



# How to get better bang for transport bucks

**Submission to House of Representatives Standing Committee on Infrastructure,  
Transport and Cities Inquiry into Procurement Practices for Government-funded  
Infrastructure**

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## Overview

The Federal Government has stepped up its budgeted commitment to transport infrastructure, to about 0.6 per cent of GDP per year over the forward estimates. Yet it is mostly state governments that procure transport infrastructure assets.

Even though its direct control of the spend is limited, the Federal Government could do much more with the levers it has to ensure its funding is directed to obtaining high-quality infrastructure at the lowest long-term cost to taxpayers.

This submission highlights four spheres where it could do more. First, it could push against the recent rapid trend towards megaprojects,

with their unfortunate side-effect of exacerbating capacity constraints and tendency to cost overruns. Second, it could promote competition, as a means of keeping down the cost of high-quality infrastructure and encouraging world-class innovation. Third, it could insist that the states comply with its procurement and trade rules. And fourth, it could coordinate across the jurisdictions to improve cost estimation and business-case development.

This submission draws on analysis conducted for two recent Grattan Institute reports: *The rise of megaprojects: counting the costs* and *Megabang for megabucks: driving a harder bargain on megaprojects*.

## 1 Introduction

It makes sense for the Federal Government to focus on how it procures infrastructure. It is a significant funder: in both the 2021 and 2020 budgets, it allocated about 0.6 per cent of GDP to transport infrastructure grants to the states and territories. In both cases, the allocation over the forward estimates period was about one and a half times the budget allocations of recent years.

But the size of the spend is only worth applauding if the community is getting value for every dollar spent, and if there isn't a less expensive way to get a service of the same quality, or better.

The Federal Government should focus on one principle: delivering infrastructure services at the lowest long-term cost to taxpayers, for a given quality standard.

The levers the Federal Government has at its disposal are mostly indirect. For the most part, it provides grant funding to states and territories to build transport infrastructure. It does so under a National Partnership Agreement, which lays out the principles that should form the basis of Federal Government support as:<sup>1</sup>

- The benefits of the investment extend nationwide, or spill beyond the particular state or territory receiving the funding;
- There is a particularly strong impact on aggregate demand or sensitivity to the economic cycle; or
- The support helps harmonise policy between states and territories, to reduce barriers to the movement of capital and labour.

This submission focuses on how the Commonwealth can perform its role better, in light of these agreed principles.

The following three chapters focus on projects sufficiently significant that they're relevant to the national economy, or the economy beyond the state or territory where they're located.

Chapter 2 argues that the Federal Government should focus its funding on moderately sized projects and reach for megaprojects only as a last resort. Chapter 3 emphasises the fundamental importance of competition in procurement, and the need to minimise barriers to international firms entering the Australian construction market. Chapter 4 argues that the Federal Government should enforce its own procurement rules and international obligations when it funds transport infrastructure.

The final chapter focuses on the Federal Government's role in harmonising policy and practice across states, so that the states benefit from the experience across the nation.

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1. Council on Federal Financial Relations (n.d., Schedule E, para 21).

## 2 The Federal Government should support megaprojects only as a last resort

In recent years, there has been a boom in public infrastructure work in Australia. In March 2020, the value of the road and rail projects being built across the country exceeded \$120 billion for the first time.<sup>2</sup>

And the projects being built were bigger than ever. It is no longer true that only a couple of very large projects are being built at any one time; now, most of the work being done is on ‘megaprojects’ – projects costing \$1 billion or more (Figure 2.1). In fact, Australia has entered an era of *mega* megaprojects, with most work being done on projects with an expected cost of more than \$5 billion.

Over the past five years, the value of an average road or rail project being built more than doubled, from \$430 million to \$1.1 billion (Figure 2.2 on the next page).

This rapid recent growth in the number of megaprojects under construction exacerbates capacity constraints and brings a heightened risk of cost overruns, as the following two sections explain.

