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Defense offsets in Australia and New Zealand

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Introduction

Few countries have experimented as widely with defense offsets as Australia has. The instruments range from voluntary to mandatory offsets obligations to gradations of increased reliance on local content requirements but without formal offsets. Policy experiments with local content requirements continue. The *1998 Defence and Industry Strategic Policy Statement* (DoD, 1998), which is the government's official industry policy statement as of September 2003, makes no reference to offsets or specific local content targets but reaffirms a set of procurement rules for foreign companies competing for Australian defense business.

New Zealand promulgated its defense offsets policy in 1991 within its *Government Purchasing Guidelines.* Furthermore, the Australia and New Zealand Closer Economic Relations Treaty (ANZCERTA) and the Government Procurement Agreement (GPA) between the two countries provide for equal treatment in government purchasing for each other's domestic suppliers. ANZCERTA, in effect, underpins a customs union between the two countries.

This chapter is structured as follows: the first two sections sketch out the development of the countries' offsets and local content polices, the third section addresses the use of defense procurement, including offsets, to pursue industry development strategies, and the final section concludes the chapter.

Australian industry involvement initiatives

Within the Australian Industry Participation Program (AIPP) of 1970, defense offsets relied on foreign contractors' own "best endeavors" to identify opportunities to discharge offset obligations arising from Australian defense-related purchases. Offsetting activities allowed under the program included local content, bundling, and countertrade, as defined in Markowski and Hall (2004). In 1986, AIPP was replaced by the Australian Industry Involvement (AII) program. The aim was to help establish a sustainable, defense-related industrial capacity in the country. AII was comprised of two components, called "Defence Designated and Assisted Work" *(Designated Work),* essentially a local content requirement, and "Defence Offsets" *(Defence Offsets)* which were trade and/or production obligations in addition to local content requirement, i.e., additional local production, countertrade, or bundling.

Offset obligations were set at 30 percent of the imported content of contracts exceeding A$2.5 million and with an imported content of at least 30 percent. To count toward the fulfillment of offset obligations, activities needed to offer prospects of technology transfer to local industry, and they were to be new, internationally competitive, and sustainable after the initial offset obligations were discharged. Moreover, such activities were not to result in any procurement price increase. Offset multipliers were used to enhance the value of some particularly desirable offset activities such as R&D and training.

Under AII, mandatory requirements replaced the best-endeavors basis for offset compliance. Legally enforceable *Project Deeds* specified the scope, value, and schedule of defense offset obligations. *Credit Deeds* were adopted to encourage contractors to set up long-term industry programs, and credits earned that way could be used to discharge future offset obligations. Pre-agreed *Liquidated Damages* applied if contractors failed to deliver on their offset commitments.

In 1988, the scope of AII was widened to include a third category, called *Australian Production.* This was defined as direct participation by Australian industry (local content) in a procurement contract deemed to occur at competitive prices (without cost premiums to Australia). *Designated Work* remained a local content component but one that would usually involve a cost premium. And *Defence Offsets* were defined as a program of new activities in Australia, which met four criteria:

> *new work*—no re-labeling of existing activities; *commercial viability*—sustained international competitiveness in terms of quality and price;
>
> *no price padding*—offsets were not to inflate the contract price; and *technological sophistication*—offsets activities were to be as sophisticated technologically as the imports that gave rise to them.

Within our definition of offsets (Markowski and Hall, 2004), *Australian Production* and *Designated Work* are categorized as a local-content type of offset, and *Defence Offsets* under the AII program could take the form of (additional) local content, bundling, or countertrade. In 1989–90, the share of AII in defense equipment contracts was about 70 percent, of which *Australian Production* and *Designated Work* accounted for over 60 percent and *Defence Offsets* for nearly 10 percent (DoD, 1991, p. 18).

The 1988 Australian Defence Offsets Program (ADOP) targeted new capabilities to enhance Australia's ability to maintain and adapt military equipment, produce munitions and spare parts, and acquire technologies needed for the long-term needs of the Australian Defense Force (Hall and Markowski, 1996). Four years later, following the 1992 *Price Review of Defence Policy for Industry,* the Department of Defense decided to reduce its reliance on ill-focused offset mechanisms and ADOP was abolished *de facto* and replaced by more specific provisions implemented through normal contracts. *Australian Production and Designated* Work requirements evolved into a combined local-content requirement.

