUDGET TRENDS TO 2050

There are no publicly available projections of defence spending past the end of the decade, when the government's White Paper funding commitment expires. In fact, the government has reserved any decision on the total level of defence spending beyond 2010-11, despite having just released a Defence Capability Plan that extends out to 2013-14.

With this uncertainty, the best we can do is to project the 2010-11 Defence budget out to 2050 on the basis of trends in personnel, operating and capital costs. Our aim is to capture the *scale* of spending necessary to maintain the ADF into the future.

We assume explicitly that the ADF will retain the shape and size it has today, but this is not so bold an assumption as it may seem. Much of the period 2011-2050 will be covered by the currently planned generation of ADF capabilities, like the Joint Strike Fighter (JSF), airborne early warning and control aircraft, and the various new Army helicopters. And in the Navy's long-term Plan Blue there is little sign of changes to the size and shape of the fleet in coming decades.

Personnel cost trends

By 2010, personnel costs will account for 42% of defence spending, or close to \$7 billion per year. This includes salaries, wages, allowances, superannuation and the cost of housing and health, where the last two categories account for about one-twelfth of personnel expenses. Because superannuation and allowances increase roughly in line with salaries, the dominant factor in future defence personnel costs is the rate at which salaries increase.

So how fast will defence salaries rise? It's sometimes said that defence salaries have grown faster than those in the broader community. However, Defence military and civilian salaries have shown no such

long-term trend. This is not surprising, because military salary increases are directly linked to Defence civilian salary increases, which in turn are linked to ordinary civilian salaries through market forces.

Thirty years ago, Defence was employing cutting-edge computer technology that the civil sector has only caught up with in the past decade.

But will this hold in the future? It could be argued that Defence salaries will rise faster than in the past because of the demand for more technologically capable people in the ADF, as warfare moves from the industrial to the information age. However, this same trend applies equally in many other sectors of the economy. In fact, one could argue that the technology gap between the civil and military sectors is not widening but closing. Thirty years ago, Defence was employing cutting-edge computer technology that the civil sector has only caught up with in the past decade.

In any case, such a shift would be a structural readjustment rather than an enduring trend. Noting this, and the evidence to date on actual cost growth, we assume that long-term defence salaries will rise no faster than salaries in the labour market as a whole. The 2002 Intergenerational Report assumes that long-term real wages growth will be 1.75% per annum. However, because health and housing costs have been increasing faster than this, we'll follow the White Paper and assume that in the long-term per-capita personnel costs will increase by 2% per annum in real terms.

Capital investment trends

Defence currently spends around \$4 billion, or just under 30%, of its budget on capital investment. Almost 90% of this is spent on military equipment; the rest is split between facilities projects and non-military infrastructure. For our purposes, it's sufficient to focus on military equipment.

Unit costs—a growing problem

Studies undertaken by Defence indicate that the real cost of military equipment is growing by at least 4% per year. This does not mean that each year the cost of a particular piece of equipment increases by 4%, but that the cost of successive generations of equipment increases by an average of 4% per year.

It's easy to confirm that costs have been going up quickly. The government paid around \$105 million for each of the Oberon Class submarines it bought in the late 1960s and early 1970s as measured in 2003-04 dollars. In comparison, a single Collins Class submarine costs over \$850 million, not counting the cost of remedial work. In 1966 a naval destroyer cost \$350 million (again in today's dollars), whereas the Navy's planned Air Warfare Destroyer is slated to cost between \$1.5 billion and \$2 billion.

International studies based on long-term historical data from the last century show real annual unit cost growth of between 4% and 10% for fighter aircraft, 3% to 9% for submarines, around 8% for helicopters, and between 3% and 4% for less electronically

intensive systems, like training aircraft and armoured vehicles. The same studies show that ship costs have grown by between 3% and 10% per year, depending on the type of vessel.

Compounding costs, even at only 5% per year, add up—effectively doubling real costs every 15 years. Fortunately, two factors might moderate this historical trend.

First, the growth trend in unit costs emerged during a century of active strategic competition between great nations. The US and the Soviet Union, and the UK and Germany before them, were locked in races to secure a military edge over each other. As each side developed a new capability, the other would respond with a countermeasure, and each generation of equipment jumped in performance and price. The algebra of this cycle drove an almost exponential growth in cost.

But for the moment at least no such competition exists. The two principle producers of sophisticated weapons—the US and Europe—are in limited commercial competition but lack a heightened strategic imperative to outdo each other in combat (although their customers might). This will somewhat reduce the pressure for growth in unit cost compared with historical trends, at least until a credible and technologically capable strategic competitor emerges.

Working against this is the increasing cost of maintaining interoperability with the US in the face of the ‘revolution in military affairs’ (or, to use the latest catchphrase, ‘military transformation’). In a sense, the strategic competition of the last century has been replaced by a move to expensive high-tech risk minimisation. What constitutes an acceptable level of military superiority in a conflict has escalated dramatically. It’s no longer enough simply to win a war: victory must be quick and with the fewest possible casualties. How these competing pressures will balance out remains to be seen. The fact that the US has now exceeded Cold War expenditure levels while maintaining a substantially smaller military does not engender much optimism.

As each side developed a new capability, the other would respond with a countermeasure, and each generation of equipment jumped in performance and price.