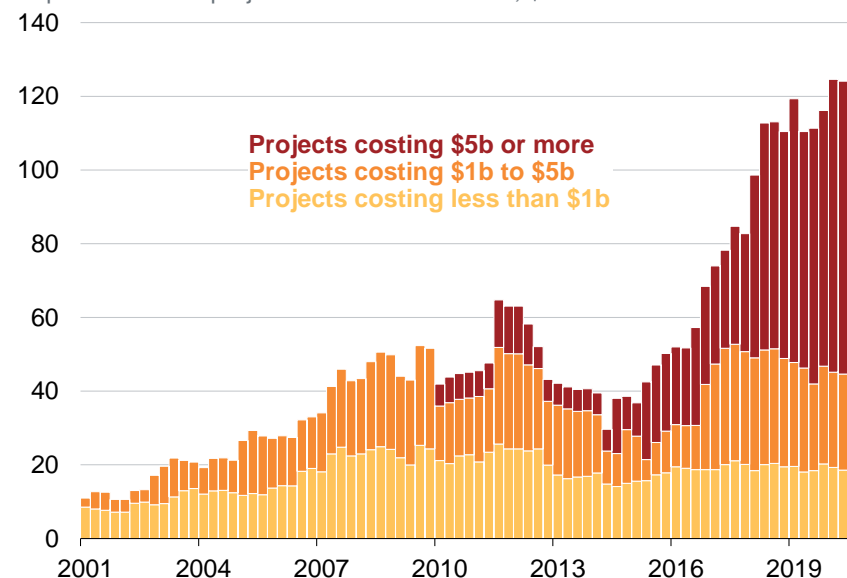
### 2.1 Megaprojects exacerbate capacity constraints

Even before the pandemic, governments were worried about the industry’s capacity to take on more work on top of the record quantity of works in general and megaprojects in particular that were under construction. According to the International Monetary Fund, ‘project delays are longer if projects are approved and undertaken when public investment is significantly scaled up’.<sup>3</sup>

The number of people working in engineering construction in Australia surged by 50 per cent in the three years before the pandemic

**Figure 2.1: All the growth in public road and rail infrastructure work is in megaprojects**

Expected cost of projects under construction, \$2020 billion



Note: Includes all public road and rail projects costing more than \$20 million.

Source: Grattan analysis of Deloitte Access Economics Investment Monitor.

2. Includes all projects costing more than \$20 million.

3. IMF (2020, p. 37).

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(Figure 2.3 on the following page). The image people may have of construction work as unskilled is out of date; as leading urban economist Ed Glaeser puts it, ‘big infrastructure requires fancy equipment and skilled engineers, who aren’t likely to be unemployed’.<sup>4</sup> During the mining boom, skilled labour was imported. But with national borders closed, this option is not available now or for the foreseeable future.

The bigger the projects under construction, the more they require specialised labour and equipment, the greater the competition for those resources, and the greater the costs of building a particular piece of infrastructure at that time rather than at a time when such pressures have eased.

It’s unsurprising that the cost of building road or rail varies according to how much other engineering construction work they’re already doing.

In late 2014, it was reported that ‘the cost of building projects has fallen by up to 50 per cent as construction firms desperately seek work after the end of the mining boom’.<sup>5</sup> The then Minister for Infrastructure and Regional Development, Warren Truss, was quoted as saying:

What we have found is that when we have been calling tenders for projects over the last 12 months or so, we are getting prices sometimes as low as half the cost that we were being asked to pay three or four years ago, or maybe two or three years ago... Almost universally now tenders are coming in under our estimates, and projects are being completed under our estimates.<sup>6</sup>

The Minister’s insight was borne out in cases such as the Cooroy to Curra: Section C project on the Bruce Highway in Queensland, and Stage 2 of the Gold Coast Light Rail, both of which cost substantially less than expected.<sup>7</sup>

4. Glaeser (2016).

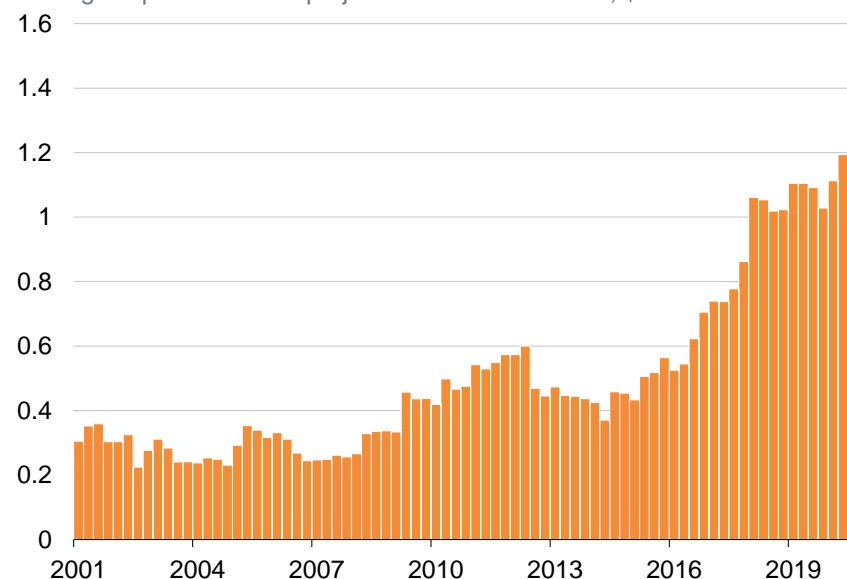
5. Freed (2014).