By the mid- 1990s, all government procurement above A$10 million had the policy-driven aim of maximizing opportunities for Australian (and New Zealand) industry development. Under a refocused AII, all defense acquisitions valued above A$5 million were subject to local content and industry development considerations to be achieved at

no significant cost premiums. Priority areas were capabilities that the defense department regarded as strategically important for a particular acquisition as well as highly beneficial for long-term industry development.

Following the 1996 Defence Efficiency Review, AII policy was refocused once again. Named after the then-junior Defense Minister, the "Bishop Procurement Rules" for foreign companies operating in the Australian defense market were introduced. Local content requirements are implicit in Bishop Rules, and although offsets are not mentioned explicitly, reference to "demonstrated independence of action from overseas parents" of Australian subsidiaries "through exports" could be interpreted as an indirect countertrade requirement. In contrast to earlier applications of the requirement, the policy emphasis shifted from project-specific local content demands to a general demand for an ongoing and significant commitment by foreign defense suppliers to the Australian economy. In 1996–97, 87 percent of expenditure on defense logistics was spent in-country, 55 percent of capital equipment was sourced locally, and 99 percent of expenditure on capital facilities was spent in-country (DoD, 1998, p. 5).

The *1998 Defence and Industry Strategic Policy Statement* (DISPS) views AII as the defense department's main tool for drawing overseas contractors into developing local industry capability. It incorporates the Bishop procurement rules and assigns the department the task of developing a culture that fosters "competitive industry as an integral component of ADF capability" (DoD, 1998, p. 2). Specific percentages of AII are set on a project-by-project basis (ANAO, 2003, p. 70). Tenderers for defense projects worth at least A$5 million with an import content are required to seek from the Industrial Supplies Office information on local industry capabilities when scouting for industry participation. In tender bids, the department looks for AII plans that foster long-term partnerships between prime and subcontractors. On the demand side, government purchasing officers for contracts of over A$ 100,000 describe in the publicly accessible "Buying Australian" database the measures taken to provide Australian industry with opportunities to win contracts.

DISPS relies on competition to deliver value for money in sourcing ADF supplies. However, competition has often been criticized in Australia as wasteful for leading to excess capacity, high transaction costs, and higher prices (ASPI, 2002, p. 23). With a strong focus on local content but small and uneven demand for different types of equipment, it has often been asserted that domestic suppliers find it difficult to compete against imports and make long-term investments in capacity.[1]

As of September 2003, AII comprises two main components: local content (premium-free Australia/New Zealand supplies) and strategic industry development activities (SIDA), used as an alternative to local content when opportunities for local content do not exist (ANAO, 2003, p. 65). SIDAs are categorized either as *primary activities* (e.g., R&D, exports, innovative and risky activities) or as *enabling activities* (e.g., technology transfers, training, and provision of infrastructure). Although this is not formally stated, SIDAs are likely to involve cost premiums for local sourcing. The current AII framework can be seen as a further evolution of the earlier concepts of *Australian Production* and *Designated Work*. Between 1999 and 2001, local content accounted for over 80 percent of AII activities and SIDAs for the rest (ANAO, 2003, table 1, p. 66).

To address the issue of sustaining key industry capabilities and to reduce the "wastefulness" of competition, in 2001 the government foreshadowed the adoption of a

strategic approach to defense procurement (DoD, 2002). The project-by-project approach would be replaced with four long-term, multi-project (sectoral) plans aimed at sustaining key defense-related industry capabilities. To achieve these strategic objectives, there is a strong preference for dealing with a small number of larger and more broadly based contractors. This would allow the Defence Materiel Organisation to outsource the overseeing of the performance of lower-tier contractors.

If as a result of the sectoral plans, a number of (sectoral) defense industry champions were formed, the resulting model could be similar to that associated with the administration of offsets by the Australian Submarine Corporation in the early 1990s. Under that model, the local prime would be responsible for ensuring AII compliance by overseas subcontractors. It could, however, use its associated market power to extract rents from subcontractors and reinforce sectoral dominance rather than serve the strategic interests of Australia or the country's broader national economic objectives.