A second factor that might moderate unit cost growth is historical change in the drivers of innovation. For much of the last century, military technology drove fundamental innovations in science and civilian technology. From the development of radar, jet engines and rockets through to atomic energy, satellites and the initial work on computers, military technology was consistently at the cutting edge. As a rule, commercial applications followed, rather than led, military use.

This is very much less the case today, when commercial equipment and technology are increasingly used for military applications. The trend is likely to continue, with potential reductions in military research and development costs and greater economies of scale, at least for some equipment.

This promises to further moderate the rate of cost growth, especially for electronics and software, but such promises have been made before. Successive generations of equipment have been touted as cost reducers, but have failed to deliver despite so-called breakthrough

technologies and design-to-cost projects. The recurrent pattern has been of optimistic projections followed by stretched schedules, shrinking production runs and significantly increased unit costs. And the use of commercial technologies will force the military to replace hardware and update software much more often than in the past, perhaps negating any savings in unit costs.

We face a dilemma. On one hand is an established trend of escalating military equipment costs; on the other are mitigating factors that provide a plausible case for optimism. We will take a conservative approach and assume that unit costs will grow at a modest 4% per year—Defence’s stated lower bound—and then look at the sensitivity of the result to credible changes in that figure.

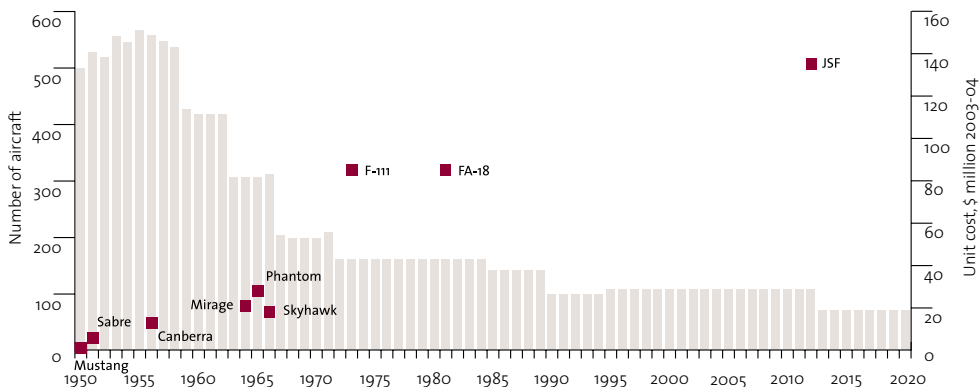
Can we get by with less?

The response to growing costs has traditionally been to buy less. For example, in the 1950s Australia operated more than 500 fighter and bomber aircraft; by the sixties this had dropped to around 300, in the seventies to around 150. By the eighties and nineties, the force had shrunk to a little over 100 aircraft. It’s possible that no more than seventy JSFs will replace both the F-111 and the F/A-18.

Australia’s reduced numbers of military platforms reflect international trends. As unit costs have gone up, numbers have gone down, but countries have maintained credible relative capabilities with reduced forces. The reason for the relative stability is that all nations are subject to the same fiscal pressures. For example, in the 1950s the US Air Force had over 20,000 aircraft, but by the 1990s the figure had dropped to its current level of around 6,000, with most of the decrease occurring during, not after, the Cold War.

Figure 1 plots the unit cost of Australian fighters and bombers, along with the number of such aircraft in the ADF inventory, over the past 50 years. The promised exponential growth in unit costs is not apparent in the final years of the period because we have used an optimistic cost for the still developmental JSF, and refrained from including its \$200 million plus competitor, the F/A-22 Raptor.

Figure 1 Number and cost of ADF fighter and bomber aircraft, 1950-2020



The problem is that there is a practical limit to how far numbers can be cut, reflected in the levelling-off in the chart. The ADF is probably at, or close to, the critical minimum size needed to maintain a credible capability, given our geography: even if a fighter is twice as lethal as its predecessor, it can't be in two places at once.

Accordingly, the government has so far shown little interest in further reducing the size of the force in the long term; for most capabilities, platform numbers are planned to remain constant or increase. Consequently, any reductions in the number of platforms are unlikely to do more than soften, and will by no means negate, the impact of rising unit costs.



Mirage III fighter aircraft. © Defence Dept.

Operating cost trends

Administrative and routine costs not directly related to the operation, repair and overhaul of military equipment will reflect the prevailing price of goods and services in the broader economy. Consequently, we will assume that these costs will increase with inflation and so stay constant in real terms. The direct costs of operating modern military equipment are a very different matter.

Changes in equipment operating costs can take two forms. First, costs change as a given item of equipment ages, and second, they change over successive generations of new and more modern equipment.

In the long term, the increasing cost of operating ageing equipment averages out as new platforms are continually brought into service. In a steady-state environment the effect is to generate a constant shift in operating costs without contributing to long-term growth. We will assume that, past 2010, the shift has been built into the funding base.

Aside from the impact of ageing, the cost of operating military equipment increases as the cost of successive generations escalates. Put simply, more technologically sophisticated equipment, with more expensive components, costs more to maintain.