6. Ibid.

7. Terrill et al (2020, pp. 43–44).

**Figure 2.2: The average project under construction is now worth more than \$1 billion**

Average expected cost of projects under construction, \$2020 billion



Note: Includes all public road and rail projects costing more than \$20 million.

Source: Grattan analysis of Deloitte Access Economics Investment Monitor.

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His view is also supported by a flattening of the cost of building transport infrastructure that coincided with the winding down of the mining construction boom (Figure 2.4 on the next page).

The Federal Government could constrain the costs to the taxpayer by strategic timing of its partnerships with state governments for specific large transport infrastructure projects.

### 2.2 Megaprojects are more prone to cost overruns

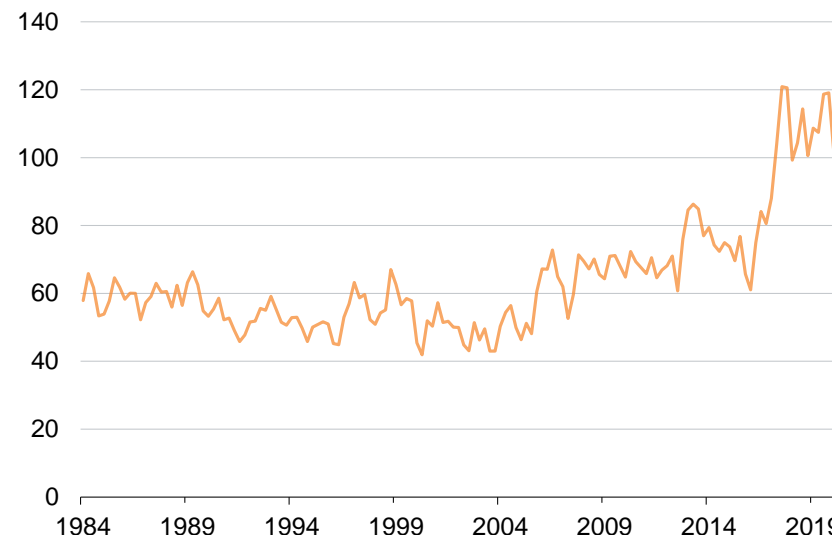
Bigger projects tend to be more complex, so it's not surprising that they are more prone to cost overruns. They also tend to overrun by more, not only in dollar terms but also as a percentage of the original cost estimate.

In 2014, Danish economic geographer Bent Flyvbjerg coined 'the iron law of megaprojects: over budget, over time, over and over again'.<sup>8</sup> Grattan Institute's 2016 report, *Cost overruns in transport infrastructure*<sup>9</sup> found that a 10 per cent increase in project size (measured by cost estimate when first under construction) was associated with a 6 per cent higher chance of a cost overrun.<sup>10</sup>

Big infrastructure projects may seem more exciting than small ones, to politicians and the public. But they are also more risky and more likely to exceed their budgets. Governments should do more to identify the myriad small possible projects with high net benefits that may be dispersed all over a city and region.

**Figure 2.3: More people are employed in engineering construction than ever**

People employed in heavy and civil engineering construction, thousands



Source: ABS (2021, Table EQ06).