New Zealand industry involvement initiatives

Following a 1990 review, the New Zealand Ministry of Commerce produced *Government Purchasing Guidelines: Opportunities for Local Industry*. In 1991, the Minister of Defense promulgated a *Defence Offsets Policy* in line with the *Guidelines* (NZMoD, 1995). This is part of a broader New Zealand Industry Involvement (NZII) program which comprises two elements, namely New Zealand industry participation (local content) and defense offsets.

New Zealand industry participation

Where significant quantities of imports are sourced from non-Australian/New Zealand (ANZ) suppliers, the defense ministry invites tenderers to propose a program of local involvement in the supply (meaning, under ANZCERTA, New Zealand and Australian). All offers to include local industry are to be made voluntarily and should be "based on sound commercial practices." This recognizes that opportunities for local involvement are limited due to the small scale of defense industries in New Zealand and Australia but that there are market niches where local suppliers are internationally competitive. Local content may include any element of the product life cycle. Export facilitation (countertrade) and broader technology diffusion (bundling of other requirements) are also encouraged.

In encouraging suppliers to volunteer industrial participation activities in projects, the ministry seeks to reduce its cost of equipment ownership, provide competitive local firms with opportunities to support defense ministry projects, encourage foreign suppliers to develop commercial relationships with local firms of long-term benefit to the Ministry of Defense, and develop and sustain local industrial capability that can competitively support defense equipment.

The Ministry is not to pay any cost premiums for a program of New Zealand industrial participation (NZIP). Three levels of activity are distinguished, and are assigned multipliers ranging from three to one, reflecting value to the Ministry. NZIP arrangements are most likely to apply to major capital items (over NZ$5 million). Once

agreed, deliverables under NZIP are included in and subject to the provisions of the supply contract that may include liquidated damages in the event of non-compliance.

Offsets

Defense offsets are described in the *Guidelines* as business activities of "defence relevance, directed to New Zealand companies or bodies, which are of commercial and technological significance and contribute to the development of New Zealand industrial capability." Fulfillment of offset obligations arise when a foreign supplier contractually undertakes to direct appropriate business to a local company or to the Ministry of Defense. Activities that may qualify as defense offsets include:

> certain (usually applied) forms of R&D;
> a wide range of technology transfers;
> defense-relevant joint ventures with New Zealand companies;
> training;
> maintenance capability; new, defense-related exports and export marketing services; and other activities, e.g., providing facilities for New Zealand industry or venture capital.

Thus, defense offsets may take the form of local content, broadly defined countertrade, or bundling. Like their 1990s Australian counterpart, defense offsets in New Zealand must meet the criteria of commercial sustainability, the absence of price padding, technological sophistication, and new work.

In contrast to NZIP, offsets should "be sought" (i.e., are mandatory) at a level of 30 percent (negotiable) of the import content of the procurement contract. To be considered as New Zealand or Australian supplies, the local value-added must account for at least 50 percent of the value of the final product. Multipliers may be used to enhance the value of offsets for products significantly enhancing New Zealand's industry capability.

Offset credits (against future offsets obligations) sometimes operate. When the level of NZIP exceeds 30 percent of contract value, the Ministry may waive all or part of the offset obligation. It may also allow exchange of offset obligations with NZIP. If the level of NZIP is less than 30 percent, the Ministry may require additional offsets to complement the NZIP.

Defense procurement and industry development objectives

Industry-related procurement strategies

Offsets are one of several delivery mechanisms available within the defense procurement process to achieve industry development objectives. Their application should not be divorced from the broader industry development objectives of the procurement agencies that apply them. Such objectives may be strategic, relating to the development of defense-related industry capabilities as the "fourth arm of defense," or economic, to meet other industry development objectives identified by the government.[2] In practice, the

distinction between strategic and economic objectives is blurred.[3] Assuming such objectives to have been already determined, we ask about the role (if any) that offsets play in different industry-oriented procurement strategies and if mandatory offsets and local content requirements provide the best means of achieving the outcomes sought from such strategies.

