Project Controls EXPO
Melbourne, Australia

GRATTAN Institute

Cost overruns on transport infrastructure projects

Marion Terrill

Project Controls Expo
21 November 2018

The Grattan Institute has found that Australia has a cost overruns problem

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Cost overruns in transport infrastructure

Over...

15 years

542 completed projects

+294 cancelled projects

Cost overruns cost…

$28 billion

24% of promised costs

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90% of cost overruns are attributable to the 17% of projects with huge cost overruns

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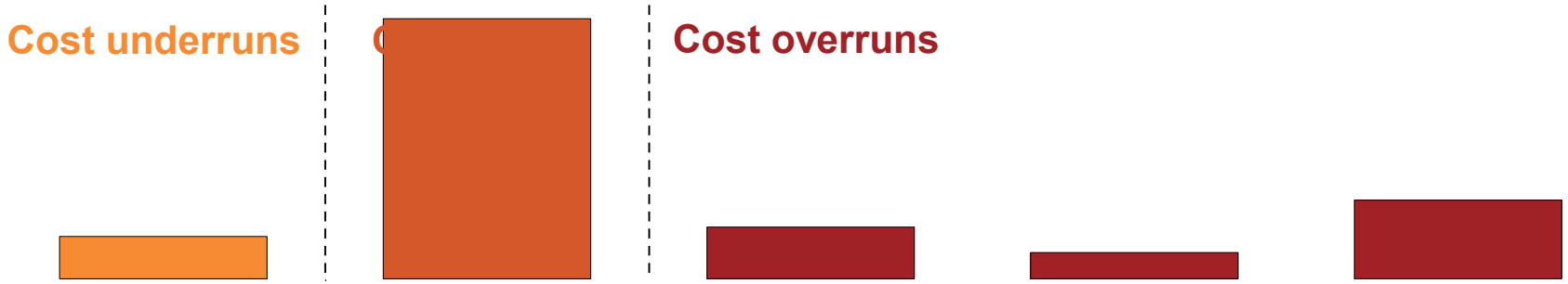
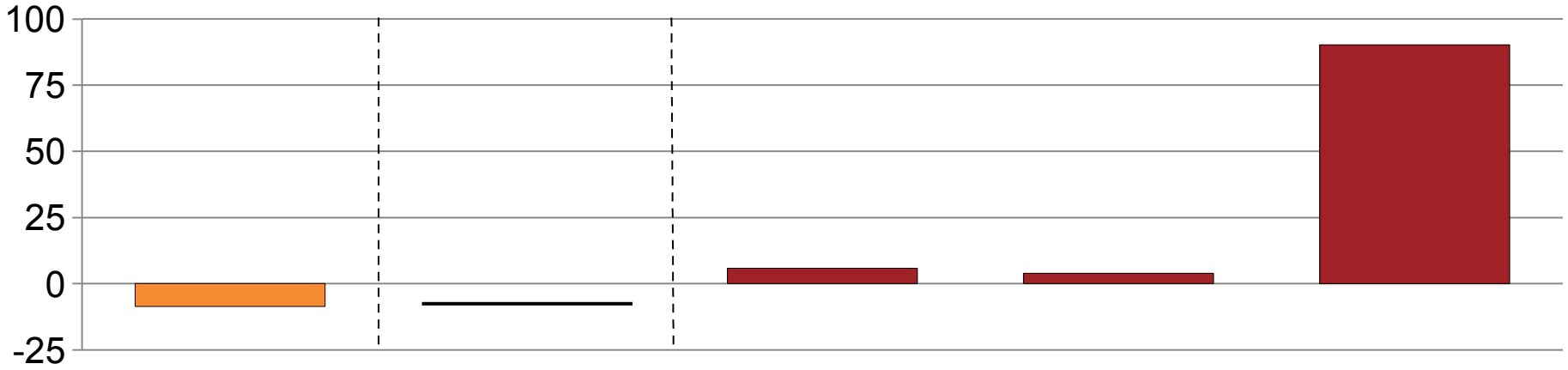
Frequency of cost overruns as a proportion of all projects, per cent