8. Flyvbjerg (2014, pp. 9–11).

9. Terrill and Danks (2016).

10. Ibid (p. 31).

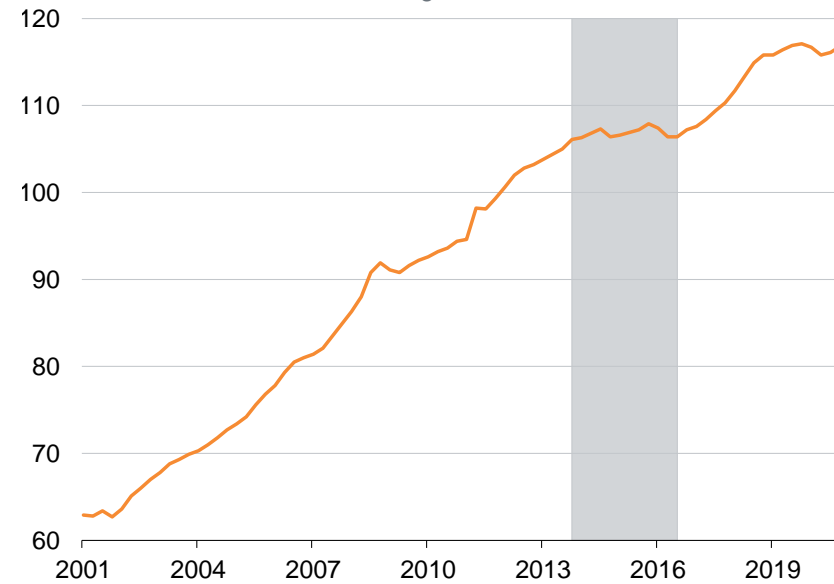
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### Recommendation 1

The Federal Government should ask states to focus more on modest-sized transport infrastructure projects, and should co-fund megaprojects only as a last resort.

**Figure 2.4: Transport construction costs were broadly flat during the winding down of the mining construction boom**

Producer Price Index, road and bridge construction, Australia



Source: Index Number 3101 from Table 17 of Australian Bureau of Statistics (2021).

### 3 The Federal Government should promote competition rather than sovereign capability

Competition is fundamental to procuring quality public infrastructure at the lowest cost to taxpayers. Robust competition helps keep construction costs down and encourages firms to innovate. To achieve quality infrastructure at a competitive price, sovereign capability is less important than a competitive construction market.

Like many markets, engineering construction is not perfectly competitive. As the average size of infrastructure projects has grown, there has been a corresponding growth in the number of very large contracts within those projects. Taking on contracts worth a billion dollars or more demands considerable technical and financial capability, for which the Australian market can sustain only so many players.

The Australian Competition and Consumer Commission would welcome more entrants; its Chairman has expressed concerns about the construction industry, saying ‘if we had more competition, particularly at the top end . . . that would be a lot better for the Australian economy.’<sup>11</sup>

Competition can come from firms that usually operate in related fields, such as building construction or construction services. Such firms can and do take on engineering construction work. For instance, while most of Laing O’Rourke’s work in Australia is in energy and commercial building, the firm recently won a contract worth more than \$1 billion to build Sydney Metro’s Central Station.<sup>12</sup>

Firms can also compete for extremely large contracts if they are able to increase their scale, by merging, forming joint ventures, or simply growing. Joint ventures between mid-tier firms can compete for very

large contracts. For example, mid-tier firms McConnell Dowell and Fulton Hogan have each won a share of contracts worth well over \$1 billion as part of joint ventures in Victoria’s level crossing removal programs. Neither alliance venture included a tier one firm.<sup>13</sup> However, it’s not typical for mid-tier firms to grow into tier ones, or to merge.<sup>14</sup>

While it is possible for local mid-tier firms to win large contracts on megaprojects, it does not happen often. One remedy is to break megaprojects into smaller contracts. If the trend to extremely large contracts persists, the short-to-medium term opportunity for governments to draw on mid-tier firms for transport megaproject work will be very limited.

#### 3.1 International firms play an important role, and this should continue

From time to time, engineering construction firms operating overseas establish a presence in Australia. Many that have entered during the past 15 years have won work on Australian government megaprojects (Figure 3.1).

International entrants establish themselves in different ways. Spanish firm Acciona established itself as a tier one firm in 2020, when it completed the acquisition of Lendlease Engineering and Geotech Group. International entrants often partner with domestic firms to gain familiarity with local norms and institutional arrangements, and to earn a local reputation.

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13. Buying for Victoria (2017); and McConnell Dowell (2021).

14. There has been no case over the past decade where an engineering construction firm has sought either an informal merger review or a merger authorisation from the Australian Competition and Consumer Commission.

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11. CEDA News (2021).

12. NSW eTendering (2018).

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International entrants add to local competition, and it's very helpful to governments if there are a variety of market players willing and able to take on work.<sup>15</sup> In particular, when tier one firms form a joint venture to bid on a large contract, the only source of genuine competition may be from international firms (as was the case with the Rozelle Interchange in Sydney).