In terms of industry-related procurement strategies, the ministry or department of defense may operate in the dimensions of *location of supply* (home versus overseas) and potential *impacts on local industry capability*, taking account always of final cost and delivery schedule. At one extreme, it might seek solely to achieve "best value for money" (i.e., the best price-performance-schedule combination), irrespective of the location of suppliers and without any specific aim to promote domestic industry development. We refer to this "best value for money" approach as the *laissez faire* strategy. Mandatory offset requirements are incompatible with a laissez faire strategy but negotiating over the bundling of different requirements is a normal part of trade—international and domestic. Buyers are free to solicit and suppliers are free to consent to the delivery of packages that include the supply of goods as well as the formation of in-country industry capabilities.

At the opposite extreme, the defense department or ministry may be required as a matter of general government policy to support specified domestic industry suppliers, or even a specific supplier. We call this approach the *buy local* strategy. Value for money here is not a decisive consideration. This strategy may be applied to support the national defense industrial base, government-specified domestic industrial sectors, activities, or individual organizations (e.g., IT and shipping, exports and R&D, and a national airline, respectively), and/or domestic industry or the national economy overall. Offset requirements do not apply in this case, as, by definition, offset schemes apply only to foreign contractors (or domestic importers of foreign goods and services).

Between these extremes, defense procurement objectives may explicitly include domestic industry development and preferential terms for foreign inputs. Here value for money will continue to be sought, but subject to additional constraints and requirements. We refer to this approach as the *best value for money with industry development objectives* strategy. This strategy may involve demands for offsetting local industry commitments from foreign contractors and domestic importers. These may take the form of local content requirements, countertrade, or bundling. Again, this strategy may be applied to support all or only part of the domestic economy.

A fourth approach, international work share arrangements, constitutes what we refer to as the *buy multinational* strategy. This approach aims to enhance the participation of local suppliers in the global supply chains of multinational prime contractors. It includes agreed work share arrangements (e.g., the Eurofighter project), best-endeavor industry participation agreements (e.g., the Joint Strike Fighter project), and/or multinational agency-mediated industry participation (e.g., a membership in OCCAR).[4]

Industry-related procurement strategies in Australia

With the exception of the pure *laissez faire* strategy and membership in a multinational procurement agency such as OCCAR, Australia has tried every procurement strategy described in the preceding section. New Zealand has not experimented as much. For this reason, we concentrate in this section on the Australian experience.

Between the 1950s and the early 1980s, the *buy local* strategy was used for certain products (e.g., shipbuilding, vehicle assembly using government-owned production facilities) for strategic and general economic reasons. Local preference margins applied to most government procurement, giving local suppliers a price advantage over imports. Radical microeconomic reforms from the early 1980s exposed Australian civil manufacturing to global competition. In this context, government procurement was seen as a means of securing technology transfers and stimulating investment in new high-value added activities, and offsets were seen as an effective way of pump-priming industry development by allowing Australian firms to acquire new technologies from foreign manufacturers.

In defense procurement, the *best value for money with industry development objectives* became the dominant, industry-related strategy, implemented through the AIPP and AII programs. "Under the AII framework, defence spending is to be directed to Australian industry when it is competitive with overseas sources, or to meet strategic and/or operational defence requirements" (ANAO, 2003, p. 11). As AII matured, poorly targeted, best-endeavors offset demands were replaced with apparently more enforceable mandatory offset obligations. A "stick and carrot" regime was also used to induce foreign suppliers to engage in the local economy (e.g., offset credits) and to penalize non-compliance (e.g., liquidated damages). Over time, the emphasis shifted from offsets defined broadly (countertrade, additional local production, and the bundling of primary equipment acquisitions with additional requirements such as technology transfers or training) to raising local content targets.

By the early 1990s, offsets, as defined under ADOP, had been relegated to the back burner to be used only in exceptional circumstances. The *best value for money with industry development objectives* strategy changed to a *best value for money with industry engagement objectives* strategy. This allowed the defense department to seek local content in contracts rather than target broadly specified reciprocal arrangements.[5] Under the Bishop Procurement Rules, high local content targets are no longer to be achieved *per se* but the department tries to target the particular components of projects it requires to be undertaken by ANZ suppliers.