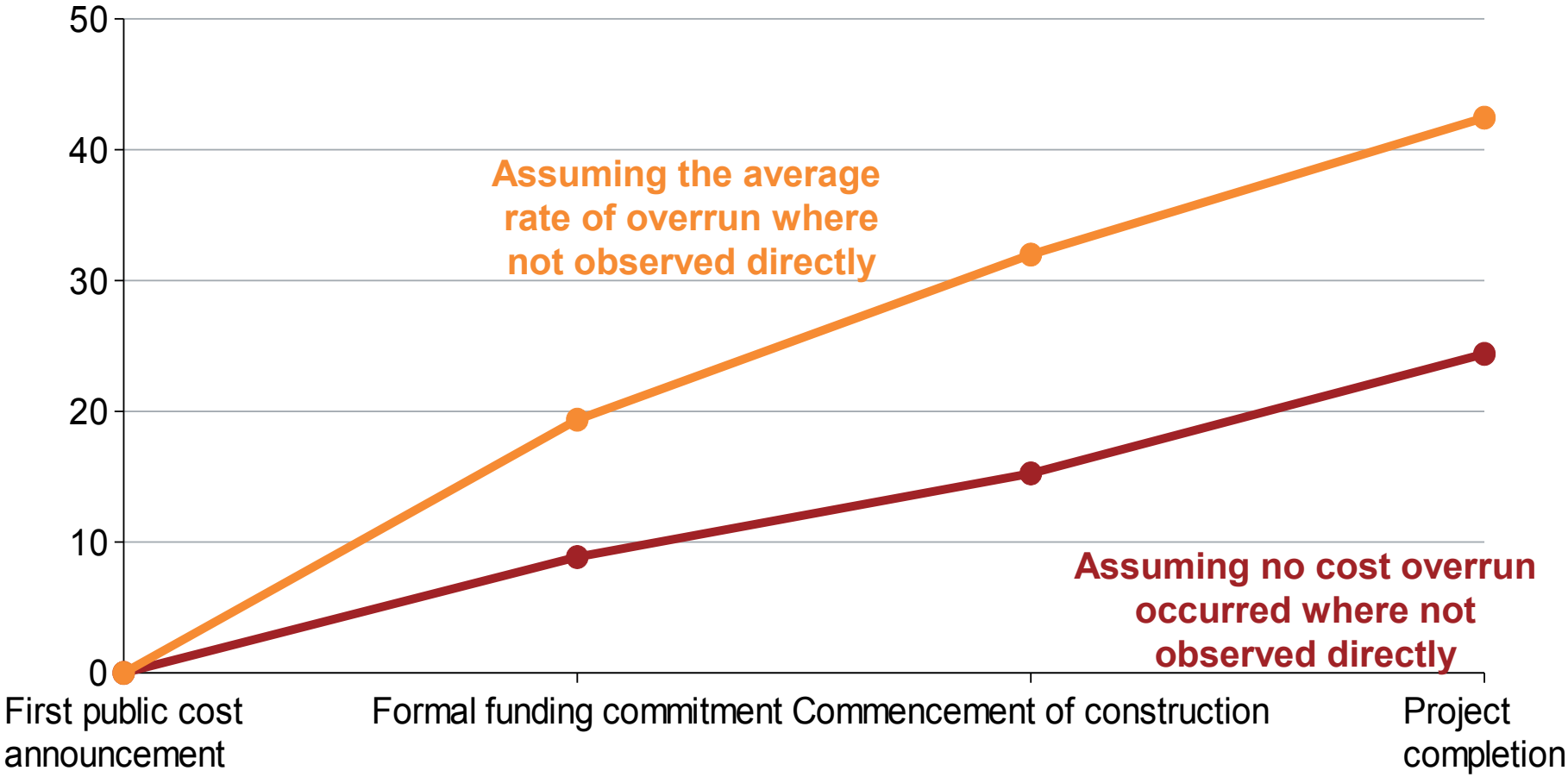
Value of cost overruns as a proportion of total cost overruns, per cent



Notes: Australian transport projects completed between 2001 and 2015. “Cost differences” is defined to refer to cost underruns and cost o
Source: Investment Monitor, Grattan analysis

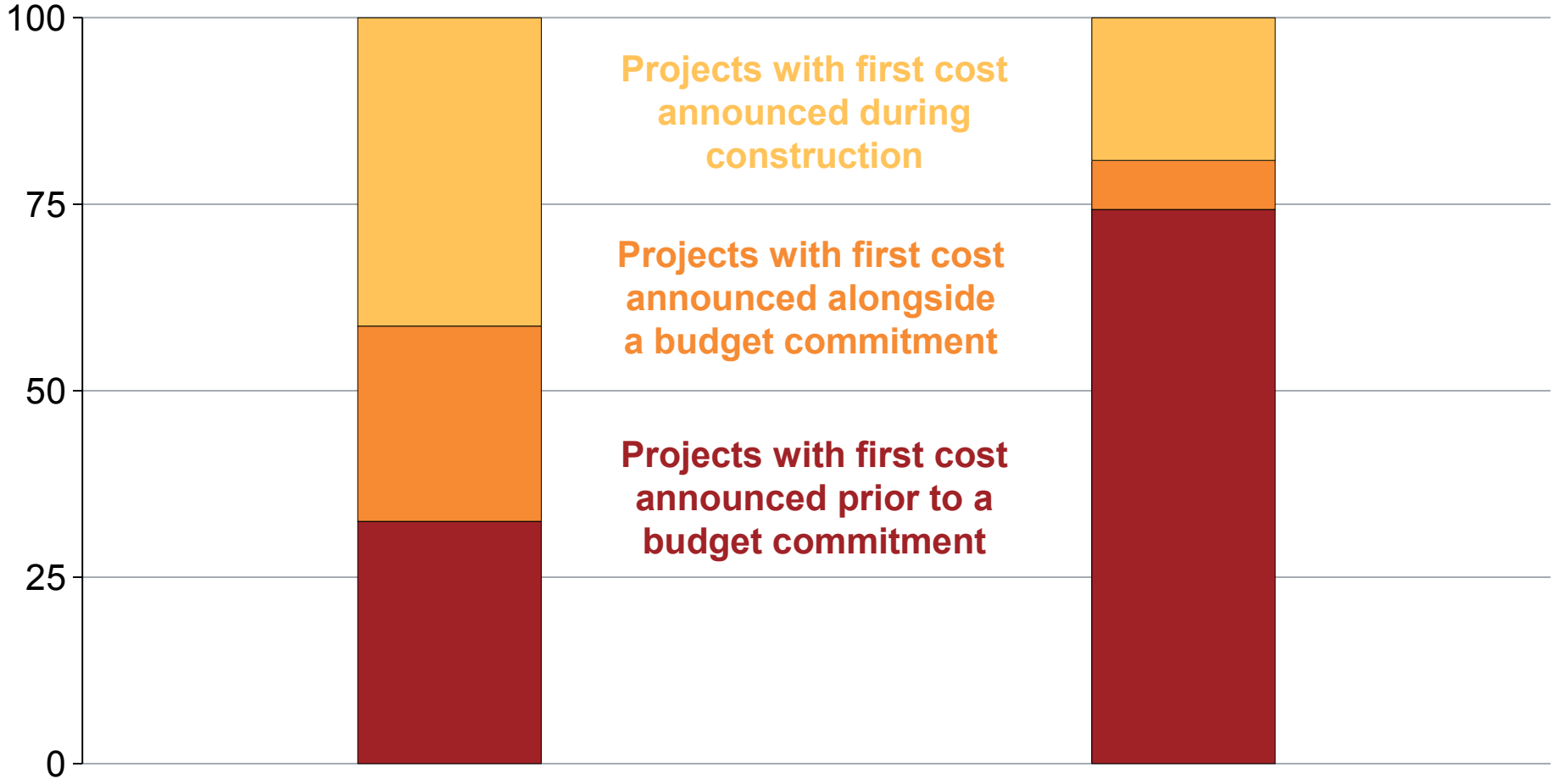
Cost overruns are likely higher than we report

