

Submission to the Senate Economics References Committee Inquiry into Australia's Sovereign Naval Shipbuilding Capability 2020

Identification

This submission is provided in a private capacity. I am a former Director-General Industry Policy and Programs and Economic Advisor in the Department of Defence ('Defence'). Prior to joining Defence, I worked for more than a decade for consultants PwC and Deloitte specialising in assessments of the economic impact and performance of government projects and programs. For five years I was Secretary of the Australian Industry Group's Defence Manufacturers Council. I hold a PhD from Monash University specialising in industrial economics.

Introduction

In February this year, the government [accepted](#) 60% as the minimum level of Australian Industry Capability (AIC) for the assembly in Australia of the future submarines. In April, it [re-affirmed](#) a similar target for assembling the offshore patrol vessels. The corresponding figure for the [future frigates](#) is more difficult to identify but appears to be approximately 55%. Those minimum numbers imply the following:

- levels of Australian industry content of 60% or less are sufficient to achieve 'sovereignty' defined broadly as the ability of Australia to defend itself in the event of major confrontation or conflict; and
- any increases in content above those levels are being pursued primarily for their perceived economic benefits.

In the short-medium term, the prospects for achieving higher levels of AIC appear limited. Production contracts for the offshore patrol vessels and future frigates have already been let. And selecting a single designer for the future submarines is likely to restrict the potential for competition for the project's subsequent production phase. Both developments diminish the bargaining power of the Commonwealth to push for higher levels of domestic industry content.

Based on the existing structure of Australia's naval shipbuilding and sustainment program including its AIC targets, the key findings of this submission are that:

- the costs of the program may rise further if achieving sovereignty in a less certain strategic environment requires the development of a comprehensive indigenous capability for vessel design and additional domestic stockpiling of imported materials and components;
- the individual industrial capabilities covered by existing AIC targets and critically important to hold in-country for military-strategic reasons have not yet been disclosed by Defence. Nor has the department released a suitable administrative framework for monitoring their availability and intervening to redress potential capability shortfalls. For sovereignty to be achieved, all those measures must be in place; and

- the economic impact of naval shipbuilding is difficult to determine, but available evidence points to an impact well below what first impressions suggest.

Those three issues align with the inquiry's Terms of Reference covering: (d) ongoing examination of contracts and scrutiny of expenditure, (e) the implementation of Australian Industry Capability Plans, and (i) opportunities and multiplier effects to local jobs and the economy.

Terms of Reference (d) - Ongoing examination of contracts and scrutiny of expenditure

For whatever reason, over a relatively short period the estimated cost of building larger vessels under Australia's naval shipbuilding program has increased significantly — by 60% for the future submarines and nearly 30% for the future frigates. But that might not be the end of a sobering financial story. There are various forms of additional cost pressure to consider. It is not clear whether those sources are captured in the 'contingency' element of existing build or sustainment budgets.

(i) Existing cost pressures

As [ASPI](#) has indicated recently, Defence might face higher than expected costs for sustaining not just naval vessels but other planned purchases of capital equipment. Those increases, coupled with a deteriorating fiscal outlook for the Commonwealth government post Covid19, may increase the opportunity costs associated with supporting naval shipbuilding.

The future submarine and future frigate builds must compete for skilled labour against each other, a life-of-type extension for the Collins-class submarine fleet, potentially a series of [new](#) (54-58) shipbuilding projects and the workforce demands of the broader economy.

Together with the fact that Defence's most recent job estimates for the future submarine build have risen substantially (after [anomalies](#) in the original calculations were discovered), strong competition for skilled labour suggests that wage pressure looms as a threat to the shipbuilding budget. That threat may be difficult to remedy solely through increased government assistance for workforce skilling which entails budgetary costs of its own.

Assembly of the future submarines and future frigates in Australia will progress to new designs using a workforce unfamiliar with the particular classes of vessels involved — perhaps making it difficult for each project to avoid cost overruns after supply contracts have been signed and work has commenced. The market power vessel builders now enjoy could reduce their incentive to prevent those overruns occurring.

A frequently overlooked aspect of implementing the naval shipbuilding program is that controlling the market or monopoly power of builders and their suppliers may not be as simple as it sounds. Quite apart from control needing to extend beyond prime contractors to include a supply chain where monopoly power can also be a problem, formulating a workable strategy for cost containment can be challenging:

'Reflecting a legitimate fear that distributing projects between different companies is no better than a partial solution to the problem of market power — by at least avoiding the creation of a single, dominant supplier — replacing delinquent contractors part way through vessel assembly projects has emerged recently as a high-profile regulatory alternative. In an unusual turn of events, what is normally the last line of a competition policy defence seems to have joined the first line of attack.

'Nonetheless, replacing the industry's poor performers part way through projects, as a means of disciplining the market, suffers from several limitations. Perhaps the most obvious is that the key factors that now make the approach a more attractive policy option do not apply in full to most naval ship assembly projects. Those factors include having significant

amounts of project design work undertaken in Australia. Less obvious is that the disruption that can accompany replacing poor performers, including job losses, can be far more difficult to manage politically when a project is based here rather than overseas.

‘In the absence of Defence devising an effective way to directly control company prices, through a form of cost and profit regulation, replacing established suppliers might result in nothing more than one monopolist with scope to perform poorly being supplanted by another with the same (discretionary) ability. Appendix 6 details why effective price regulation can be unusually difficult to achieve in a defence environment.

‘A different company taking over a successful but only partially completed project can be challenging enough. Taking over a partly completed but clearly failing project can be more difficult again. That is especially so when replacing poorly performing companies involves, as it would for vessel assemblers and their key material and component providers, removing the original equipment manufacturers and losing the specialist knowledge they possess.

‘Along with the complexities of price regulation, that helps to explain why replacing delinquent contractors during large and complex Defence capital equipment acquisitions is largely untested in an Australian environment.’ Rob Bourke, *Defence Projects and Economy*, Special Report, ASPI, Canberra, August 2019, 15-16, [online](#)

(ii) New cost pressures

However, those may not be the only potential sources of higher costs in the period ahead. Further upward pressure on the Defence budget may arise if sovereignty requires: an indigenous vessel design capability, stockpiling more imported vessel materials and components or assisting struggling Australian-based companies holding capabilities of high military-strategic value.

(a) Vessel design

Australia's aspirations to achieve sovereignty may extend beyond building vessels to foreign designs. As the government's 2018 [Defence Industrial Capability Plan](#) suggests, it may need to include an indigenous design capability:

‘Establishing 21st century shipyards for design, construction and optimal production efficiency of our future submarines, frigates and minor war vessels is critical to achieve the capability, reform and efficiency dividends required...’ Department of Defence, *2018 Defence Industrial Capability Plan*, Canberra, 2018, 37, [online](#)

It is not clear whether the design capability to which that Plan refers is a partial capability — aimed at allowing Australia to make relatively minor modifications to vessels for the purpose of sustainment with ‘reach back’ to an overseas designer — or whether the objective is to create a fully self-contained capability to support the production of vessels uniquely suited to our own military requirements as well as those of other countries.

If the latter, the thinking appears to be that the costs of establishing a design capability will eventually be offset by the financial returns exports and the development of new technologies and skills provide (a topic I return to later). However, in the short-medium term those design costs may need to be met by government.