The joint Australian-New Zealand ANZAC frigate project provided an opportunity to experiment with the *buy multinational* strategy. Under the ANZAC Ship Treaty, Australian and New Zealand industry was treated as a combined national defense industrial base with local content work subcontracted to Australian and New Zealand firms on a best-endeavors basis. This application of the strategy remains an example of a successful, albeit one-off, initiative. Australia's participation in the United States' Joint Strike Fighter (JSF) project may be viewed as a further evolution of the *buy multinational* strategy (see below).

The Department of Defense now appears to follow an *eclectic procurement* strategy, comprising the previous *best value for money with industry engagement objectives* approach, the *buy local* approach (seeking long-term partnering arrangements with selected prime contractors), and a *buy multinational* strand (e.g., Australia's participation in the Joint Strike Fighter program to secure long-term involvement of local firms in global supply chains). The strategy also includes a commitment to demand management to facilitate the long-term smoothing of domestic demand.[6] The *eclectic strategy* is about as mature as it could be in providing scope for government to achieve a desirable balance

between the often-conflicting objectives of national security and industry involvement. The challenge, however, is in its application and management, and in knowing precisely why and when a particular procurement option is to be selected.

The defense department has not fully embraced this task. The 1998 DISPS foreshadowed greater focus on strategic priorities in AII. This was to be achieved through more transparent links between industry support objectives maximizing ANZ industry participation at the project level and broader industry development objectives described in *Defence Needs of Australian Industry* (DoD, 2000b). To date, the department has not implemented the suggested approach. In 2001, the government's decision to adopt sectoral industry plans switched the policy focus from industry-wide to sectoral considerations. Thus, it could be argued that strategic priorities for AII would be set out in sectoral plans. As of September 2003, the sectoral plans remain under consideration by the government and it is not apparent how the stated intention of using a smaller number of prime contractors and key industry partners can be combined with the general principle of *maximizing* ANZ industry involvement in defense procurement.

It is apparent that the most recent Defence Capability Plan (DCP), a long-term projection of new asset acquisition by the ADF and a key element of the 2000 Defence White Paper (DoD, 2000a), has been overtaken by events (ASPI, 2003). A basic dilemma for the defense department, in an uncertain and turbulent strategic environment, is whether it is in a position to make long-term commitments to industry that would provide it with more predictable workloads. As Australia's strategic posture is increasingly determined by events beyond the government's control (e.g., the US government's response to Iraq in 2003), and subject to short warning times, it is not clear how the department might give AII a better focus on strategic, long-term priorities. AII may need to have its emphasis shifted from in-country production to the provision of through-life support for largely imported weapon systems.

The envisaged acquisition of technologically advanced weapon systems (e.g., replacements for F-l 11 and F/A-18 aircraft, new air warfare destroyers, new combat systems for the Collins class submarines) over the next 15 to 20 years will present a further challenge for AII. The projected acquisitions will involve a leap into (US-dominated) product technologies that are likely to place new demands on industry support in Australia and, in turn, trigger a major restructuring of local defense-related industries. This is already evident from Australia's involvement in the Joint Strike Fighter (JSF) program where, for a US$150 million "access fee," Australia acquired Level III (informed) Partner status. This form of the *buy multinational* strategy is being viewed as a template for many future Australian acquisitions, and an inter-departmental JSF Industry Advisory Council has been set up to assist local industry in embracing the attendant technological challenges and in bidding for future JSF work (ANAO, 2003). In principle, traditional offset and work share arrangements are specifically excluded from the JSF program as all subcontractors are expected to be internationally competitive. In practice, *de facto* reciprocal trade is likely to emerge.

While the rhetoric of Australian industry participation in the project sounds like the familiar rationale for AII (ANAO, 2003, p. 50), the reality is that participation in the JSF supply chain is likely to be limited to firms that are well established and have a track record of highly competitive supply. There appears to be little scope for pump-priming new or untested suppliers as was the case under AII over the past 15 years (e.g., the

Australian Submarine Corporation). The JSF program may produce reciprocal work for Australian firms, probably in through-life support, but they will have to be highly competitive.[7]

While the old-style AII aimed to develop new industry capabilities in Australia, JSF suppliers are likely to be drawn from existing successful producers. Whereas import substitution dominated the old-style AII arrangements, successful participants in the JSF component supply chain will be largely export-oriented (an informal but *de facto* buyback operation). As Australia draws closer to the US and interoperability with US-made systems becomes an operational necessity, the scope for sourcing equipment from non-US suppliers will decrease and JSF-style variants of the *buy multinational* procurement strategy may come to dominate large Australian acquisitions in future.