The record of the past 15 years shows that barriers to entry from overseas are not insurmountable. But there are two reasons to think the barriers to entry may nonetheless be higher than necessary.

Firstly, industry insiders claim governments show a strong preference for extensive local experience.<sup>16</sup> Any requirement for extensive local experience seems poorly founded – over the past 15 years, projects with an international entrant involved performed at least as well in terms of cost during the construction phase as projects with no international firms.<sup>17</sup>

Significant requirements for local experience unnecessarily disadvantage international entrants.

### Recommendation 2

The Federal Government should encourage states to welcome complying bids from all qualified bidders, and not weight local experience any more heavily than is justified to provide infrastructure at the lowest long-term cost.

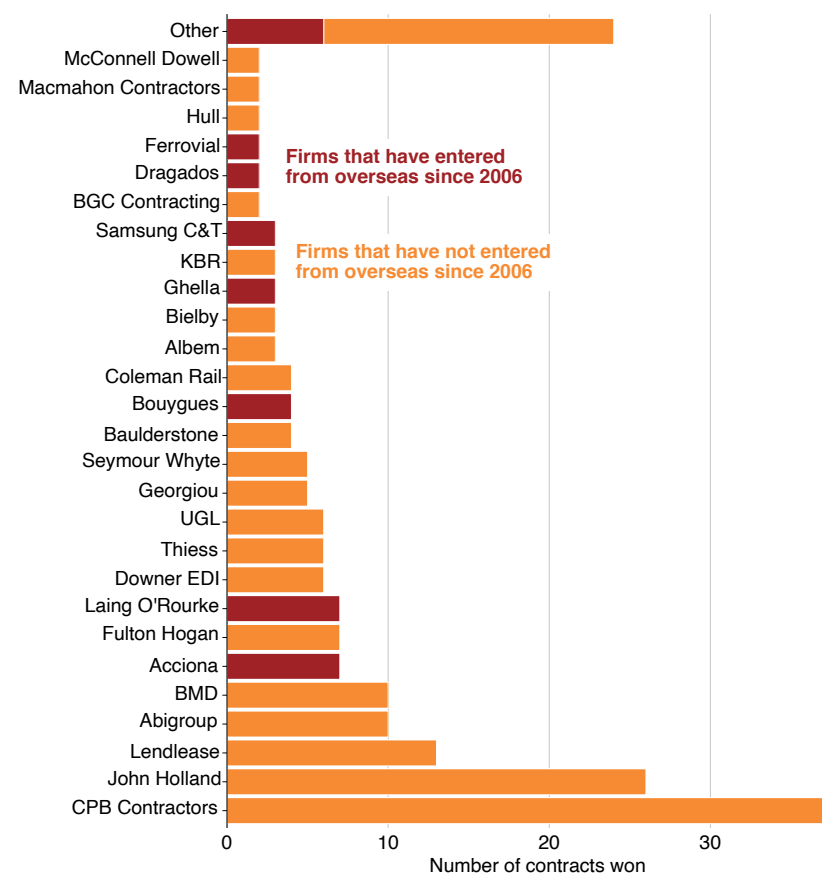
15. Wiggins (2016).

16. KPMG (2010, p. 13).

17. Grattan analysis. See Terrill et al (2021).

**Figure 3.1: Many different international entrants have been awarded megaproject contracts in the past 15 years**

Number of contracts won in projects over \$1 billion, awarded since 2006



Notes: 'Other' includes firms that have been awarded one contract in megaprojects since 2006. Contracts have been assigned to the firm that was awarded the contract at the time of issue – thus, some of the firms listed are no longer functioning entities. Any firm that has entered the Australian transport construction market within the past 15 years and was previously operating in other regions is considered an international entrant. This is distinct from international ownership. The number of contracts won includes contracts won as part of a joint venture, alliance, or consortium. The CPB Contractors category includes contracts awarded to Leighton Contractors.

Source: Grattan analysis. See Terrill et al (2021).

### 3.2 The Federal Government should not co-fund market-led proposals

A market-led proposal involves private-sector proponents developing a project proposal and then lobbying government to invest in it. When a government accepts a market-led proposal, it usually bypasses the tender process, and instead negotiates directly with the firm that submitted the proposal.