This means that the long-term growth in equipment costs will drive the long-term growth in equipment operating costs. Unfortunately, only sparse data is available on the strength of the linkage. A recent estimate by the US Congressional Budget Office has operating costs rising at only 40% of the rate of acquisition costs for aircraft, whereas an earlier UK study has operating costs rising at 100% the rate of acquisition costs for ships. It may be that the more recent estimate anticipates cost reductions due to advanced technology and greater use of commercial sources, such as with the Joint Strike Fighter program. But just as with procurement costs, such promises have not been delivered in the past and should be treated with some caution.

We will assume that beyond the end of the decade equipment operating costs will rise at 75% of what we have assumed will be the rate of capital cost growth. This roughly splits the difference between the US and UK estimates. Thus, a 4% rate of increase in capital costs implies a 3% increase in equipment operating costs.



The F-35 Joint Strike Fighter will become Australia's single air combat platform when it enters service in 2012.
© Lockheed Martin

Trends in defence productivity

Just as in the wider economy, there are two ways that Defence can increase its productivity. First, costs can be cut through new workforce structures and more efficient approaches to activities like training, logistics and administration. This has been the focus of various defence efficiency reforms over the past ten years. Second, investment in more productive technologies—military and civilian—can boost productivity. In the case of military technologies, increased productivity often, but not always, translates to more lethal weapons.

Defence reform and efficiency

Since the start of the Commercial Support Program in 1991, Defence has implemented efficiency measures with recurrent annual savings of around \$1.3 billion. By ‘savings’ is meant the diversion of expenditure from non-combat to combat-related areas. Although the government has actively sought more efficient use of resources by Defence, they have consistently reinvested the money back into military capability. This includes the Commercial Support Program and the Defence Reform Program, as well as a number of smaller efficiency measures.

This corresponds roughly to an annual productivity gain of around 1%, most of which has come from examining commercial alternatives to some 16,000 positions. It’s fair to say that at least some of this outsourcing has led sceptics to believe that effectiveness has been sacrificed in the process. And it remains unclear whether these savings will be reduced, or even lost, when the time comes to renegotiate contracts in the absence of a trained workforce ready to transfer from Defence. This will be made worse if limited competition arises against incumbent suppliers. Unfortunately, there is little public information to guide an assessment, with even the Australian National Audit Office having difficulty assessing the financial and performance details of Defence’s efficiency initiatives from the 1990s. And the more recent efficiency measures this decade appear to be little more than a pruning of regrowth in administrative expenses after the 1997 harvest of the Defence Reform Program.

...current plans for further productivity gains are very limited.

It would be a mistake to identify the recent 1% annual productivity gains as a long-term trend. Not only is the durability of the savings unclear, but the gains were achieved through discrete initiatives and not through a systemic mechanism for improving productivity over the long-term. Currently, Defence has a four-year program to deliver an additional \$50 million per year in savings for internal redirection in each of the next four years. However, the money is being redirected to relieve internal cost pressures rather than to bolster military capability, and in any case it only amounts to around 0.3% per year. Finally, market testing of activities continues as the last of the Defence Reform Program initiatives are concluded. Any planned savings are unknown.

So, current plans for further productivity gains are very limited. Until increased overall efficiency becomes a stated goal for Defence, we have no reason to factor a productivity gain into our budget projection.

Innovation and investment in new technologies

Just as a firm can invest in new plant and equipment to boost productivity, Defence can invest in new technologies to provide military capabilities more efficiently. Some care must be taken with this analogy because all military capabilities are ultimately only relative to those of a prospective or actual adversary. For example, when we bought the F/A-18 fighter to replace the Mirage III we boosted our absolute military capability, but our relative edge over regional fighter capabilities remained largely unchanged as others updated their fleets. Even if one F/A-18 was worth ten Mirage III aircraft, we could not risk cutting the size

of our fleet by that factor. Often, we need more potent equipment to match the emerging capabilities of others, not in order to cut costs.

In those cases where capabilities are not set against one another, improvements through technology can make a big difference to costs, such as when precision-guided munitions achieve a military result with far fewer bombs and sorties. Generally, however, there are good reasons to be cautious about expecting reduced costs through successive generations of military equipment. Improved performance tends both to cost more and to be negated by the improved capabilities of others.

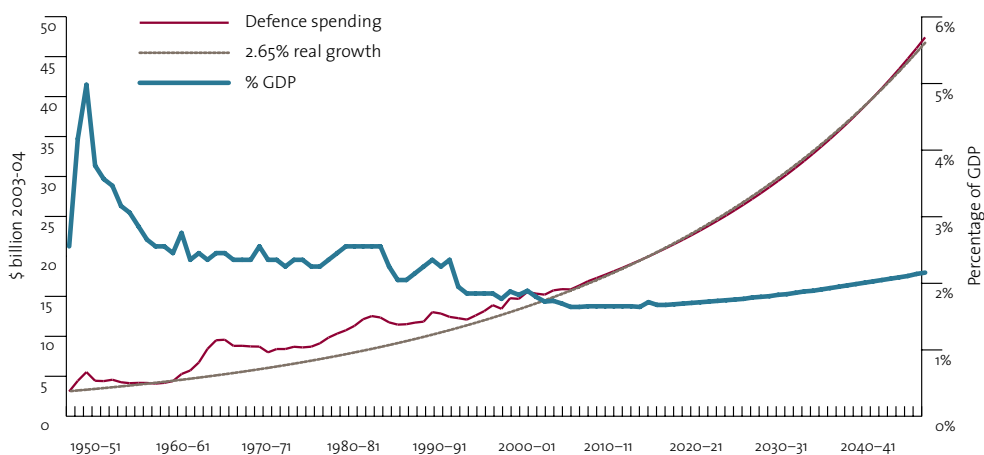
The real key to gaining efficiencies through innovative technologies is not the at best marginal improvement of replacement equipment, but rather the adoption of entirely different approaches to military capabilities. For example, the Jindalee Operational Radar Network over-the-horizon capability surpasses anything that conventional surveillance aircraft have been able to deliver in the past.