Published data for the Collins-class submarines points to design making up 6% of the total cost of their construction ([here](#), 97). However, that appears to relate merely to the adaption of an already established design. If so, it seems reasonable to assume that substantially higher costs can be expected if an all-encompassing capacity for vessel design is pursued. Whether those costs are already included in the budget for naval shipbuilding and sustainment is an issue worth verifying.

(b) Additional stockpiling

AIC of 60% or below is likely to be dominated by three elements of project cost: the costs of 'direct' labour and consumables associated with vessel assembly; the capital costs of providing associated plant, equipment, buildings and structures; and, the costs of corporate overheads. If so, a relatively small proportion — possibly as low as one third — of the materials and finished components on which vessel builds depend will originate from Australian-based suppliers.

Ostensibly, the possibility that the bulk of the materials and components going into our new fleets must be imported is problematic as Australia moves from a relatively benign strategic environment into a period of [profound strategic disruption](#). Perhaps the most obvious response is for Australia to stockpile larger amounts of those items.

From that, two questions emerge. How large does the increase, if any, in stockpiling need to be to achieve sovereignty? And how will any increase affect the costs of future naval shipbuilding and sustainment? The short answer to both questions seems to be that the increases may be smaller than initial impressions suggest but still large enough to detract from a Defence budget already under considerable strain.

Smaller than expected increases in stockpiling may be achievable given the nature of warfare in the modern era. As [Davies, Ergas and Thomson](#) explain:

'If there were to be a great power conflict in the 21st century — a possibility that cannot be dismissed — it would likely be short, sharp and potentially catastrophic, leaving no time for crash naval construction programs.

'Of course not all wars involve great powers, but it would be even more fanciful to envisage the world looking on as Australia and one of its South East Asian neighbours fought a conventional war of attrition extending over the two to three years it takes to initiate a program and build a warship.

'If moderate to major battle damage occurs, the time taken for repairs at even a manufacturers' yard is likely to exceed the duration of modern conflict.

'Australia (along with most other countries) routinely operates imported commercial and military aircraft. Aircraft engineering is *at least* as complex and surely less forgiving as anything to be found in the marine sector with the possible exception of submarines: if we

can safely and effectively sustain advanced foreign aircraft, the same should be true of naval vessels.

‘It is sometimes asserted that Australia needs to be able to not just repair and maintain its vessels but also to upgrade them in-country. Although the strategic imperative for doing so is debatable, in practice upgrades can be performed in-country using existing maintenance capabilities, provided that the necessary IP and systems integration expertise are available.

‘Often, a critical factor in naval upgrades is access to the source code for combat systems, weapons and sensors. Since these components are almost completely of foreign origin irrespective of where vessels are built, domestic shipbuilding confers no advantage in this regard.

‘Our dependence on foreign suppliers is manifest in the advanced subsystems aboard our vessels, not on the location in which the hull is fabricated and the inevitably foreign-sourced subsystems are installed.

‘Overall, the claimed strategic benefits of local construction are at best unproven, at worst highly implausible.’ Andrew Davies, Henry Ergas and Mark Thomson, *Should Australia Build Warships – an economic and strategic analysis*, Discussion Paper, ASPI, Canberra, April 2012, pp. 19-22, [online](#)

To the degree additional stockpiling is required in response to Australia's deteriorating strategic outlook, relying on relatively inexpensive imported materials and components may be more cost-effective option than supporting production of the same items in-country. High set up costs, coupled with low production runs, for the more complex of those items can sometimes work to the price disadvantage of Australian-based suppliers.

When advocates of naval shipbuilding in Australia refer to the industry enjoying economies of scale which match those of their overseas rivals and deliver internationally competitive prices, they are often referring to vessel assembly. However, the economies of scale required for the cost-effective production of complex materials and components further along the vessel supply chain may be larger.

At that level, the fixed costs of production — like the costs of design, development and production infrastructure — and the gaps between production runs can be considerably larger than those associated with assembling a complete vessel. As a result, producers overseas may enjoy an advantage over Australian-based companies at least in the short-medium term, by virtue of possessing a wider defence, commercial and export customer base.

Nonetheless, if achieving sovereignty in a period of increasing strategic uncertainty requires stockpiling larger quantities of imported inputs than are normally associated with fleet operations, sustainment costs may still be higher in net terms than currently indicated — and existing budgets allow.

(c) Industry assistance

Finally, the costs of naval shipbuilding might increase in an unexpected way if the Australian-based companies supporting capabilities already agreed under AIC plans encounter difficulties. Many factors

can influence the viability of those companies, including their ability to secure alternative work in the event their involvement in naval shipbuilding and sustainment proves volatile.

Australia's shift from a batch to a continuous form of naval shipbuilding may provide greater continuity of work for vessel assemblers. But that does not necessarily apply to the same extent to participants in the domestic supply chain. For those companies, orders tend to be smaller and more specialised — and the cost disadvantages of spreading production over extended time frames can become more acute. Although extraordinarily difficult to predict, the costs of support an ailing capability can be substantial — raising the issue of whether adequate contingency for their effects has been set aside in the Defence budget.

Terms of Reference (e) - Implementation of Australian Industry Capability Plans

Five years on from an Economic References Committee [recommendation](#) that the cost bases on which AIC targets are estimated should be clarified, it is still not clear whether the bases applying to the government's current targets relate to the total cost of vessel builds — including design, supporting infrastructure, combat systems and weaponry — or whether they relate purely to vessel assembly. Whether sovereignty has, or has not, been achieved may vary according to the cost base used.

Defence has also yet to indicate publicly what proportion of existing AIC targets relate to industrial capabilities [critically](#) important to hold in-country for military-strategic reasons, the nature of the individual capabilities involved and the proportion of AIC they cover. The department's intentions in relation to whether higher AIC targets will need to be established in the longer term, for military-strategic reasons, are also difficult to discern.

Nor has the department outlined publicly the way in which it proposes to monitor the availability of critical capabilities and intervene to support the relevant Australian-based companies should capability shortfalls arise. For the concept of sovereignty to have any meaning, all the above requirements must be satisfied.

One of the least understood aspects of defence industrial sovereignty is that successful outcomes hinge not only on the ability of Defence to identify the domestic industrial capabilities of highest importance to protect the nation. Positive outcomes also depend on the department's ability to then monitor where, when, why and to what extent demand for those capabilities might exceed domestic industry's capacity to supply.

If neither demand nor supply can be measured and compared effectively, through regular monitoring, it is difficult to know if sovereignty has been achieved. Recent history with Priority Industry Capabilities ([here](#), [here](#), and [here](#)) amply demonstrates that Defence's attempts to develop important industrial capabilities have tended to come 'unstuck' at the monitoring stage of the development process.

Capability monitoring should not be confused with an AIC audit, although there may be some overlap between them. Periodic checking or auditing of whether an AIC target has been met is essentially a 'backward looking' exercise which sometimes accepts outcomes that do not meet original requirements. Monitoring is 'forward looking' by focussing on what might occur in the short-medium term. It is also geared towards rectifying, as distinct from merely penalising, any project outcome which fails to satisfy a prescribed target.

A proactive rather than reactive approach to assessing the availability of critically important industrial capabilities is necessary partly because it can take considerable time to rectify a capability problem. Successful intervention relies on Defence having early warning of any difficulties that may arise.