Average cost overrun rates as a proportion of initial costs by project stage, per cent



Notes: Australian transport projects completed between 2001 and 2015.
Source: Investment Monitor, Grattan analysis

74% of cost overruns are attributable to the 32% of projects with costs announced prematurely



Notes: Australian transport projects completed between 2001 and 2015.
Source: Investment Monitor, Grattan analysis

Promising a business case is better than committing to a project without a business case

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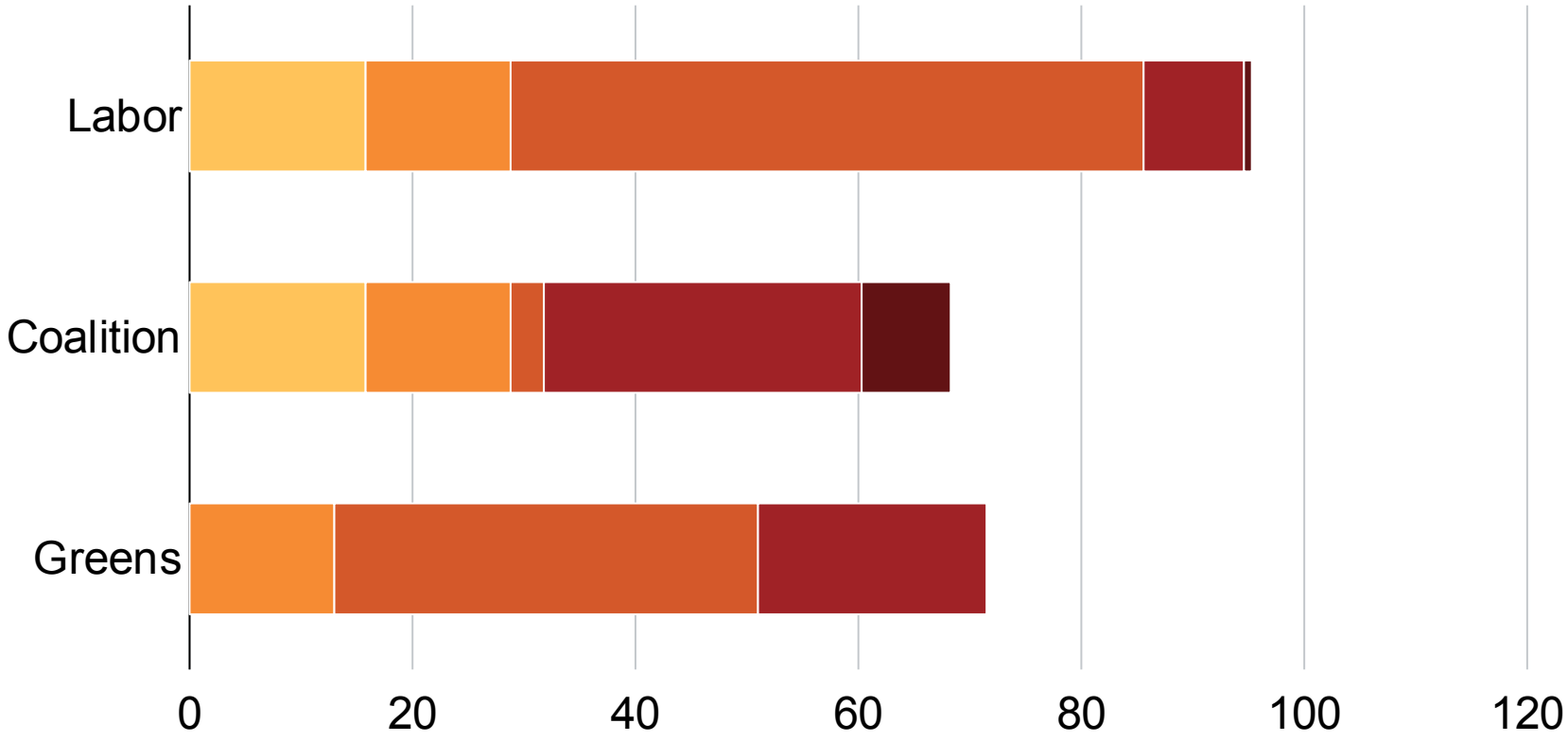
Value of election commitments to transport infrastructure, $billion