While there is much discussion of innovation and transformation, including the adoption by the ADF of ‘multidimensional manoeuvre’ as its concept for future warfighting, and the stated intent to develop a road map for ‘network-centric warfare’; only a limited amount has been translated into real planning. And even when it is, the result is likely to be additional capabilities that increase the ADF’s effectiveness at an additional cost.

Where do these trends take us?

If we assume that the unit cost of equipment grows by 4% per year, we get the steadily growing spending profile shown in Figure 2, which also plots the estimated percentage of GDP devoted to defence. For convenience, we will refer to this as our ‘central projection’. Interestingly, the overall result is an effective long-term growth in defence funding of around 2.65% per year. Even more interesting is the fact that this roughly matches the historical data going back to 1950, especially if we remove the bulge due to the substantial expenditure on the Vietnam War in the 1960s.

Figure 2 Historical and estimated defence spending: the central projection



A long-term rate of growth of 2.65% is less than the roughly 3% projected over the period of the White Paper. This is to be expected because the next few years will see the development of a number of new capabilities, whereas the projection seeks to capture the cost of maintaining the scale of defence capabilities at the level attained in 2010. It makes sense that the long-term trend in growth is less than that for the current epoch.

Using the Intergenerational Report and more recent budget projections of Australia's economic growth, the estimated cost of defence equates to 2.2% of GDP by 2050. In effect, the substantial growth in defence spending will be matched by similar GDP growth, so that the percentage of GDP remains relatively low. However, things get more interesting once we explore the sensitivity of the projection to our assumption about how the unit cost of equipment grows with time (which in turn drives the increase in equipment operating costs). Table 1 shows the projected percentage of GDP consumed by the Defence budget in 2050 as a function of this factor.

Our central projection in Table 1 assumes that unit costs grow at the minimum rate of 4% per year found by Defence. The worrying point is that the percentage of GDP grows very strongly as a function of this figure, so strongly that 6% per year growth in unit costs leads to a breach of the 3% of GDP barrier.

Table 1: Sensitivity analysis—percentage of GDP in 2050

Annual equipment unit cost growth	2%	3%	4%	5%	6%
Projected percentage of GDP	1.5%	1.8%	2.2%	2.8%	3.6%

So what?

Clearly, there are many uncertainties in our modelling. It may be that past escalations in the cost of military equipment simply will not recur, or the world may become much more peaceful over the next 40 years and we will be able to shrink the ADF. No one can say for sure. All we have shown is that a conservative projection based on past trends suggests that it will cost around 2.2% of GDP to maintain the sort of ADF we have today into the middle of this century, notwithstanding projected ongoing growth in the economy. And if we allow ourselves to be even a little pessimistic about increasing equipment costs, the projection rises quickly to more than 3% of GDP. Compared with the 1.9% being spent now, this is sobering, especially when viewed in context of Australia's fiscal outlook.

Assuming that current policies remain in place, the IGR estimated that the Commonwealth's overall fiscal gap (revenues minus expenditure) would trend towards minus 5.0% of GDP by 2042. This assumes explicitly that defence spending stays put at around 2.0% of GDP. Any defence spending beyond that level adds directly to the fiscal gap. Consequently, if defence spending were to grow towards 2.5% or 3.0% of GDP by mid-century, this would add another half or full percentage point to the fiscal shortfall.

No area will be immune from the imperative to contribute to a balanced budget, including defence.

In practice, the emerging fiscal gap will force policy changes in the coming years: it's simply not possible to run an ever-increasing fiscal deficit year after year. Ultimately, the gap will be closed by some combination of increased revenue and constrained expenditure. We are already seeing the first signs of this with initiatives to retain people in the workforce longer, and to contain the cost of health and social spending. This is just the start. No area will be immune from the imperative to contribute to a balanced budget, including defence.



Chapter 4

WHO WILL TAKE THE KING'S SHILLING?

Long gone are the days when a drunken night at the tavern could result in an exciting new career in the Royal Navy. So, too, is the era when an Australian Government might seriously consider conscripting its citizens into the military. The ADF is, and will almost certainly remain, an entirely volunteer force. This creates a challenge: unless adequate numbers of suitable men and women volunteer to serve in the ADF, it can't function.

It's hard to isolate long-term trends in defence recruitment and retention, because the available data is skewed by ever-changing external factors. For example, while it's clear that the ADF has had difficulty maintaining its numbers in the late 1990s, that period coincided with an unpopular restructure of the defence workforce and all too frequent adverse publicity about the nature of military life. The more recent period of high-profile and very successful military operations produced better results. It would be a fraught exercise to try to extract an underlying trend independently of these factors. To complicate matters further, the conventional wisdom that recruitment and retention run counter to the prevailing economic conditions has not been reflected in recent results.