In discussion of sovereignty, intervention also tends to be treated as an after-thought — something that occurs automatically, instantaneously and for minimal effort and cost. But there are many competing avenues through which government assistance can be rendered to overcome a supply problem within industry. Each avenue has its own reach, risks, costs, time frames and level of sustainability.

Those avenues include providing companies with grants for innovation and workforce skilling, assisting with export market development, paying price premiums for preferring domestic over foreign supply,

altering the timing and structure of Defence projects, providing government subsidies to retain spare industrial capacity and even allowing a capability to lapse before re-establishing it at a later date. In the absence of a suitable policy framework for intervention, selecting and then applying an optimal mix is unlikely to yield effective and efficient public policy outcomes.

It might be argued that developing the administrative infrastructure necessary to define, monitor and intervene can wait. But that seems unlikely: committing to sovereignty without first understanding how that commitment can be applied looks more like a recipe for unwelcome surprises.

Apparently, the relevant mechanisms for supporting a definition-monitoring-intervention paradigm will be established through a sovereign industry capability [implementation plan](#) for naval shipbuilding and sustainment scheduled for completion by Defence by the end of 2020. Only time will tell whether that proves successful. Whatever happens, the progress of the plan provides a focal point for the Committee's current inquiry.

Terms of Reference (i) - Opportunities and multiplier effects to local jobs and the economy

Two issues in relation to economic impact stand-out from the government's naval shipbuilding and sustainment program, neither of which is easily determined. First, in the short-medium term, what happens to the economy if companies involved in delivering non-critical industrial capabilities fail to deliver against their current AIC obligations. Second, in the long run, how might the economy be affected if those AIC targets can somehow be increased.

(i) Data coverage

In addressing those issues, an outstanding feature of recent public discussion is a reliance on a narrow range of available research. For example, the submission to the Committee's current inquiry by the Australia Institute (AI) which extols the economic virtues of naval shipbuilding appears to draw on only one study specific to the Australian defence environment, by [RAND](#) in early 2015.

Far from providing a definitive conclusion that naval shipbuilding provides a significant net stimulus to the economy, RAND's key conclusion was that economic outcomes are 'highly context-dependent'. That suggests economic analysis at an individual project level holds the key to reaching informed conclusions — and that simple extrapolations from the broader economy may not suffice. Specific analysis was not provided in RAND's report.

A single, but different, [study](#) covering the Anzac-class frigate build forms the basis for most of the claims in relation to the economic impact of naval shipbuilding made in the submission by the Australian Shipbuilding Federation of Unions (ASFU). However, that build was characterised by high Australian content and a low price premium. Australia's current crop of vessel acquisitions appears more likely to deliver the opposite.

In its submission, the ASFU makes much of the study's findings in relation to the cost savings in sustainment that flow from preferring domestic over foreign assembly of vessels. Not mentioned is that those findings were critiqued by [Davies, Ergas and Thomson](#) in 2012 (20-21), [Defence](#) in 2015 (66-68) and [Bourke](#) in 2019 (57-58) — and found to be wanting.

If domestic rather than overseas assembly does deliver large savings in sustainment, there should now be considerably more evidence available for the Anzac-class frigates than 20 years ago when the estimates now relied upon by the ASFU were prepared. At that time, the frigate build was still under way and a program for vessel sustainment had barely begun. Neither Defence's submission to the Committee's current inquiry nor other sources of publicly available departmental data appear to provide the relevant supporting evidence.

Perhaps most importantly, like other evidence to the inquiry — including the submission by the South Australian government (SA) — the AI and AFSU submissions exclude any mention of a plethora of more illuminating research questioning the economic advantages of naval shipbuilding in an Australian environment ([here](#), [here](#), [here](#), [here](#), [here](#), [here](#), [here](#), [here](#), [here](#), [here](#), [here](#) and [here](#)).¹ It is

¹ For completeness, the full references are as follows: Industry Commission, *Defence procurement*, report n. 41, Australian Government Publishing Service, Canberra, August 1994, [online](#); Andrew Davies, Henry Ergas, Mark Thomson, *Should Australia build warships? An economic and strategic analysis*, Discussion Paper, ASPI, Canberra, April 2012, [online](#); Henry Ergas, Mark Thomson, 'On economics and submarines', *The Strategist*, ASPI, 29 October

important to note that those additional sources of research are based on project-specific data, not broad extrapolations from manufacturing more generally.

The AI, ASFU and SA submissions also exclude any reference to an extensive range of international comparative data relating not to broader manufacturing but to defence manufacturing — just a tiny sample of which is [here](#) and [here](#).² Only [one](#) of all the additional sources quoted above was included in Senate Economic References Committee reports on naval shipbuilding in [August 2014](#), [November 2014](#) and [July 2015](#).

In the quest to determine the economic impact of AIC, it may be better to begin with a range of data specific to naval shipbuilding and sustainment in Australia or at least with overseas data specific to defence expenditure than with a single study in an Australian context or generalised extrapolations from commercial areas of the economy here or overseas. Fortunately, there is a substantial amount of specific data (noted above) which the Committee and others can readily access. Convenient points of entry into that data are a 2012 study by [Davies, Ergas and Thomson](#) and a 2015 study by the [Defence Materiel Organisation](#).

(iv) Economic costs

Much of the research relied upon currently by advocates of building naval vessels in Australia deals only with economic benefits. From the way the data is sometimes presented, the casual observer may be unaware that the economic costs of builds are not considered. Those costs include the need to generate the public revenue to pay for shipbuilding including price premiums through higher taxes, reduced

2014, [online](#); Edward G. Keating et al., *The economic consequences of investing in shipbuilding: case studies in the United States and Sweden*, RAND Corporation, Santa Monica, 2015, [online](#); Andrew Davies, Mark Thomson, *An enterprise-level naval shipbuilding plan*, ASPI, Canberra, July 2015, [online](#); Department of Defence (DoD), *Building submarines in Australia: aspects of economic impact*, Defence Materiel Organisation, Canberra, May 2015, [online](#); Productivity Commission, *Trade and assistance review 2014–15*, Australian Government, Canberra, 2016, [online](#); Productivity Commission, *Trade and assistance review 2016–17*, Australian Government, Canberra, 2017, [online](#); Insight Economics, *Australia's future submarine: getting That key capability right*, public policy report to Submarines for Australia, Melbourne, September 2017, [online](#); Gunnar Eliasson, *Visible costs and invisible benefits: military procurement as innovation policy*, Springer, Berlin, November 2017, [online](#); Australian National Audit Office (ANAO), *Naval construction programs—mobilisation: department of defence*, performance audit report n. 39 2017–18, ANAO, Canberra, May 2018, [online](#); Hugh White, *How to Defend Australia*, La Trobe University Press, Melbourne, July 2019, [online](#); and, Rob Bourke, *Defence Projects and the Economy*, ASPI Special Report, Canberra, August 2019, [online](#) The 2015 DoD report on submarines appears to be an early version, essentially an initial working draft, of what could be a considerably more comprehensive final document that hasn't yet been released by government. The early version cited above was released only through an application under freedom of information legislation (DoD, *FOI 145/15/16 statement of reasons under the Freedom of Information Act*, [online](#)).