It's an extreme case of bypassing competition; the government engages with a monopoly provider during as well as after the contract negotiation. About \$11 billion of transport infrastructure over the past 15 years has been commissioned through market-led proposals. They are particularly prominent in Victoria, where a sixth of the value of megaproject contracts has been awarded through market-led proposals.<sup>18</sup>

Advocates of market-led proposals claim that they enable infrastructure that might not otherwise be built, and that the firm making the proposal has a special innovation or unique edge of some kind.

But market-led proposals come at a cost. Accepting unsolicited proposals for toll roads 'generally leads to higher costs to taxpayers, drivers, or both', according to Rod Sims, Chairman of the Australian Competition and Consumer Commission.<sup>19</sup> A World Bank review of market-led proposals in Australia and 14 other countries found that 'allowing a proponent to develop the project creates significant challenges in ensuring competition and . . . value for money', and often leads to 'poorly structured deals'.<sup>20</sup>

In reality, projects adopted through market-led proposals are unlikely to be genuine innovations. They are more likely simply to be projects that are not in the project pipeline.<sup>21</sup>

The federal and state governments have all created infrastructure advisory bodies to identify infrastructure needs and develop long-term infrastructure plans. It is difficult to believe that governments do not already know the transport problems that need to be addressed, or that they do not already have a reasonable idea of how to address them. The proposals that transport departments and infrastructure bodies generate are more likely to be in the public interest than those generated by the private sector.

And, in practice, it seems that firms do not actually bring a unique edge. Two case studies of prominent market-led proposals are detailed in the Grattan report *Megabang for megabucks: driving a harder bargain on megaprojects*; both show how flimsy the arguments of uniqueness, and thus the rationale for bypassing competition, can actually be.

#### Recommendation 3

The Federal Government should only co-fund infrastructure projects that are let through an open tender process.

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18. Ibid (pp. 27–29).

19. Jacks and O'Sullivan (2018).

20. World Bank (2017, pp. 10–11).

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21. Ibid (p. 8).

## 4 The Federal Government should insist on compliance with its procurement and trade rules

Federal and state governments give preference to bidders who pledge to use specific proportions of Australian-produced materials. Where these rules induce construction firms to purchase materials other than from the cheapest source, higher end prices for infrastructure are the inevitable result.

The Productivity Commission found in 2014 that: ‘Local content rules . . . add to bid costs and may risk the selection of the best value-for-money bidder. The objectives that underpin them are also questionable. These rules should be abolished.’<sup>22</sup>

Preferences for local content in government procurement are due to legislation and policy both at a national and state level. For example:

- Nationally, the *Building and Construction Industry (Improving Productivity) Act 2016* requires that companies bidding for government projects worth more than \$4 million specify ‘the extent to which domestically sourced and manufactured building materials will be used to undertake the building work’.
- The Queensland Procurement Policy requires that at least one regional and one Queensland supplier is invited to quote or tender for every procurement opportunity.<sup>23</sup>
- Victorian rules state that, for construction projects larger than \$50 million, the Minister for Industry can require as much as 90 per cent of materials to be Australian-produced. Further, all

short-listed bidders for jobs worth more than \$3 million must complete a Victorian Industry Participation Policy Plan containing estimates of the levels of local content, local employment, and skills/technology transfer that would arise if their bid were successful.<sup>24</sup>

These local content rules are additional to employment targets; for instance, Victoria requires at least 10 per cent of the total estimated labour hours on projects worth more than \$20 million to be done by Victorian apprentices, trainees, or cadets.<sup>25</sup> NSW has a similar requirement.<sup>26</sup>

Whether local content rules are enforceable is open to question, however. The main contractors for Melbourne’s West Gate Tunnel project, CPB Contractors and John Holland, have reneged on an agreement to use 92 per cent Australian steel, and instead imported Chinese steel for about 15 per cent of the project.<sup>27</sup> It is unclear whether they have been penalised for this breach.<sup>28</sup>

Whether local content rules are consistent with stated principles of procurement is also questionable. The Commonwealth Procurement Rules specify that ‘All potential suppliers to government must . . . not be discriminated against due to . . . the origin of their goods and services’.<sup>29</sup> In practice, however, states are not bound by this principle.

22. The Productivity Commission acknowledged that local content rules, in many cases, ‘do not appear to bind or add significantly to the final turnout costs’, but it nonetheless concluded that ‘they may risk government not selecting the least-cost bid on non-cost ground . . . their objectives are questionable . . . nuisance costs [are] created’: PC (2014, pp. 439, 475).