In looking to the future, we need to focus on those enduring factors that will influence recruitment and retention, and not the complications that cloud short-term results. Australia's future demographics and emerging societal changes were identified as two such long-term factors in a report published by Defence in 2001, titled *Defence Personnel Environment Scan 2020*. The report concluded that both these factors would make it increasingly difficult to maintain ADF numbers. This conclusion is probably true, although the situation is far from dire.

Demographics is destiny

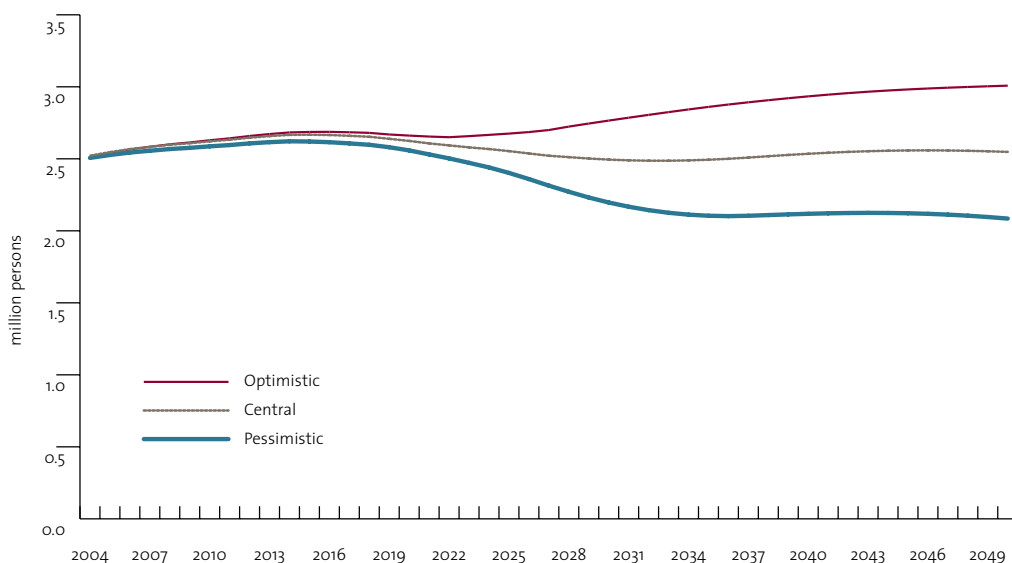
The ADF currently makes modest demands on the Australian population. Less than 0.07% of those aged 17 to 45 are members of the full-time ADF, and the annual recruitment target of around 6,000 is but a drop in the ocean of the more than 2.5 million Australians in the prime recruitment age bracket of 17 to 25. But our population will age significantly over the next 50 years as the rate of population growth slows. So how many people will be available for military service by mid-century? The answer depends on assumptions about future rates of fertility, mortality and immigration.

The Australian Bureau of Statistics (ABS) produces three alternative population projections that capture a credible range of assumptions. Its central projection (which makes similar assumptions to those in the IGR base projection) shows the number of people in the prime recruitment age bracket of 17 to 25 years will remain steady to 2050, but this is far from certain. The bureau’s pessimistic projection sees the number fall by 17%, and its optimistic projection predicts 20% growth. The three projections appear in Figure 3.

...no matter what happens, the ADF will continue to be a fraction of one per cent of the population pool from which it is drawn.

The results are similar for the 26-45 year age group, which is the demographic group that Defence must retain against competition in the labour market. The central ABS projection is for a 4.5% increase by 2050, with the possibility of a drop of 13% and growth of 21% depending on assumptions.

Figure 3 ABS projections (3222.0): Australians, 17-25 years old, to 2050.



Therefore, for the ages relevant to the ADF, the central projection is that the population pool will remain largely unchanged, although credible changes to the underlying assumptions could change the result by as much as 20% either way. But no matter what happens, the ADF will continue to be a fraction of one per cent of the population pool from which it is drawn.

Who wants to play?

Raw population projections are only part of the picture. We also need to ask how many people in the employment-age population are likely to be available and willing to work. This is where things get interesting. The total participation rate (the percentage of 15-64 year olds either working or looking for work) has grown slowly over the past 20 years from around 69% to 74%. This figure is projected to rise slightly to about 75% towards mid-century. For people between 20 and 44 the projection is also for a slight increase, so that by 2050 their participation rates will be between 80% and 90% depending on age. The only age group (aside from those of retirement age) with a projected fall is the 15-19 year old cohort, whose participation is projected to fall by around 2%, probably as the result of greater participation in education. Yet this is still not the whole story.

There have been two important trends in the composition of the workforce in recent decades.

First, participation has shifted from males to females. For example, since 1980 the proportion of men aged 25 to 34 in the workforce has fallen from 96% to 92%, while the corresponding number for women has grown from 54% to 70%. The IGR assumes that this trend will continue in the coming decades, with participation rates in the age groups relevant to the ADF growing by 2% to 4% for females and falling by 1% to 2% for males. The exception is the 15-19 year old age group, whose participation will fall by 1% to 2% for both men and women.