² Robert Barro and Veronique de Rugy, *Defense Spending and the Economy*, Mercatus Centre, George Mason University, 2013, [online](#) and John P. Dunne and Nan Tian, "Military Expenditure and Economic Growth: A Survey", *The Economics of Peace and Security Journal*, 8(1), 2013, [online](#).

government expenditure elsewhere or higher levels of government borrowing. They also include projects attracting scarce resources, like skilled labour, that other Australian industries could use.

Current concerns about the shortage of skilled workers to support a large-scale naval shipbuilding program demonstrate that resource scarcity is far from a theoretical issue. It is contradictory to argue on the one hand that resource scarcity does not give rise to an economic cost, and on the other hand to submit the program is struggling to obtain the skilled workforce it needs and large amounts of government assistance are therefore needed to prepare the workforce of the future.

BAE's submission to the current inquiry provides estimates of the [economic contribution](#) of the future frigate build. Those figures are fine as far as they go. But they exclude the effects of economic costs. The South Australian government's submission to the inquiry adopts the same approach. The offsetting effects of economic costs have not been considered. AIDN's submission to the inquiry follows suit, by drawing on [data](#) covering only the economic benefits of naval shipbuilding more broadly and in subsequent testimony indicating that:

'We know that the economic multiplier effect for every dollar spent in Australia roughly translates to \$1.50. Therefore the reality is that the more money that can be spent locally, the greater the benefits to the Australian economy and the more Australian jobs that can be created.' Brent Clark, AIDN, *Senate Economics References Committee, Proof Committee Hansard, Future of Australia's Naval Shipbuilding Industry, 14 August 2020, 21, [online](#)*

In its verbal evidence to the Committee on 14 August 2020, the Australia Institute described the economic benefits that could have flowed to Australia had higher levels of domestic industry content been achieved for the current naval shipbuilding program as 'absolutely enormous' ([here](#), 6) . But, like the multiplier figure quoted by AIDN, that claim appears to be based on an input-output (I-O) approach to gauging impact which makes no provision for economic costs. The limitations of that approach (if it was used) are well known. They have been detailed by [RAND](#) in a naval shipbuilding context and more generally by the [Productivity Commission](#).

Partial disclosure, highlighting the economic 'upside' of projects but ignoring the economic 'downside', may be the prerogative of organisations in the private sector and perhaps of state governments. But does the same prerogative extend to government entities at the Commonwealth level?

A rather lop-sided approach to the presentation of economic data is difficult to reconcile with Department of Finance reporting guidelines for economic benefit of major Commonwealth government procurements, including the [latest version](#) released in early August this year. That version is reviewed in the Attachment to this submission.

Nor does the approach to presentation appear consistent with the [interim finding](#) of the Commonwealth's Covid-19 Manufacturing Taskforce that driving national growth in advanced manufacturing, which includes defence manufacturing, should occur only through 'rigorous implementation and measurement of impact'.

Moreover, the approach does little to assuage concerns, from many quarters, about the broader economic efficacy of naval shipbuilding in Australia. A small sample of those concerns is presented below:

'The most common wider benefit claimed for defence projects is the stimulation of economic activity. For example, in a recent article defending local construction of the future submarine, the CEO of the ASC writes that "for every direct employee involved in the Collins Class Submarine construction program, it was estimated that there was a multiplier effect of two or three in Australian industry". The obvious difficulty with claims of this kind is that they confuse costs and benefits. In effect, they amount to saying that the greater the local inputs consumed by a project, the more worthwhile the project must be. The underlying error is to assume that in the absence of the project, the inputs it uses would lie idle: that the workers it requires, to take but one example, would otherwise live in trees eating nuts until the project comes along, so that employing those workers constitutes a benefit from the project. This assumption is obviously entirely fanciful, especially for the very skilled workforce required for major defence programs. Rather, those employees have a high opportunity cost, best measured by the wages required to attract them, so that the labour income generated by the project is a cost, not a benefit.' Andrew Davies, Henry Ergas, Mark Thomson, *Should Australian Industry Build Warships: An Economic and Strategic Analysis*, ASPI Discussion Paper, Canberra, April 2012, 23, [online](#)

'All too often, public investments are prone to 'optimism bias' and a confusion between political and economic objectives (Banks 2012). If governments make poor infrastructure decisions, this can have a high opportunity cost and act as a long-term drag on the economy's productivity. For instance, a large iconic infrastructure project may displace funding that would support many smaller projects with collectively greater economic benefits...Further, the desire to locate a project such as a defence or shipbuilding project in a particular region does not remove the need for a robust assessment of its costs and benefits to the Australian community as a whole.' Productivity Commission, *Australia's Automotive Manufacturing Industry*, Inquiry Report No. 70, 31 March 2014 (released publicly in August 2014), 238 and 239, [online](#)

'Providing adjustment assistance to retrenched automotive manufacturing employees at a level that exceeds the assistance generally available to other jobseekers raises efficiency and equity issues...defence spending and industry support programs are costly and ineffective ways to facilitate workforce adjustment.' Productivity Commission, *Australia's Automotive Manufacturing Industry*, Inquiry Report No. 70, 31 March 2014 (released publicly in August 2014), 2, [online](#)

'The problem is best explained by thinking of a ship built in Australia. The workers and local subcontractors will receive income they will largely spend on other locally produced goods. By using data on the inputs and outputs of Australian producers of those goods, it's possible to trace the direct and the 'multiplier' effects of the spend on GDP and tax revenue. That's fine, but such an analysis ignores the alternative use of the labour and other inputs - it assumes they'll sit idle if our hypothetical ship isn't built. In reality, market forces will redeploy them elsewhere in the economy where they will contribute to GDP and pay taxes. That's especially true in any long run scenario - and this modelling [for a new class of

submarine] stretches over 40 years. The unreality of input-output modelling is well understood, so more sophisticated general equilibrium modelling (CGE) is the standard approach for addressing long run 'what if' questions about policy. The SA [South Australian] paper [on the economic impact of building submarines in- country] rejects general equilibrium modelling on the grounds that 'no capacity constraints are anticipated in the labour market'. That is, it assumes that there will be a pool of unemployed in Australia for the next 40 years who, but for the opportunity, have the aptitude to become highly skilled engineers and trades persons. Indeed, as there are no ramp up costs in the model, it assumes all these skills and resources already exist - in obvious contrast to the findings of the RAND study. If the economy really was as static and unresponsive as assumed in input-output modelling, we could never have absorbed the resource boom. Nor would we ever have recovered from the removal of tariffs on cars, footwear and clothing. But we did, and the economy responded with new jobs in new areas. More importantly, consumers came to enjoy cheaper prices. There's a lesson here about buying submarines. The economic argument for mandating local construction is ultimately no different to the neo-mercantilist arguments which sought to hold back productivity-boosting reforms of the 1980s and 90s. Then as now, the focus should be on the overall benefits rather than those concentrated in the hands of a few.' Henry Ergas, Mark Thomson, 'On economics and submarines', *The Strategist*, Australian Strategic Policy Institute, Canberra, 29 October 2014, [onlinehttps://www.aspistrategist.org.au/on-economics-and-submarines/](https://www.aspistrategist.org.au/on-economics-and-submarines/)

'A 2014 review for Defence by Deloitte Access Economics did not support the notion that major defence projects generate a sufficient amount of additional benefits to the economy that would offset any significant domestic price premium. The pure stimulatory effects often discussed in debates on defence procurement are unlikely to adequately account for the costs of funding the outlays and the displacement of resources from their most efficient uses when a new large defence capability is developed locally.' Australian National Audit Office (ANAO), *Naval construction programs—mobilisation: department of defence*, performance audit report n. 39 2017–18, Canberra, May 2018, para 4.46, 50, [online](#). The Deloitte Access Economics report has not been released publicly by Defence.