Industry development outcomes

Australia's defense industrial base enables it to pursue a significant degree of self-reliance, an essentially strategic matter. Early in the 1990s, the defense department identified several industry capabilities critical to the self-reliance of Australia's defense forces: C3I, IT, surveillance, weapon platforms, weapon systems, munitions, and logistics support. There is a broad commitment to maintaining these capabilities in-country, although as the example of shipbuilding shows, it is not clear which of these capabilities are really strategic in-country "must haves" and which belong to the "nice-to-have" category (ASPI, 2002).

While monitoring of AII has not been very accurate (ANAO, 2003), local content and SIDAs are said to have accounted for a relatively high proportion (average 57 percent) of new contract value in 2000–01. In that year, AII as a percentage of contract value for new capital equipment was 43 percent for aerospace systems, 68 percent for electronic systems, 44 percent for land systems, and 70 percent for maritime systems (ANAO, 2003, table 3, p. 69).

Industry outcomes associated with offsets have failed to live up to their promise (DoD, 1994; Hall and Markowski, 1996). An offsets database has been maintained by the defense department since the early 1970s and was analyzed by the authors in the mid-1990s (Hall and Markowski, 1996). The analysis revealed that although the post-1986 mandatory offsets regime had resulted in higher average annual offset obligations, its best-endeavors predecessor had done better than might have been expected. The 1986 mandatory offsets regime apparently produced a higher ratio of offset obligations acquitted as a proportion of all obligations. Over the 12 year period (1981/82 to 1993/4), the two dominant categories of acquittal, at 33 percent and 24 percent, respectively, were part production and assembly (i.e., local content) and purchases of Australian-made products (countertrade). Technology transfers and overseas market assistance (bundling) accounted for 18 percent and 6 percent of acquittals. But without further analysis, compliance with offset requirements should not be interpreted to benefit the defense department and/or the economy at large.

Industry and the department usually deny the presence of local content related cost premiums, and the calculation of such premiums is of course difficult when it is not clear what is to be compared with what.[8] That said, the Department of Defense itself calculated that the cost premium paid for local industry participation in assembly of F/A-18 aircraft

in the late 1980s amounted to 29 percent of the value of the additional work required to be done in Australia (DoD, 1994, annex A, p. 8).

Overall, a recent report by the Australian National Audit Office (ANAO) has found that "…Defence had set up a well structured approach to ensure that AII considerations are addressed in the procurement phases of capital equipment projects. Stakeholders in the AII Program, including industry, with near-unanimity, agreed that the AII framework is an essential element in achieving reasonable outcomes in Defence procurement for Australian industry and Defence" (ANAO, 2003, p. 14). But the report also notes that "…Defence had no agreed outcomes or outputs to be achieved in the pursuit of either of its AII Program objectives [and] in the absence of quantitative and/or qualitative performance measures for the AII Program as a whole, it was not practicable for Defence to demonstrate whether, over the many years of its existence, the AII Program has been making real progress, or is losing ground, in seeking to meet its objectives" (ANAO, 2003, p. 14).

Conclusions

Australia's experience of using different industry-related strategies and delivery mechanisms in defense procurement, including best-endeavors and mandatory offset schemes, is arguably richer than that of any other small industrial economy. Although the term offsets has had a rather specific meaning in the context of the Australian (and New Zealand) Industry Involvement program, the whole program can be described as offsets using our definitions (Markowski and Hall, 2004). Both AII and NZII are a combination of local content arrangements, which we describe as a form of countertrade, and additional offsets, which may take the form of additional local content requirements, bundling, or other countertrade.