Second, the proportion of people working part-time has grown. In the past decade the percentage of males working part-time grew from 10% to 15% and the percentage of females grew from 43% to 46%. Surprisingly, most of these people are content to work part-time, with only 22% of part-time workers wanting to work more hours. There are probably several reasons for this shift, including older workers smoothing the transition to retirement, people more actively balancing work and family life, and greater participation in education. This last factor is particularly important for the potential ADF recruitment pool. Between 1992 and 2002, the proportion of 15-19 year olds in education rose from 73% to 77%, while the proportion of 20-24 year olds rose from 27% to 37%. If these trends continue there will be less young men to recruit into the full-time ADF (but correspondingly more to recruit into the reserve force).

The labour market

So far we have looked at the absolute numbers of people who will be available for military service in the future. It's also important to look at the likely future competition for workers. One could argue that slowing growth in the labour-age population must eventually lead to a shortage of labour, which will be exacerbated further by the need to provide services to an increasing proportion of retired Australians. Despite the lack of a clear correlation between unemployment and ADF recruitment and retention, it's hard to escape the conclusion that a drastic tightening of the labour market would make things more difficult.

However, the routine management of the economy should guard against this. If a full-blown labour shortage were to occur across the workforce, rising wages and inflation would accompany it. In response, the Reserve Bank would increase interest rates and thereby dampen employment demand. Consequently, it should not be surprising that the IGR assumes that the rate of unemployment will fall no lower than the 5% level thought to be consistent with containing inflation.

Generations X, Y and Z

In recent years, much has been written of the changing expectations and lifestyles of so-called generations X and Y. The emerging generations are often said to have shorter attention spans, less commitment to employers, reduced tenure in jobs and a desire for diverse multiple careers in their working lives. At the same time, the employment market has moved to greater use of casual labour, increased outsourcing of non-core services and more family-friendly employment practices.

Some care must be taken in extrapolating societal developments that arose during a decade of unprecedented strong economic growth and falling unemployment. As circumstances change, so too will social norms. If economic conditions become less favourable, there's little doubt that people will place a higher value on long-term stability in employment. In any case, while it's interesting to speculate on the collective psychology of future generations, it's beyond the scope of this paper to explore this issue except to note that the nature of work is changing, just as it did in the past, and as it will continue to do in the future. If, for example, future generations reject 20-year careers in favour of 3-5 year engagements, the ADF will have to adapt to that reality.

Where does this leave us?

There's nothing in the foregoing discussion to cause alarm. Under any circumstances, the ADF will continue to make only a slight dent in the overall pool of Australians of suitable age. Even if the ADF were to double or triple in size, it would still be only a small fraction of



World War I recruiting poster. Photo courtesy Australian War Memorial ARTV00021

the available population. It's worth recalling that, if circumstances demand it, the nation can respond on a scale that dwarfs the size of the today's ADF. In World War I, Australia fielded over 416,000 service personnel from a population of five million, and in World War II almost one million Australians contributed from a population only seven times that figure.

Nevertheless, there's no reason to be complacent. Recent experience shows that even with the current pool of potential recruits it can be difficult to maintain ADF numbers. Indeed, Defence has failed to meet its recruitment targets every year since the mid-1990s, despite only seeking to enlist less than one quarter of one per cent of people in the 17-25 year age group. Recruitment will only get harder if, as projected, the proportion of young people available for full-time work continues to fall. Irrespective of whether the number of potential recruits rises or falls in the future, the ADF will need to be agile and responsive to the changing labour market. This might not be easy: military service requires a level of commitment uncommon in civilian life. It will be up to Defence to sell the benefits of military service, and where necessary to adapt its own practices to meet changing expectations.

The good news is that Defence is already working hard and spending a lot of money to improve the attractiveness of military service to potential recruits and current members alike. On the recruitment side, Defence has enlisted private sector expertise, including the use of a modern and highly visible advertising campaign. Initiatives like the re-enlistment of trained personnel from Australia and abroad have also been used, and retention has been addressed through more family-friendly initiatives attuned to members' expectations. This has reduced the number leaving the ADF and cut pressure on recruitment.

It will be up to Defence to sell the benefits of military service, and where necessary to adapt its own practices to meet changing expectations.

More can be done. For example, the ADF could actively try to become more representative, in gender and ethnicity, of the broader twenty-first century Australian community. Until the ADF does so, it will struggle to attract recruits from all sectors of the community. Solving this chicken-and-egg problem will not be easy.

Despite the fact that some 73% of positions in the ADF are open to both males and females, women make up only 13% of the permanent ADF. Over the past decade, this figure has grown by only one half of one percentage point. At this rate, it will take 440 years before the proportion of females in the full-time ADF equals that in the full-time workforce (35%). Perhaps the time has come to actively target women for recruitment. A quick examination of the ADF recruiting website, with its striking preponderance of images of men in uniform, shows that much could easily be done to send the message that women are just as welcome as men.

In any case, so long as 27% of jobs in the ADF (and almost 50% of those in the Army) are excluded to women regardless of their individual physical and mental capability, it will be hard to argue that women are considered equals in the defence force. A similar problem arises from the very tiny proportion of women (1 out of 119) who are now serving in senior, star-ranked positions in the ADF.

The ethnic make-up of the ADF is also unrepresentative of modern Australia. While 16% of the Australian population speak a language other than English at home, the same is true for only 5% of the ADF. And although 17% of Australians were born outside Australia or the UK, only 7% of the ADF can make that claim. As with gender, if the ADF wants access to the entire Australian workforce it will need to target those parts of the community currently under-represented.