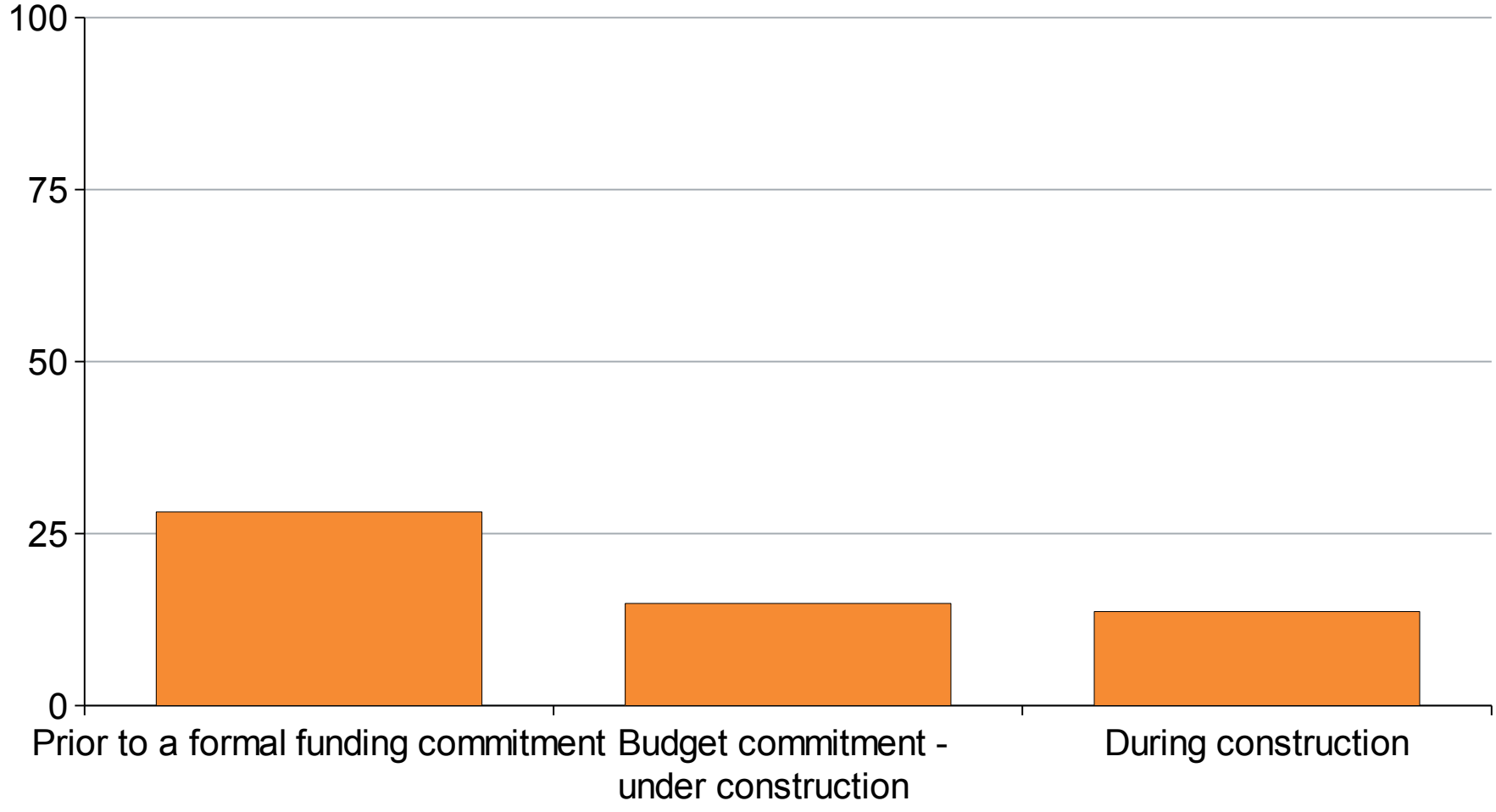


A business case has been evaluated and stacks up
A business case is pending
Only a business case is promised
Committed without a business case
A business case has been evaluated and does not stack up

Note: Projects that stack up have a benefit-cost ratio greater than 1 – that is, the benefits outweigh the costs.
Sources: 2018 election media releases and websites of the three major parties, Infrastructure Australia's Infrastructure Priority List Victorian Auditor-General's Office.

Few projects are cancelled once announced

Proportion of projects cancelled at each project stage, per cent



Notes: Australian transport projects completed between 2008 and 2013.
Source: Investment Monitor; Grattan analysis.

Projects announced earlier have larger cost overruns at all stages of the project lifecycle