'Paying more for local builds, without sufficient strategic defence and [spillover](#) benefits to offset the additional cost, diverts productive resources (labour, capital and land) away from relatively more efficient (less assisted) uses. It can also create a permanent expectation of more such high-cost work, as the recent heavily promoted 'valley of death' in naval ship building exemplifies. Such distortion detracts from Australia's capacity to maximise economic and social wellbeing from the community's resources. The recent decision to build the new submarines locally at a reported 30 per cent cost premium, and a preference for using local steel, provides an illustrative example of how a local cost premium can deliver a very high rate of effective assistance for the defence contractor and the firms providing the major steel inputs (box 3.1). While based on hypothetical data, the example reveals that the effective rate of assistance provided by purchasing preferences can be higher than the peak historical levels recorded for the automotive and textiles, clothing and

footwear industries prior to the significant economic reforms of protection.’ Productivity Commission, *Trade and Assistance Review 2014-15*, Canberra, 2015, 37, [online](#)

‘The overall findings of this report suggest that, if CGE modelling is used, building a Collins-scale submarine fleet in-country would have limited economic benefits. By and large, various types of crowding out effects offset any direct stimulus the project would bring to economic activity. As a result, even when domestic supply is no more costly than overseas sourcing, the gains are small relative to the size of the project, domestic defence industry, an impending motor vehicle manufacturing down turn, the Australian manufacturing sector and both state and national economies. If a domestic build involves greater cost or risk, then the economy as a whole could be made worse off by the domestic sourcing option. This result holds even without considering the distorting effect of the additional taxes required to pay for any price premium and applies for relatively small premiums. Leaving aside regional impact issues and keeping in mind CGE modelling is likely to yield conservative estimates of economic impact, the findings of the report do not support the view that a domestic submarine build will yield economic benefits so large that they justify Defence purchasing more submarines at a higher cost or capability than Australia’s minimum military-strategic needs dictate. To that extent, the results do not suggest that issues of economic impact should override or overshadow military-strategic considerations when submarine sourcing decisions are made.’ Department of Defence, *Building Submarines in Australia: Aspects of Economic Impact*, Defence Materiel Organisation (DMO), Canberra, May 2015, 12, [online](#)

‘In the 2016 White Paper it was stated that the future submarines would be built in Australia only if it could be done “without compromising capability, cost or the project schedule”. This sensible policy was rapidly abandoned...There are a great many myths about the economic and defence benefits to be derived from building military platforms in Australia. These stories are generally propagated by those with a vested interest, such as politicians and representatives of the military-industrial complex. In terms of the community’s economic welfare and its security in defence terms, the issue is rather more complicated.’ Submarines for Australia, *Australia’s Future Submarines*, September 2017, 12 and 112, [online](#)

‘...that naval shipbuilding program has now attracted an economic and political rationale quite separate from any strategic arguments that might be made for or against it. Recent governments have committed to building all these ships [air warfare destroyers, future frigates and elements of amphibious assault vessels], and a number of smaller ships and patrol boats, in Australia, and have presented the naval shipbuilding program as a key element – sometimes *the* key element – of plans to revitalise the Australian economy. The program has become critical to federal politics in South Australia, where both parties act as if unswerving commitment to South Australia’s right to build warships is necessary to avoid electoral disaster there. Poor strategy, bad economics and weak politics: it is hard to avoid

a sense of deep dismay at that wasteful muddle.' Dr Hugh White, *How to Defend Australia*, La Trobe University Press, Melbourne, July 2019, 307, [online](#)

'With Australian manufacturing in such a parlous state, you could perhaps argue that investment in any form of manufacturing has got to be good thing, but that ignores the opportunity cost. Why spend money on activities that don't increase military or industrial capability and sovereignty, when you could be investing in areas of research and advanced manufacturing that do and are key areas of future [defence] technological advantage.' ASPI, *The Cost of Defence 2020-21, Part 1, ASPI 2020 Defence Strategic Update Briefing*, Canberra, 12 August 2020, 72, [online](#)

One of the difficulties in relation to assessing the economic impact of naval shipbuilding projects in Australia is that there are very few studies which illustrate clearly the difference between results based on economic benefits alone (e.g. I-O modelling) and results which also incorporate economic costs (i.e. CGE modelling). And the only recent study that does, by [DMO](#) in 2015, looks at a hypothetical project — to build six Collins equivalent submarines commencing in 2013-14 — rather than Defence's current shipbuilding endeavours.

Nevertheless, the metrics from that study are still informative. At an assumed level of 69% Australian content, a price premium of zero, an annual spend of \$1 billion and a build period of 16 years, the DMO study indicates that 2,964 jobs would be created nationally on an average annual basis if economic benefits alone are considered.

But if economic costs are also included, the study indicates that employment number drops sharply to 733 at a price premium of zero and to just 293 when a 30% premium applies. At a 30% price premium, GDP declines by \$368 million, real consumption by \$265 million and government tax revenue by \$61 million, on an average annual basis. Overall, the results suggest that it is not appropriate to exclude economic costs when considering the economic impact of extending AIC under the current naval shipbuilding program.

(iii) The broader arguments

Turning to more contentious issues, it is frequently argued that a push for AIC above the current minima of 55%-60% can be achieved without any cost penalty in the form of a price premium for preferring domestic over foreign sources of materials and components.

The basis for that argument is the claim Australian-based companies are already internationally competitive or can readily become so through a more continuous flow of work from Defence and/or exports. The only significant obstacle on the path to higher AIC — at least for the future submarine program which has yet to reach the assembly phase — is Australian-based companies being denied an adequate opportunity to bid for work due to [institutional bias](#) within Defence and the protectionist policies of other countries.

A corollary to the argument is that even where price premiums for sourcing a higher proportion of materials and components from domestic rather than overseas suppliers do arise, their adverse effect

on the economy is more than offset by the positive economic effects of higher AIC on the development of new technologies and skills which 'spillover to improve productivity in other areas of the economy.

The kinds of materials and components that would be covered as AIC moves beyond 55%-60% are likely to be at the high end of the technological and skills spectrum and therefore potentially more effective generators of spillovers than vessel assembly.

(iv) The counter arguments

Against that kind of thinking are at least three counter arguments.

First, if Australian industry is already fully price competitive in naval shipbuilding — including the provision by domestic industry of the key materials and components necessary for higher AIC to be achieved — there may be no need to prove the point by continuing to rely heavily on crude forms of benchmarking, small amounts of anecdotal evidence, abstract economic arguments, data from past projects or even conspiracy theories.

Tender quality data, based on detailed engineering and logistical calculations geared specifically to the features of individual projects, should now be available for the offshore patrol vessels and for the future frigates.³ That data could indicate whether price competitiveness in relation to the domestic provision of additional materials and components applies.

Prima facie, the fact none of that data has been disclosed by Defence — even when the department has faced intense scrutiny in relation to low levels of AIC — suggests a lack of international competitiveness prevails in some areas of Australian defence industry.