If it turns out that future generations of young Australians are unwilling to serve in the ADF, it may be necessary to look at lateral solutions. To counter the problem of people staying in education longer, the ADF may need to recruit people in their late twenties and early thirties rather than focusing on the 17-25 year age cohort. Indeed, if the ADF really is going to need better educated and skilled people this might have to happen anyway. Alternatively, the ADF can seek to attract people by paying for their education, just as the Army began to do last year for prospective officers.

If all else fails, there's always the option of encouraging non-citizens to serve in the ADF. The British Army has long made good use of foreign troops through the Gurkha battalions. With a looming 'youth bulge' in the populations of many South Pacific nations—many of which have limited economic prospects—the opportunity exists to bolster the ADF while benefiting our neighbours.

Finally, any discussion of recruitment and retention can't avoid the question of how well the ADF discharges its duty of care to its people. Unfortunately, in recent years the ADF has been plagued by frequent media accounts of harassment, bullying, inadequate safety and criminal behaviour. These issues have been taken seriously by the ADF and a raft of initiatives is in place to fix the problems. The men and women of the ADF deserve a fair go, so it's imperative that these measures succeed. And it wouldn't do any harm to the ADF's prospects for recruitment and retention, either.



Chapter 5

PREPARING FOR THE FUTURE TODAY

The prospects for the next 50 years are a mixed bag. The cost of maintaining an ADF of the size and shape we have today will rise if past trends continue. It's impossible to be precise, but indications are that defence could account for 2% or 3% of Australia's GDP by mid-century. In raw numbers, this means that we will spend well over a trillion dollars just to maintain our current capabilities through to 2050.

At the same time, Australia will be burdened with an increasingly aged population and a growing fiscal gap. Put simply, defence will require more and more money, and that money will become harder and harder to find. Every dollar unnecessarily spent on defence will be drawn from an increasingly precious pool of public wealth.

It's important to keep this in perspective: defence spending at 3%, or even 4%, of GDP constitutes a big policy challenge in the context of Australia's mid-century fiscal prospects, but it's a manageable problem and not an economic catastrophe. And there's some good news: there will continue to be enough people for the ADF despite our ageing population, although attracting them will call for agility and responsiveness.

So, what can we do to prepare for the future? The most obvious thing is to reduce the demand for defence by improving the prospects for global and regional security. Australia already plays a positive role internationally through development aid, peacekeeping, non- and counter-proliferation, counter-terrorism, and support for the United Nations and its agencies. We must continue these efforts, but it would be foolish to plan on the basis that the next 50 years will be profoundly better.

Similarly, while we need to continue the search for new and innovative military technologies, we should not count on any big gains soon. The lessons from the Iraq conflict appear to be adding to the ADF's

shopping list rather than reducing it. And the post-conflict reconstruction phase is proving that sometimes there's no replacement for good, old-fashioned boots on the ground.

Ultimately we can't count on an outbreak of peace or a technological revolution to save us. Instead, we must directly address the fiscal consequences of maintaining the ADF in its present form. From a Defence perspective, this translates into the imperative that capabilities are delivered as cost-effectively as possible.

...Defence has been making progress over the past couple of years in measuring, and putting a price on, what it delivers to government.

Make Defence efficiency a goal

If you want to improve the efficiency of the ADF, you need both to *measure* efficiency and to *set goals* for it. Then you need to put in place clear accountabilities along with the necessary incentives and sanctions to make sure that Defence delivers.

Consider this. If we could manage ongoing efficiency gains of just half of one per cent per year, then our central projection would fall to 1.9% of GDP by mid-century. This would be a very welcome contribution to reducing the looming fiscal gap. Moreover, compared with Australia's 30-year average growth in worker productivity of 1.75% per year, a goal of 0.5% for Defence seems modest. Unfortunately, it's not that simple. There are two problems.

First, a good proportion of the productivity gain achieved in the broader economy resulted from investment in better technology that allowed more to be achieved with less labour. As we have already argued, new technologies in the military context tend to go towards matching the emerging capabilities of potential adversaries, and therefore deliver no savings.

Second, military capability is very difficult to quantify, and unless you have some measure of what's being delivered it's impossible to say anything sensible about efficiency. Otherwise it's all too easy to fall into the trap of making savings at the expense of effectiveness. No single measure, be it flying hours, preparedness or bomb tonnage, can ever hope to capture the many facets of military capability. There is no avoiding this; any practical scheme to measure Defence efficiency will require qualitative judgements and a flexible methodology. So, when looking at Defence efficiency, we need to be realistic about what we can achieve and pragmatic about how we measure the result.

Fortunately, Defence has been making progress over the past couple of years in measuring, and putting a price on, what it delivers to government. This includes the development of capability performance measures as part of the annual budget process whereby Defence delivers twenty-nine separate 'outputs', each of which has its own 'price'. For good reasons much of this information is classified, but an increasing amount has been made public in recent budget papers and annual reports. The purpose of the output-price performance data is to provide a clear and unambiguous description of what will (or has) been delivered by way of capability outputs in exchange for the price paid by the government. If this data

serves the purpose for which it is intended, then it should also provide a credible basis for measuring changes in Defence efficiency.