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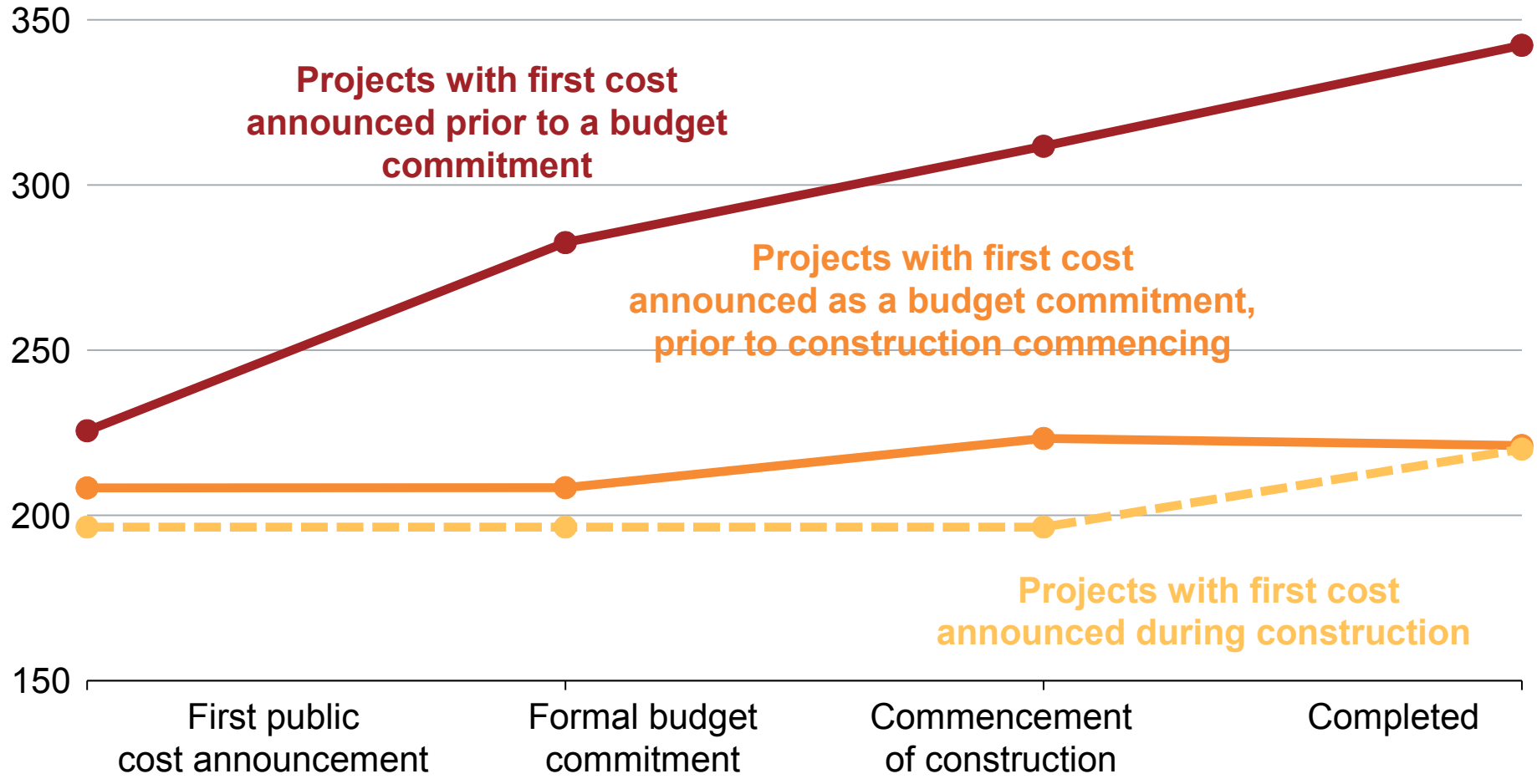
Average project size of each cohort by project stage, $2016 millions



Notes: Australian transport projects completed between 2001 and 2015.
Source: Investment Monitor, Grattan analysis

Most cost overruns are not attributable to scope changes

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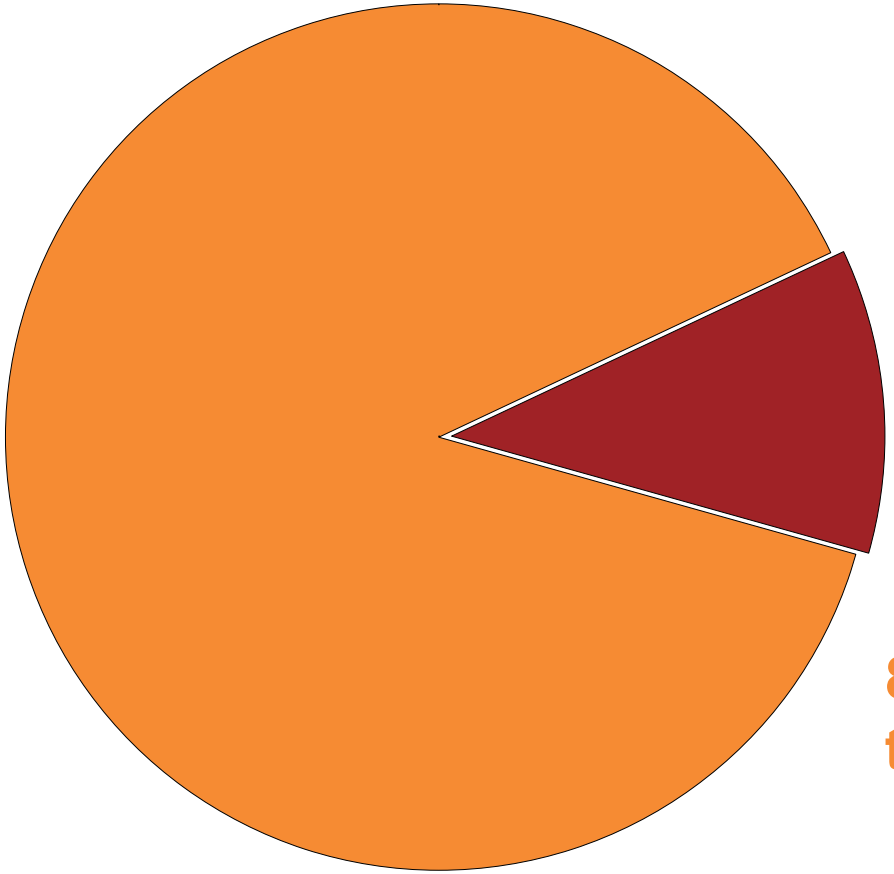
Average proportion of cost overruns by cause, per cent



11% directly attributable to scope changes

89% attributable to other causes

Notes: Australian transport projects completed between 2008 and 2013.
Source: Grattan analysis of 51 projects valued above $100m