The Australian experience shows that both best-endeavors and mandatory offset schemes are a rather inefficient means of achieving strategic industry development outcomes. They are poorly targeted as they relate to all defense capital imports rather than focus on specific industry capabilities of particular strategic significance. If the formation of a local industry capability is to be achieved for strategic or broader economic reasons, it is best to combine this requirement with the (primary) demand for equipment and seek the delivery of both in contract. As we argue in Markowski and Hall (2004), broadly targeted schemes are unlikely to deliver better social outcomes than an unencumbered negotiation allowing the procurement organization to seek the best social value for money. However, to be successful in negotiating good strategic or general economic outcomes, the procurement agency must be able to focus its industry development program on specific industry capabilities. Demanding some vaguely specified industry capability enhancements at no additional cost is usually counterproductive.

Notes

1. It is unclear that the stop-go cycle of demand actually impedes investment, results in large cost premiums, and undermines the strategic role of local industry as the fourth arm of defense. Since the late 1980s, a number of large (by Australian standards) projects (e.g., the Collins class submarine, ANZAC frigate, and coastal mine hunter) have shown that in-country production can start relatively quickly. Project-specific resources can be assembled with short lead times while the Australian economy is mature enough to provide complementary infrastructure support. Australia imports designs for most of its home-made weapon systems and the ability to surge into larger volumes of production is of limited value in modern, "come as you are" warfare. Thus, it is not at all clear why the sustainment of specific defense *industrial production* capabilities is essential for srategic reasons. Economic arguments are even harder to sustain, given the small and often capricious domestic demand, the rate of technological change (imposing large R&D costs), poor prospects for technology spillovers into the civil sector, and very restricted export opportunities.
2. Broader benefits of the in-country production of weapon systems have often been claimed in Australia but the only systematic attempt to validate this claim are two Tasman Economics studies. For example, it is argued that the ANZAC ship projects increased Australian GDP by between $200 and $5,000 million per year over the 15 year construction phase and created some 7,750 full time equivalent jobs (Tasman Economics, 2000; 2002). For this to be regarded as a net benefit to Australia, it is necessary to assume that no cost premiums are associated with the project relative to alternative imports and that, as the only alternative to in-country sourcing of the frigates, the ships would have been fully imported from overseas. Many such "what-if" scenarios can be chosen to demonstrate much smaller value of the project to the Australian economy. The essential point, however, is that if no cost premiums are involved it is generally advantageous to procure weapon systems in country. This broadens the Australian manufacturing base and may result in some technological spillovers and skill transfers to other industries. While the existence of such benefits has been claimed, and some supporting evidence has been provided by the two Tasman studies, little is known about the long-term impact of in-country defense procurement on human capital formation and use elsewhere in the economy. Further research in this area would be most useful.
3. For over a decade, warship building (submarines, frigates, mine hunters, and patrol boats) has been represented as strategically necessary. But modern warfare is very much a "come-as-you-are" affair and in-country capability to build new platforms in emergency appears to be of little strategic benefit (ASPI, 2002). It is the ship repair, cross platform system integration, and IT-related industry sectors that appear more significant from a strategic point of view. There is also little evidence of any prospect for significant technological spillovers from warship building to the broader economy.
4. OCCAR is a joint procurement agency of France, Germany, Italy, and the UK that aims to improve the efficiency of European armament collaboration through competitively let contracts.
5. Interestingly, New Zealand introduced its ADOP-inspired mandatory offsets program at the time when Australia was having second thoughts about the effectiveness of offsets.
6. Better demand management and partnering with industry have since become a mantra of defense industry policy (DoD, 1998; DoD, 2002). This approach has been combined with policy moves to achieve greater integration of the Australian national defense industrial base with the global defense industry. To improve demand management, significant efforts have been made to involve industry in defense capability planning.
7. Given the country's geographic remoteness, it is reasonable to expect the aircraft to be serviced in-country although the scope for repairs and re-work will be limited as aircraft

components are modularized with serious re-work to be undertaken by their original manufacturers.

8. Tenix, the prime contractor for ANZAC ships, advised an industry consultant that anecdotal evidence put the premium at plus/minus 5 percent. The defense department has no recent estimates but it has earlier anticipated the cost penalty for the ANZAC ship local content to be around 3.5 percent (Tasman Economics, 2000, pp. 9–10). For the mine hunter project, "representatives from the Department of Defence contacted in the course of this study did not indicate that the Department paid a premium" (Tasman Economics, 2002, pp. 73).

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