In that context, an obvious and important avenue to pursue in helping to resolve (a seemingly endless) debate about economies of scale and price premiums is to simply ask Defence a question: why does the department believe minimum levels of AIC are set currently at relatively low levels of around 55-60% rather than much higher? That question may have already been raised under various guises but perhaps not clearly or directly enough to elicit a definitive response.

Second, claims of competitiveness appear to rely in part on the notion that the assembly of the Collins-class submarines and Anzac-class frigates in Australia achieved a high level of AIC without incurring a significant price premium — all under batch rather than continuous forms of production and in the absence of exports. If those outcomes arose from such large and complex naval shipbuilding projects in the past, under relatively restrictive conditions, surely they can be delivered now. But those claims come with important caveats.

³ By signalling to overseas prime-contractors - before the tender processes for the offshore patrol vessel and future frigate builds began - that vessel assembly in Australia was the strongly preferred option, the government may have reduced the incentive for bidders to prepare a realistic price for foreign supply on which accurate estimates of a price premium depend. Nonetheless, tender data for both projects could cast significant light on the issue of industry competitiveness.

Although the official level of Australian content for the Collins build is [69%](#),⁴ the level finally achieved appears to have been much lower:

‘ASC [Australian Submarine Corporation] was able to record greater than 70% local content for the submarine platform construction and approximately 40% for the delivery of the combat system. We could do that because in the Collins class contract Australian industry content was defined as work performed by an Australian company or business that was incorporated in Australia.

Hence, under that broad definition, work undertaken overseas was classed as local content where the supplier operated through an incorporated Australian company. The same rule applied to imported materials and sub-assemblies where the ‘importing’ entity was an Australian incorporated enterprise.

Thus, excluding the cost for imported materials, sub-assemblies and complete systems, the local content for work performed by ASC was merely 17.7%. It was only after fully accounting for the supply of locally produced steel, GRP composites, batteries, painting, pumps, valves, forgings, anechoic tiles, fire-fighting equipment, the assembly of motors, generators, diesel engines, stern and torpedo tubes, all of which actually had some overseas content, did the Collins class approach 40% local content, well short of the claimable 70% under the contract.

While ASC has established a reliable supply chain for its submarine maintenance activities, accelerating globalisation and the subsequent decline in Australian manufacturing capabilities means the local content performance achieved on Collins will be even harder to meet on the future submarine program.’ Dr Hans Ohff, *Caveat emptor*, paper presented at the Australian Submarine Institute Conference, Adelaide, November 2015, 2, [online](#)

Advocates for naval shipbuilding in Australia will no doubt assert that low Australian content for the Collins-class build, of roughly half the official target, can be attributed entirely to a poorly structured and implemented AIC program. That being the case, any threat to achieving levels of Australian content well above 60% in the current environment can be resolved simply by ensuring that program functions effectively.

But that ignores two factors. One is the magnitude of the shortfall suggests a desire on the part of government to avoid a steep rise in the Collins project’s cost by preferring imported over higher priced Australian inputs. The other is that, in the current environment, a substantial reduction in the depth of Australia’s manufacturing base since the Collins-class submarines were completed could add to the difficulty of achieving price competitiveness.

The official level of Australian content claimed for the [Anzac-class](#) frigate build is 72%, with a price premium (measured against German industry) of 3.5%. Unlike data for the Collins-class submarines, those figures seem to be a reasonable representation of the project’s performance. However, that

⁴ Unfortunately, the project’s price premium is formidably difficult to determine ([here](#) and [here](#) Endnote 21).

performance was achieved only through a carefully structured and relatively innovative approach to project management.

Whether the lessons learned from managing the Anzac-class build are being incorporated into Australia's current naval shipbuilding program is unclear at least for the future frigates. Among other things, the Anzac-class build featured early steps to re-engineer overseas designs to suit potential Australian component and service providers and ensure workshop drawings and work orders were created to facilitate efficient assembly in Australia.

Third, although the materials and components likely to be covered by any move to increase AIC beyond the current minima of 50%-60% are likely to have a higher spillovers potential than vessel assembly, several conditions must hold for that potential to be realised.

One condition is that Australia develops a comprehensive capability for material and component design. As Gunnar Eliasson — a well-known international advocate for defence procurement as a source of industrial innovation — has noted, Australia's high level of dependence on overseas designs for its current crop of naval vessels and their various inputs does not bode well for a substantial spillover effect in the short-medium term.

After concurring that the popular arguments put forward by supporters of naval shipbuilding in Australia — of job creation and tax revenue increases -- should be regarded as 'nonsense' given the economic costs involved, Eliasson uses the future submarine program to illustrate how constraints around design affect spillovers:

'When awarding the US\$ 38 billion contract to French DCNS, not known for its experience with international partnership work (*The Economist*, April 30th. 2016:48f), the Australian Government also gave up on the possible spillover dividends and ambitions to further develop the naval industrial district in Adelaide established there during the Collins project. We know (Chap. 10) that spillovers around overseas design or off-the-shelf procurements are minimal and that this must have been understood by the Australian DMO. Even though the submarines are going to be manufactured at the ASC yards in Adelaide, the (temporary) employment effects are of limited interest in this context. Spillovers, meaning new technology generation (innovations) for potential naval and civilian industrial uses, to the extent that they occur, are likely to benefit the supplier economy in the first place, i.e., France, where the modifications of the nuclear submarine design apparently is going to take place. For this chapter, the question will be whether naval development will be generating any spillovers at all which Rand (2015a,b) indicates to be the case.' Professor Gunnar Eliasson, *Visible costs and invisible benefits: military procurement as innovation policy*, Springer, Berlin, November 2017, 199, [online](#)⁵

In the longer term, to develop a comprehensive design capability which is financially self-sustaining may require that Australian naval shipbuilders and their domestic suppliers secure export orders. However,

⁵ A more detailed critique of the argument for spillovers relevant to the future submarine build are provided in [DMO](#), 52-70.

although an indigenous design capability should assist those companies to differentiate their products when attempting to sell to overseas customers, it is by no means certain the initiative will be sufficient to breach the trade barriers created by other countries. Recent history suggests that those barriers are high and difficult to overcome, even when substantially 'Australianised' vessels and inputs are on offer.

For example, no Collins-class submarines were exported. Beyond two vessels for New Zealand included in the project's first and only production run, no Anzac frigates were exported. And other than naval patrol boats gifted by Australia to foreign nations, no similar boats assembled in Australia have been supplied to foreign navies. In the absence of a compelling case for why history will not repeat itself, the view that exports are a panacea for the economic challenges faced by Australian-based naval shipbuilders beyond the short-medium term should be approached with caution.

Finally, as the [Productivity Commission](#) has pointed out in a naval shipbuilding context, 'it is easier to assert that spillovers will eventuate than to prove they have'. There are a significant number of obstacles to be overcome before long term success can be proclaimed:

'There's no doubt that assembling vessels in Australia for Defence or for foreign customers relies on *inputs* of advanced technologies and labour skills. However, that does not necessarily mean that their assembly delivers *outputs* of new knowledge on a significant scale that other areas of the economy can adopt.

'In order to qualify as a spillover, the knowledge in question must not only be new to vessel assembly but new to the economy as a whole — or at least in short supply. But if only new knowledge is used for assembling vessels, the cost, quality, performance and even safety of that equipment could be placed at risk. Only a small portion of an assembly project might therefore have spillovers potential.