This study analyses nine times more completed projects than previous studies

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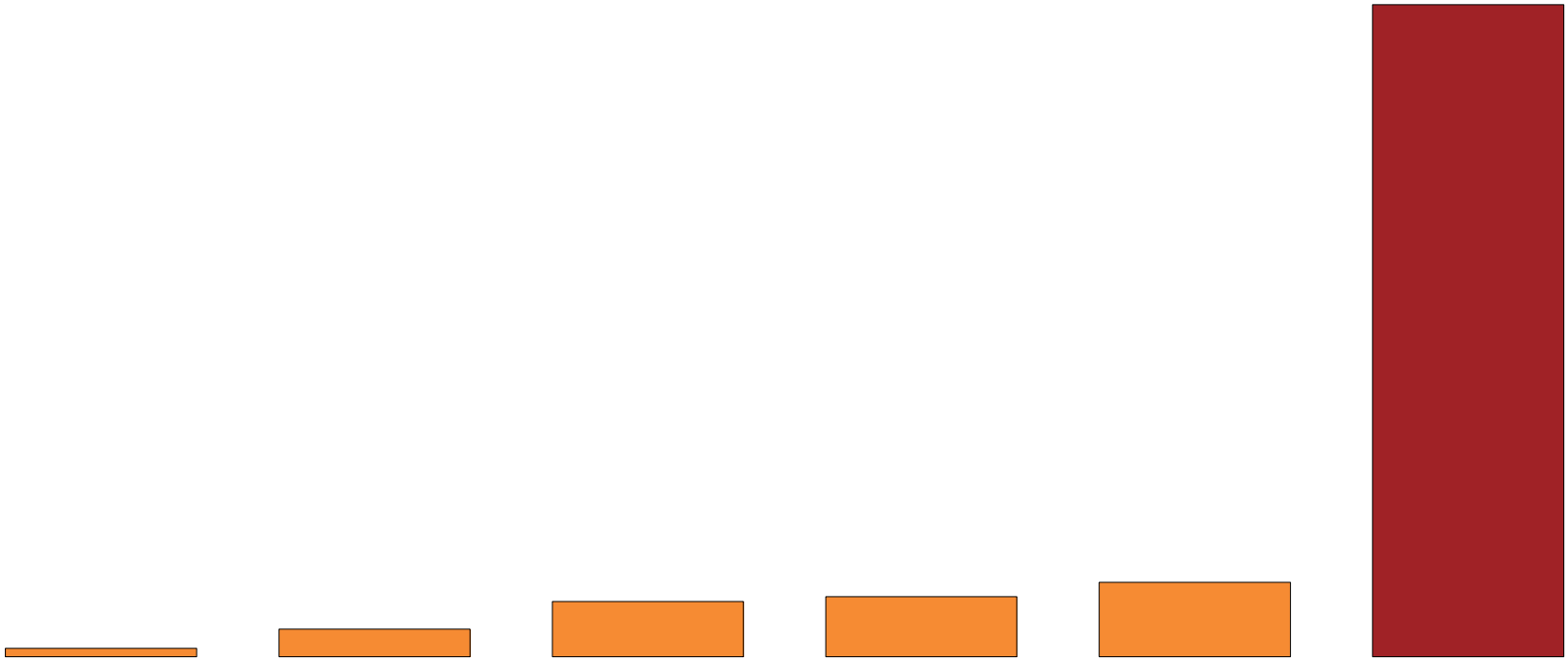
Sample sizes of Australian studies on transport infrastructure cost overruns



Notes: Australian transport projects completed between 2001 and 2015.
Source: Investment Monitor, Grattan analysis and cited studies

More is not always better – especially when ignoring the advice of Infrastructure Victoria