23. Office of the Chief Advisor – Procurement (2019, p. 13).

24. The \$3 million threshold applies to projects in metropolitan Melbourne. A \$1 million threshold applies to projects in regional Victoria: Victorian Department of Treasury and Finance (2020).

25. DJPR (n.d.).

26. Berejiklian (2018).

27. Victorian Public Accounts and Estimates Committee (2019, p. 6).

28. Hore (2019); and Victorian Public Accounts and Estimates Committee (2019).

29. Department of Finance (2020, p. 14).

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Whether local content rules are consistent with international free trade agreements is also open to question. New international procurement rules now apply to Australian jurisdictions, including a general prohibition on conditions that require the use of local content, designed to encourage economic development in Australia.<sup>30</sup>

The typical defence of local content rules is that they create or shore up local jobs. Aside from compliance costs, this is harmless enough if the local materials would have been used anyway, provided the local content arrangements do not sway the selection of the successful bidder. But if the rules induce firms to change where they source materials, this makes projects more expensive.

Procurement policies are essentially being used to prop up specific firms and sectors that cost more. Such rules are at odds with competition policy reforms introduced since the 1980s, and credited with causing a substantial increase to real GDP. These reforms have been premised on the idea that governments should erect barriers to competition only if the benefits of doing so outweigh the costs, and only if these benefits can be achieved only by restricting competition.<sup>31</sup>

If governments insist that new infrastructure projects be used to create or shore up jobs in other sectors, in essence they are insisting on building a version of a road or rail line that is unnecessarily expensive. As the 2015 Harper Review recommended, promoting competition – rather than promoting local providers – should be a central feature of government procurement and privatisation frameworks and processes.<sup>32</sup>

Local content rules, specifically those relating to steel, have also been defended on the grounds of concerns about the quality of steel from

elsewhere, particularly China.<sup>33</sup> To the extent such concerns are valid, a quality requirement would be a more effective protection.

### **Recommendation 4**

The Federal Government should require as a condition of co-funding infrastructure that state governments align their rules for local content with federal government procurement principles; they should avoid giving preference to bidders for transport infrastructure construction projects who pledge to use Australian-produced materials.

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30. Hayford (2020).

31. PC (2020, Appendix B p.3).

32. Harper et al (2015, p. 8).

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33. Joint submission from 63 Australian businesses (2016); and Cooper (2015).

## 5 The Federal Government should be a smarter purchaser of infrastructure services

Taxpayers spent \$34 billion more on transport infrastructure projects between 2001 and 2020 than they had been first told they would spend. These additional costs amount to more than one fifth of initially expected costs.<sup>34</sup>

Unrealistic cost estimates for transport infrastructure distort investment planning in three ways. First, if governments systematically understate project costs, then benefit-cost ratios will be systematically overstated, leading to over-investment in transport infrastructure. Second, if governments misunderstand the uncertainty in a project's cost at the time they make a commitment, their decision to invest is made on a poor basis; this affects which projects are selected. Third, because unrealistic cost estimates are more prevalent for larger projects, governments are more likely to over-invest in large projects. The clearest example of this is multi-billion dollar projects, which have historically had more frequent and larger cost overruns.

And unrealistic cost estimates mislead the public. We are led to believe that a particular project is available to us for less than it really is. Yet governments almost never go back and discover how actual costs and benefits compare to the costs and benefits that were promised. If they do go back, they do not share their findings with the public.

Currently, most large projects with a federal government contribution are committed without an approved business case. Of 22 large projects to which the federal government has contributed since 2016, only six had a business case published or assessed by Infrastructure Australia at the time of commitment. A further 14 were listed as 'initiatives' on Infrastructure Australia's Priority List, indicating they 'have the potential to address a nationally significant problem or opportunity' but that their

assessment had not yet been completed. The remaining two had not appeared on any the priority list at the time a state government committed to them.

As Infrastructure Australia put it:<sup>35</sup>

Too often we see projects being committed to before a business case has been prepared, a full set of options has been considered, and rigorous analysis of a potential project's benefits and costs have been undertaken.

### Recommendation 5

The Federal Government should amend the National Land Transport Act to prohibit the provision of funding to state governments for infrastructure projects unless a full business case has been prepared, and then evaluated by Infrastructure Australia, and the business case and evaluation have been tabled in Parliament.