'Even if new to the Australian economy, some knowledge might be so specialised that it has few alternative commercial or defence applications. Some new knowledge may be sensitive from a military-strategic standpoint and therefore off-limits to others for reasons of national security. Broad distribution could depend heavily on surrounding industry clusters, which may or may not exist.

'And any new knowledge could be at least partly owned by the companies that develop it, providing them with a competitive commercial advantage. To maintain their market positions, those companies have an incentive to keep their intellectual property to themselves.

'Under batch forms of vessel production, much of the labour skills component of new knowledge moves automatically from Defence projects into the broader economy at project completion. However, under the forms of more continuous assembly now proposed for most vessels, the same degree of project closure does not apply.

'To boost national productivity, new knowledge from vessel assembly should be available to others at a cost below the value of the benefit it generates. If what a user pays to access

that knowledge equals the value of what it derives from utilisation, one area of the economy simply gains at the expense of another.

‘Few spillovers might emerge from assembling vessels in Australia to an overseas design using mainly imported components. The metal fabrication and platform-level integration that goes with constructing the hulls of vessels may have limited spillover effects.

‘Instead, most spillovers could originate from designing, developing and producing the complex weapon, propulsion and operating systems and other technically advanced components and services that equipment embodies. Low Australian content for those inputs implies a limited spillover effect.

‘But design and development costs for those items can be very high. Such costs might be recoverable only through success in domestic and export markets—to the extent that recovery is feasible at all.

‘Finally, unlike other projects that might contribute to Australia’s economic growth—including those associated with prudent investment in energy, transport, water and telecommunications infrastructure — naval vessels in their final physical form can’t be accessed by businesses or the general public.

‘Other types of investment—like better public transport infrastructure in congested cities and improved water storage for rural communities—might therefore have larger spillover effects, by virtue of being exploited directly by many more stakeholders. Rob Bourke, *Defence Projects and the Economy*, ASPI Special Report, Canberra, August 2019, 18-19, [online](#)

None of those obstacles are addressed directly in the two most recent industry-sponsored studies of naval shipbuilding in Australia by ACIL Allen in 2013⁶ and by [Oxford Economics](#) in 2018. To the limited degree those studies dealt with spillovers, their findings are at odds with considerably more comprehensive research commissioned by Defence — by [RAND](#) in 2015 and by [DMO](#) in the same year.

As indicated by RAND:

‘Regarding the extent to which shipbuilding in Australia would generate favorable spin-offs and spillovers, the U.S. examples are not optimistic. For example, NNS [Newport News Shipbuilding] appears to have generated relatively few spillovers. Indeed, the entire Hampton Roads region has been critiqued for a dearth of entrepreneurial activity. Likewise, no cluster of suppliers has yet emerged around Austal USA.’

‘In contrast to Gripen’s success in the aviation industry, several experts we interviewed suggested that shipbuilding tends to have fewer creative spillovers. While the aviation industry has developed such technologies as composite materials and advanced adhesives, analogs in shipbuilding are hard to identify (though one expert noted considerable progress

⁶ ACIL Allen, *Naval Shipbuilding & Through Life Support - Report to Australian Industry Group*, Canberra, December 2013. Unfortunately, the study is difficult to obtain on the web.

in paint technology in shipbuilding). The Gripen analogy appears to be overly optimistic as to the magnitude and nature of spinoffs and spillovers that might be expected from naval shipbuilding in Australia. Rand Corporation, *The Economic Consequences of Investing in Shipbuilding - Case Studies in the US and Sweden*, Santa Monica, 2015, 58, [online](#)

And as indicated by DMO:

'Self-reported surveys like those used by ACIL in 2013 and its predecessors [[here](#) and [here](#)] have some natural drawbacks. These include survivor bias and the difficulty in attributing productivity gains to a particular project. Further, it is difficult to assess the causality of productivity gains flowing from a project or to identify gains that would have accrued if the resources had been used in some other way. The absence of a carefully defined control group makes these issues all the more acute and cautions against drawing strong inferences from the surveys' results.

'...it is not clear on the historical and other evidence currently available that spillovers associated specifically with submarines built in Australia are likely to be sufficiently large that they should or could determine the outcome of economic impact modelling in relation to a submarine build or decide the outcome of submarine sourcing decisions. On balance, available evidence supports the view that the new knowledge an Australian submarine build would create is likely to be much smaller than commonly believed.

'The evidence suggests that the new knowledge created by a submarine build tends to be: technically specific to submarines or the defence sector; withheld from other parts of the economy for reasons of national security; held tightly by the submarine builder or its suppliers to maximise their own commercial advantage, in markets where product quality rather than price can often be more important to securing long term contracts; logistically difficult and costly to transfer from the submarine builder to other companies, even where the Commonwealth owns the intellectual property; and, capable of being introduced into Australia through avenues other than submarine construction.

'Consultations with Collins stakeholders within and outside Defence failed to identify technological changes from the original Collins build project that led to measurable impacts. Stakeholders identified a list of technological developments that were associated with the project. But in each case, they seem to have had very limited application beyond the project for a variety of reasons.

'This implies that in the period ahead the onus of proof in relation to any claim of substantial spillover effects should rest with its proponents. Department of Defence, *Building Submarines in Australia – Aspects of Economic Impact*, Defence Materiel Organisation, Canberra, May 2015, 69, [online](#)

(v) *Defence disclosure*

The perception of a significant bias in the way economic impact data is presented and a dearth of informed research into pivotal issues like spillovers are not helped by the fact Defence's submission to the Committee's current inquiry provides no relevant data.

Indeed, the department has yet to release in any form the economic benefit *and* cost information it holds for the \$50 billion plus future submarine build, the \$33 billion future frigate build or the \$4 billion offshore patrol vessel build.⁷ That includes data on the cost savings in sustainment that might occur from domestic rather than overseas vessel assembly.

Over the past five years, Defence's approach to commissioning and disclosing reports on the economic impact of its major capital equipment acquisitions seems rather incongruous. The department has commissioned and released studies covering some of the economic benefits *and* economic costs of the multi-billion dollar Joint Fighter (JSF) [global supply chain](#) program and the \$3.5 billion [combat reconnaissance vehicle](#) assembly program.⁸ But the department has either not commissioned or not released any similar studies specific to its *much* larger future frigate and future submarine procurements.

In early 2020, the department adjusted an [initially poor](#) set of job figures for those and other vessels in an attempt to deliver a more credible set of numbers. But, amongst other shortcomings, the new figures still exclude the effect on employment of project economic costs. If the metrics from Defence's own 2015 study of the economic effects of a Collins-equivalent submarine build is any guide, the department's latest job numbers for the future submarines, future frigates and offshore patrol vessels will vastly overstate employment impact if economic costs were considered.

The problem of Defence not collecting or releasing relevant data is especially important to note because the department is the only entity in Australia with access to the raw data necessary for the economic impact of major shipbuilding projects to be modelled or otherwise assessed in a comprehensive manner. If the department does not sponsor that research or release the 'raw' data so others can, a reliable indication of economic impact may never emerge.