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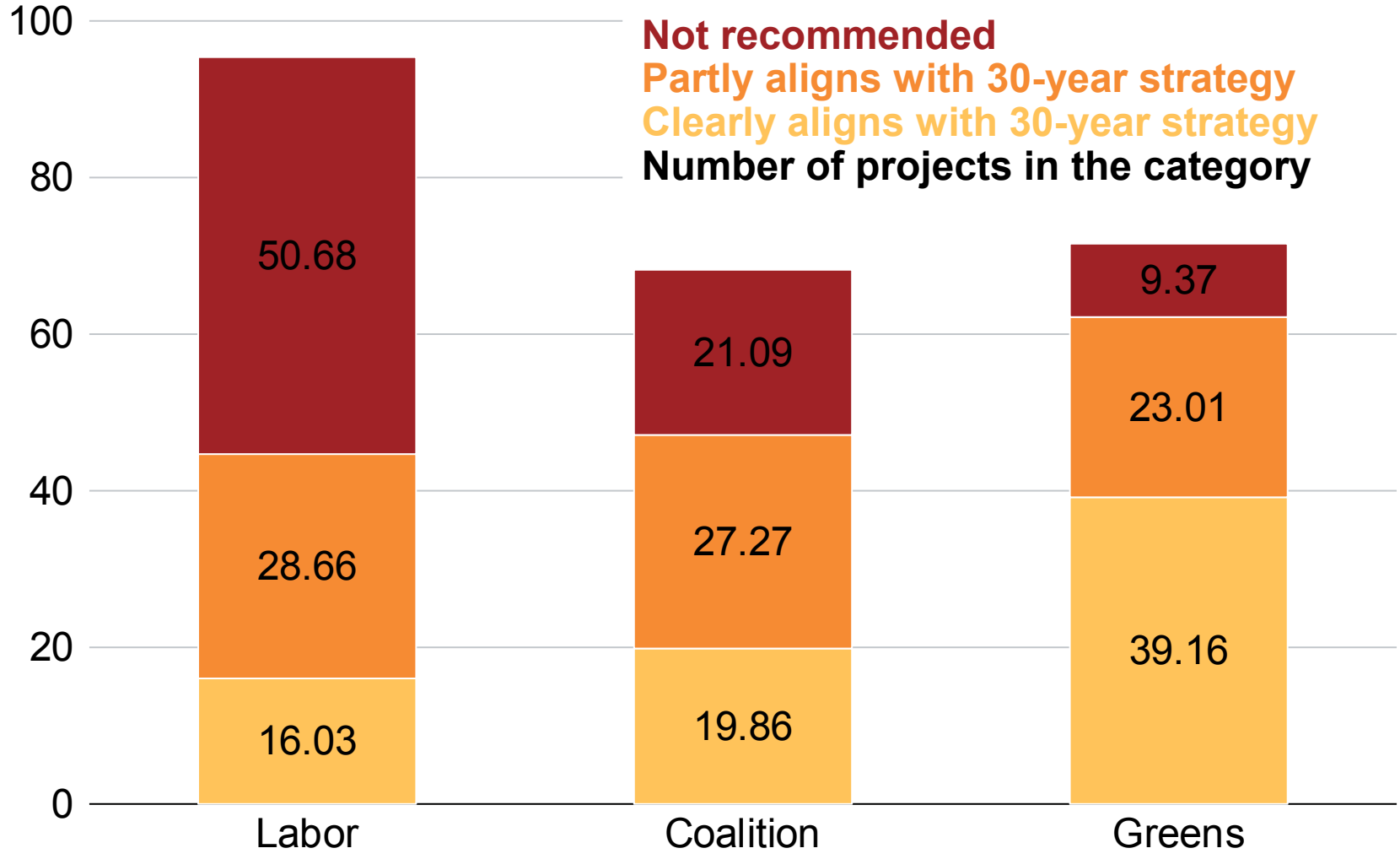
Value ($billion) and number of election commitments to transport infrastructure



Notes: A promise to conduct a business case only (for example, Melbourne Metro 2) may align with IV's strategy, in which case the entire project value has been included in the 'Clearly aligns with 30-year strategy' category. Projects that IV recommends building but not now have been included in the 'Partly aligns with 30-year strategy' category.
Sources: 2018 election media releases and websites of the three major parties, Infrastructure Victoria's 30-Year Infrastructure Stra

Experts systematically underestimate the likelihood of cost overruns

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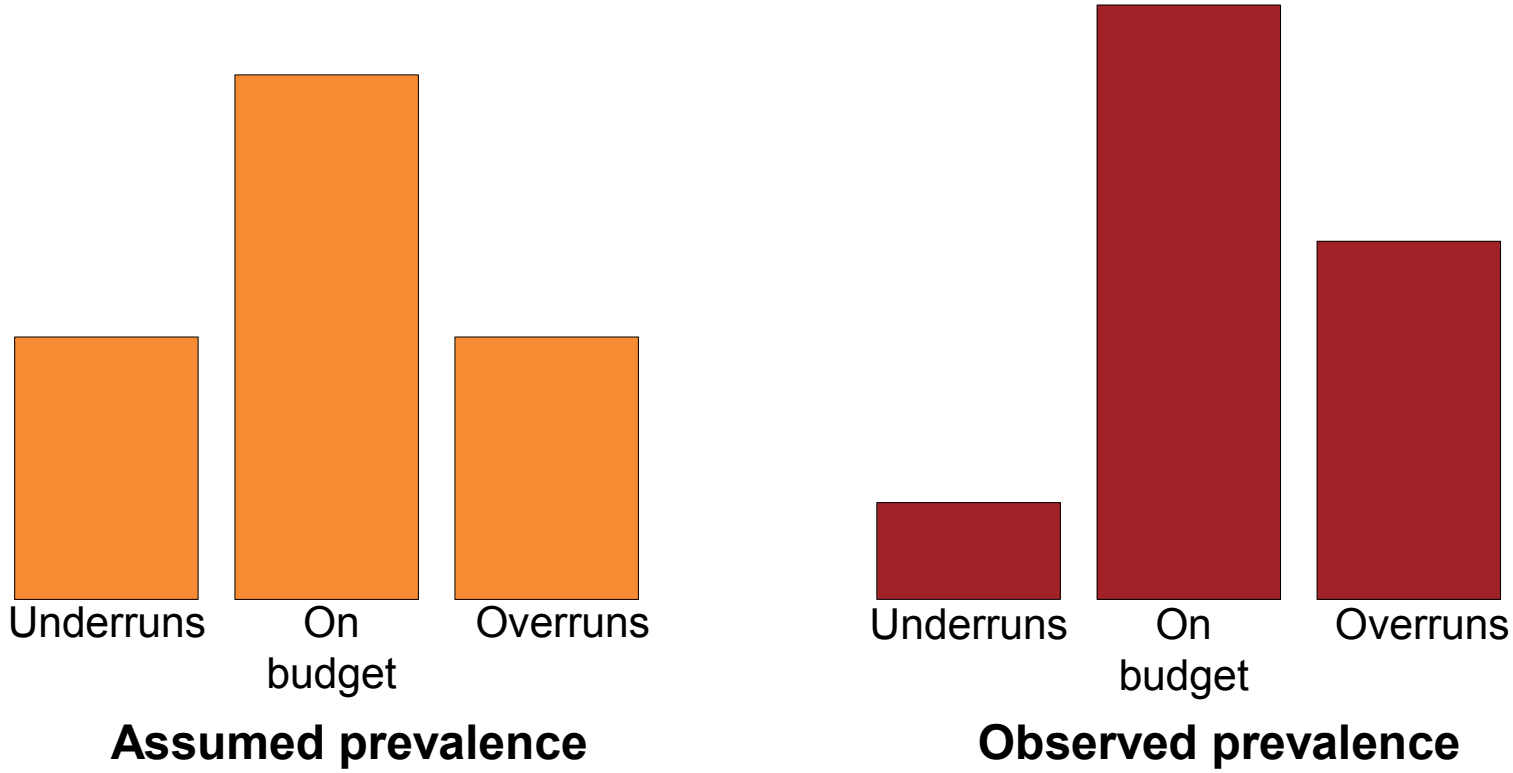
Average magnitude of cost overruns on Australian transport infrastructure projects completed between 2001 and 2015 by mode, per cent