Our proposal is simple. For each and every one of the twenty-nine Defence outputs, a productivity measure (or set of measures) should be developed that captures the amount of capability being delivered per dollar. In doing so, the aim would not be to measure the capabilities in absolute terms. For example, it would be unrealistic to try to develop a single measure for comparing two quite different capability outputs, such as patrol boats and special forces. Rather, the goal would be to track the changing productivity of each of the outputs over time. This would not simply be a matter of looking at the change in price from year to year. It would need to also take account of how the level of capability being delivered changes over the same period. Once such a system is developed, goals for productivity could be set in the budget and the results presented in Defence's annual report.

Creating credible and realistic measures of military capability would take time and effort, and some very careful thinking, but it's not so different from the scheme Defence uses to manage alliance contracts, in which international benchmarking is used to set targets in the absence of competitive commercial pressures. This proposal is far from radical. In fact, it's little more than a suggestion that Defence's output-price arrangement with government be used as a management tool rather than remain an awkward artefact of the accounting framework.

Measuring and setting goals for efficiency is a necessary but not sufficient step to ensure that Defence delivers cost-effective military capability. What's missing is accountability for results. As things stand, Defence's finances are run through a \$15 billion plus per year matrix management scheme. While the service chiefs are responsible for delivering their respective outputs, they can hardly be held fully to account when much of their logistics, administrative support and facilities are managed by others over whom they have little control. This makes it difficult for them to make the sorts of routine shifts that managers use in the commercial world to improve efficiency.

The solution is simple. Give the service chiefs and other output executives full control over the resources they need to deliver their outputs, along with the incentives and sanctions necessary to encourage efficiency. And let them devolve this same approach down to the people they have managing the individual outputs. This would be a radical change from the current situation. Properly managed, it would result in more time being spent working out how to deliver military capability cost-effectively and less time preparing bids for more money.

Give the service chiefs and other output executives full control over the resources they need to deliver their outputs...

Critics of this approach will no doubt observe that 'defence is not a business' and that such a scheme is therefore inappropriate. In terms of military operations, this is true, but giving the service chiefs and other output executives control and responsibility for resources would not impinge one bit on operational command matters. What we are talking about is making the



Private sector firms like Qantas deliver productivity gains as a matter of survival.
Photo courtesy Australian Picture Library.

managers behind desks in Canberra—uniformed and civilian alike—fully accountable for the outputs that the government buys.

What might we expect from such an approach? A simple comparison with two big Australian companies is revealing. Last year, Qantas had annual expenses of \$11 billion and plans to deliver savings over three years of around \$1.5 billion. Telstra had annual expenses of \$16 billion and has set a two-year savings target of over \$700 million. In comparison Defence had expenses of almost \$16 billion last year, but has no savings targets beyond \$50 million per year over four years, which it plans to redirect internally for no net saving.

Perhaps it's time that Defence was run like a business.

Acronyms and abbreviations

ABS	Australian Bureau of Statistics
ADF	Australian Defence Force
GDP	gross domestic product
IGR	Treasury's 2002 Intergenerational Report
DCP	Defence Capability Plan
DCR	Defence Capability Review
Defence	Department of Defence
JSF	Joint Strike Fighter; planned replacement for the F-111 and F/A-18

About ASPI

The Australian Strategic Policy Institute (ASPI) is an independent, non-partisan policy institute. It has been set up by the Government to provide fresh ideas on Australia's defence and strategic policy choices. ASPI is charged with the task of informing the public on strategic and defence issues, generating new ideas for government, and fostering strategic expertise in Australia. It aims to help Australians understand the critical strategic choices which our country will face over the coming years, and will help Government make better-informed decisions.

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Operations and Capability Program: This program covers ASPI’s work on the operational needs of the Australian Defence Force, the development of our defence capabilities, and the impact of new technology on our armed forces.

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A Trillion Dollars and Counting: Paying for defence to 2050

Will we be able to afford our current range and scale of military forces through to 2050 as Australia's population ages and the cost of military capability mounts? And will there be enough young people to maintain the size of the force anyway? These are critical questions given the 30 to 40 year gaps between the conception and final disposal of many items of military equipment. Future generations will have to live with, and pay for, the decisions we make today.

The good news is that there will be more than enough people to sustain an ADF of the size we have today. Although the nature of the workforce is changing and the ADF will need to be agile and responsive to attract and keep the people it needs.

On the financial side, the sobering fact is that the costs of maintaining the ADF in its present shape and size will rise quickly, at the same time as Australia's ageing population creates a widening gap between government revenues and spending. No area will be immune from the imperative to contribute to a balanced budget, including defence. Given these long-term financial and economic trends, Defence efficiency is not just good housekeeping – it's a strategic necessity.

There are two things to be done to improve the prospects of Defence delivering real and enduring productivity gains:

First, the efficiency with which military capability is delivered needs to be measured and goals set for its improvement. This should include benchmarking against foreign militaries, and where practical, comparable commercial entities.

Second, the service chiefs should be given full control over the resources they need to deliver their respective military capabilities. And they need to be made fully accountable for delivering productivity through incentives and sanctions.

This approach relies on the leadership and organisational skills of the military, which have been repeatedly confirmed in recent operational deployments. This is surely a better bet than relying on the current Defence bureaucratic machine to prepare us for the next half century.