(vi) The way forward

The point of raising the five issues discussed above is not to reach a definitive conclusion on how current naval shipbuilding projects affect the economy. Those conclusions can probably only be drawn if project-specific data is available. Instead, the aim is to highlight the following:

- for a total government outlay on naval shipbuilding rapidly approaching \$100 billion in today's prices (\$140 billion in out-turned dollars), which has been presented by elements of government and industry as a boon to the economy, Australian taxpayers still have no clear indication of what the nation stands to gain;
- the idea naval shipbuilding will necessarily have a strong, positive impact on Australia's economy in the short to medium or even longer terms is *not* universally agreed. Indeed, the 'weight' of available evidence points to, at best, a modest net benefit even after spillovers are considered;

⁷ All figures expressed in today's prices.

⁸ Neither study dealt in any meaningful way with spillovers.

- arriving at reasonable conclusions in relation to economic impact involves much more than drawing on anecdotal evidence from a small number of stakeholders with strong vested interests, including the beneficiaries of government largesse -- broadly based sources of information need to be considered; and
- to break the current deadlock between vociferous advocates of naval shipbuilding as a solution to Australian economic challenges and staunch critics of that approach, some lateral thinking may be required.

Although proffered some years ago, the observations of [Davies and Thomson](#) seem to capture the current situation and suggest a suitable way forward:

“We can’t say what sort of economic impact is likely from future shipbuilding — in fact, we can’t even be sure what it was for past projects. The trouble is that we’re pretty sure nobody can. Unless the government has commissioned some serious independent work on the subject, we’ll be guessing too...The net economic cost or benefit of spending on complex defence projects is a tricky and technical subject — one of the reasons we’ve argued for years that a Productivity Commission study on naval shipbuilding is needed to get objective data.’ Andrew Davies and Mark Thomson, *An Enterprise Naval Shipbuilding Plan*, ASPI, Canberra, 2015, 4, [online](#)⁹

⁹ The comments of Davies and Thomson were made prior to the release by DMO of its [study](#) on economic aspects of building submarines in Australia which did address many of their concerns. Although dated May 2015, the DMO study was not made available publicly until June 2016, well after the Davies and Thomson study was completed.

Conclusions

In assessing the current state of the government's naval shipbuilding program, the following issues stand-out:

- with minimum targets for AIC of between 55% and 60%, relatively few materials and components required for naval shipbuilding appear critically important to manufacture in-country for military-strategic reasons;
- within those AIC targets, we still have no idea of the identity of the critically important capabilities involved, how Defence intends to monitor their availability or the department's strategy for intervening in the market to address potential capability shortfalls;
- for Australia to achieve sovereignty defined in terms of national security, higher than expected costs may need to be incurred through additional stockpiling of imported materials and components and the development of an indigenous capacity for vessel design;
- now prime contractors for larger build projects have been determined, the Commonwealth has limited ability or 'leverage' to push for higher AIC targets in the quest for a perceived economic gain; and
- the size and extent of any economic gain is difficult to determine, partly because Defence has yet to release its data on the economic benefits and economic costs of the program.

With those points in mind, there are three steps that might allow further progress to be made:

- scrutinise the sovereign industry implementation plan for naval shipbuilding and sustainment scheduled for release by the end of 2020;
- seek from Defence its more detailed views on why relatively low initial levels of AIC have arisen; and
- assess the full range of historical data specific to the economic impact of naval shipbuilding and sustainment projects in Australia including their economic costs.

Rob Bourke

27 August 2020

Attachment

Updated guidelines for the economic benefits of Defence procurement

In early August 2020 the Department Finance issued a [revised set](#) of guidelines for Commonwealth departments and agencies to consider when assessing the economic benefit of procuring higher value goods and services. With considerable controversy around how economic benefit is measured and used by Defence when purchasing items of capital equipment, the revised approach is of considerable interest.

In terms of overarching principles, the latest guidelines resemble the [originals](#) introduced just a few years ago. An economic benefit arises when a procurement boosts national productivity, typically in areas where Australian industry enjoys a comparative advantage. And any evaluation of benefit should have regard to the effective and efficient use of government funds. All that accords with current defence industry policy. What follows is a well-established paradigm.

For a benefit to emerge, suppliers should be price competitive and rely for their production on resources that would otherwise be unemployed or substantially underemployed. Productivity improvement is not normally fostered when a significant price premium is paid for preferring one source of supply over another or when supply draws resources — like skilled labour — away from other equally, or more, productive areas of the economy.

However, even if price premiums and resource constraints apply, a (net) benefit might still be obtained if production of the good or service being procured is a relatively promising source of new knowledge — in the form of technologies or workforce skills — that ‘spillover’ to improve productivity elsewhere. So far, so good.

Where the revised guidelines seem to break new ground is through an explicit reference to ‘broader benefits that support the development and sustainment’ of defence industrial capabilities. That reference appears to refer to spillovers. Although how those capabilities enhance spillovers is not enunciated in the revised guidelines, two paths are likely.

First, exports help to support the development of a domestic capacity to design the relevant Defence capital equipment, from which spillovers emerge. Second, designing and building defence capital equipment in Australia, rather than sourcing that equipment from overseas, will lead to significantly lower in-country sustainment costs. Neither path is novel — this is well trodden territory — but the added emphasis provided through the revised guidelines is noteworthy.

Of course, a new approach is only as good as its implementation. Having presumably had a major hand in drafting the revised guidelines to accentuate the economic ‘upside’ of its procurements, Defence must now deliver reliable forms of supporting evidence. That might not be all plain sailing.

Several aspects of gauging benefit under the revised guidelines are likely to lie outside the department’s capacity for economic analysis. One is the supply chain effects of a procurement, which tend to focus on the contribution of small to medium-sized enterprises. Another is how many of the inputs used to produce procured items have alternative employment opportunities. Finally, the department is unlikely to be able to estimate by itself whether the resources needed for that production to occur originates from industries with higher — or lower — levels of productivity.

Fortunately, all three aspects fall within the range of economic models available from consultants. However, those models provide no insight into the economic benefit of spillovers. As a result, Defence may carry the primary responsibility for assessing what could be the single largest source of benefit to arise from its procurements.

As the [Productivity Commission](#) has pointed out in a defence context, 'it is easier to assert that spillovers will eventuate than to prove they have'. That seems to be supported by recent experience. The two latest attempts at estimating economic impact released by Defence — for the [Joint Strike Fighter](#) and [combat reconnaissance vehicles](#)—reference a potential for spillovers but offer little by way of supporting evidence.

A similar result for spillovers has emerged from the most recent research, commissioned by industry, into the economic impact of [naval shipbuilding](#). Four years into the Naval Shipbuilding Plan, we still have no clear idea of what economic impact the Plan is likely to yield, for an overall investment rapidly approaching \$100 billion in today's prices.

On the rare occasions Defence has attempted to gauge the savings in capital equipment sustainment from preferring domestic over foreign production, its methods have attracted considerable criticism ([here](#), [here](#) and [here](#)).

And there are several factors that complicate the process by which Defence can assess spillover effects. Judgements need to be made well before procurement projects mature — a lot can happen between project commencement and completion. There is limited published evidence in an Australian defence environment from which to draw. And the responsibility for assessments may rest with departmental procurement managers unfamiliar with the [principles and practices](#) that underpin how spillovers should be estimated.

There are plenty of stakeholders interested in how implementation of the revised guidelines unfolds, especially in whether robust estimates of benefit will emerge.