### Recommendation 6

For all projects valued at \$250 million or more, the Federal Government should change the Infrastructure Australia Act to require it to publish a reliability rating of the business cases within a month of their tabling.

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34. Terrill et al (2020, p. 14).

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35. Infrastructure Australia (2018, p. 1).

## 5.1 The Federal Government should coordinate better tools for estimating costs

Even when there is a business case, governments do not collect the data on completed projects that would enable cost estimators to learn from experience. Experts in cost estimation are calling for, and should get, better data.

Road experts from all jurisdictions are recommending a cross-jurisdictional database of final project costs and what gave rise to them.<sup>36</sup> It should be established. Minor variations in how state and territory governments select and procure infrastructure projects are insignificant when compared with the value of being able to learn from a large pool of projects generated by very similar processes. Such data would help specialists to develop better cost estimates at early stages of a project.

The database should contain sufficient information to enable experts to contextualise costs, such as project type, site, materials, utilities, environmental mitigation costs, and techniques. To do their job properly, experts also need:<sup>37</sup>

direct costs from contractor, client-side project management/ stakeholder engagement/ environmental costs, costs arising from unforeseen risks, and contingencies . . . important categories of costs like utilities relocation that can have a significant impact on costs.

The Department of Infrastructure, Regional Development and Cities agrees. It has pointed to the challenges a cost estimator may face – key among them being ‘not having access to historical cost databases’ of the kind that are available to their US and European counterparts.<sup>38</sup>

This is not a new problem. In 2014, the Productivity Commission called for strategic benchmarking data, including costs per major unit, using a standard cost breakdown, and average expenditures over the construction period. The commission envisaged that this information would be required for any infrastructure project where there was a federal government funding component, and that it would be independent of both government and industry influence.<sup>39</sup> Benchmarking data would complement the detailed data called for by cost estimation specialists, enabling a ‘top down’ view alongside the ‘bottom up’ view of detailed historical cost data.

Grattan Institute, too, has called for better data to assist cost estimation. In 2016, we recommended that the Federal Government seek the cooperation of the states to create new benchmarking data to improve risk measurement in new project proposals.<sup>40</sup> We also recommended that the Federal Government put to use the post-completion reports that states are already required to provide as a condition of their final milestone payment, by aggregating the data into a useful product.

Despite widespread understanding of the scarcity of data, it seems that almost nothing has happened since then.

The only progress has been a first step on the path towards achieving a benchmark series of construction costs per lane kilometre for roads. The Bureau of Infrastructure, Transport and Regional Economics conducted a pilot study in 2015 of 45 road projects and a 2017 update of 32.<sup>41</sup> This work was carried out at the request of the Transport and Infrastructure Council of the Council of Australian Governments,<sup>42</sup> which commissioned the work in response to recommendations of

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36. Chowdhury et al (2020, p. 32).

37. Ibid (p. 32).

38. DIRD (2017, p. 8).

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39. PC (2014, pp. 47–48).

40. Terrill and Danks (2016, pp. 7–8).

41. BITRE (2018).

42. Transport and Infrastructure Council (2015).

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the Productivity Commission's inquiry.<sup>43</sup> The bureau's findings were interesting and suggestive, but limited by the small sample size and lack of detail. The bureau recommended that the benchmarking be repeated in 2019 – which did not happen.<sup>44</sup>

### Recommendation 7

The Federal Government should, as a condition of co-funding infrastructure, require its each state to provide completed project data for any infrastructure project valued at \$20 million or more, to a central body. The completed project data should include:

- First announced cost, contracted cost, cost estimate at the start of construction, any further significant changes to costs, and final costs:
  - sub-divided into project management, preliminary design and investigation, property acquisition, and construction cost components.
- Key physical characteristics of the infrastructure, including type of road or track, number of lane or track kilometres, and length of any tunnel.
- Project location, including green- or brown-field, geology, and whether CBD, urban, or rural.
- Estimated and actual construction start and completion dates.
- Any material changes to scope, and the reasons and dates.
- Contract type and partners.

### Recommendation 8

The Federal Government should amend the National Land Transport Act to prevent payment of project funding to states while there is an outstanding requirement for a post-completion report on another project; it should require detailed post-completion reviews of a sample of projects with opportunities and challenges shared across jurisdictions.

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43. PC (2014, p. 47).

44. BITRE (2018, p. 21).

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