Notes: The assumed prevalence of cost overruns is inferred from the common representation of cost risk as symmetrically distributed in cost estimation guidance. See appendix B.2.5 of *Terrill and Danks (2016)* for further details.
Source: Australian risk management guidelines listed in Appendix A.4 of *Terrill and Danks (2016),* and Investment Monitor; Grattan ana

Low provision for 'worst case' cost outcomes

Large projects currently under development or construction

		Cost estimate (nominal, $ millions)		
Project	**State**	**Median (or "P50")**	**"Worst case" (or "P90")**	**Difference**
WestConnex freeway	Sydney	16 800	n/a	6.0%
Melbourne Metro Rail	Melbourne	10 154	10 837	6.7%
Inland Rail	National	9 890	10 660	7.8%
West Gate Tunnel	Melbourne	5 226	5 548	6.2%
Actual average difference, all projects completed in past 15 years				**26.0%**

Both road and rail projects suffer from cost overruns, but at different stages

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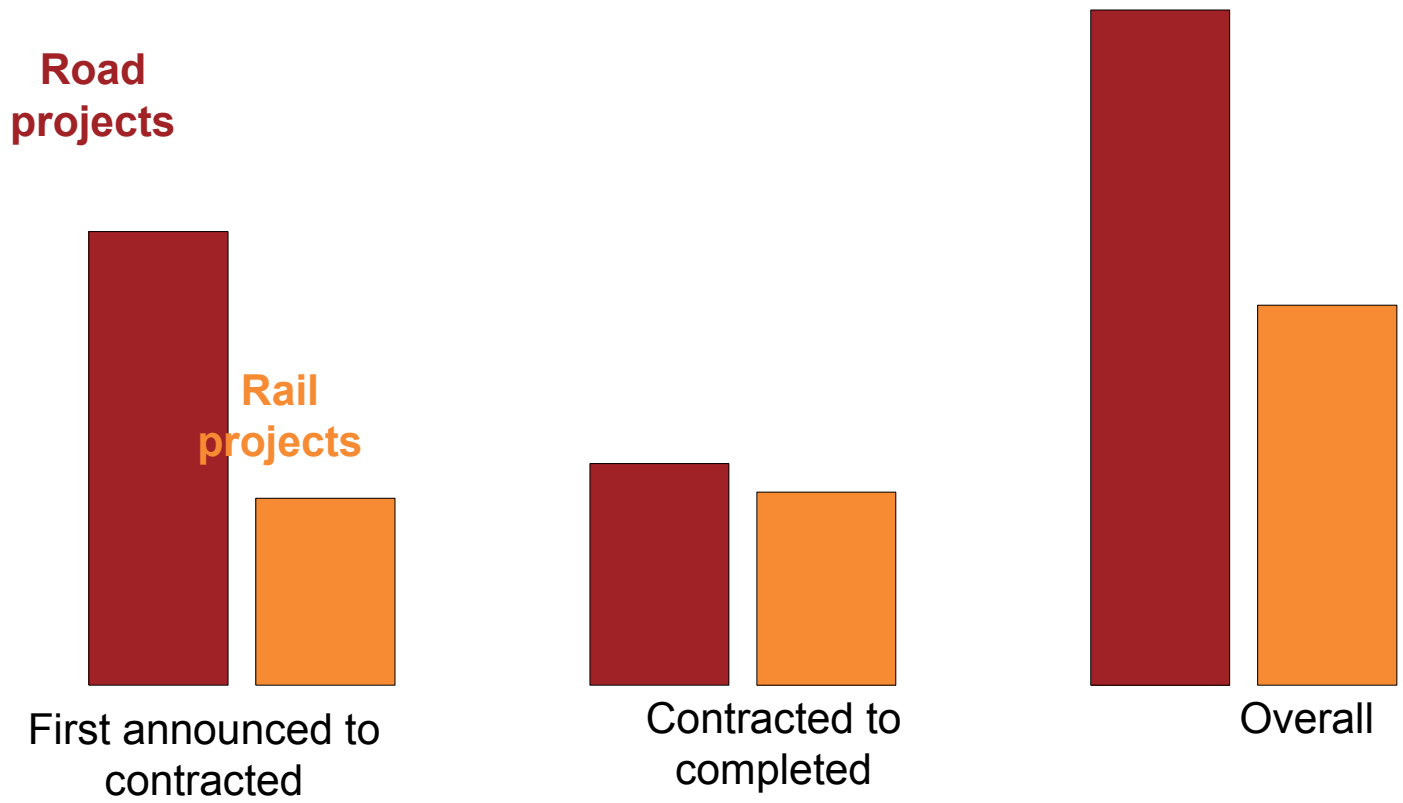
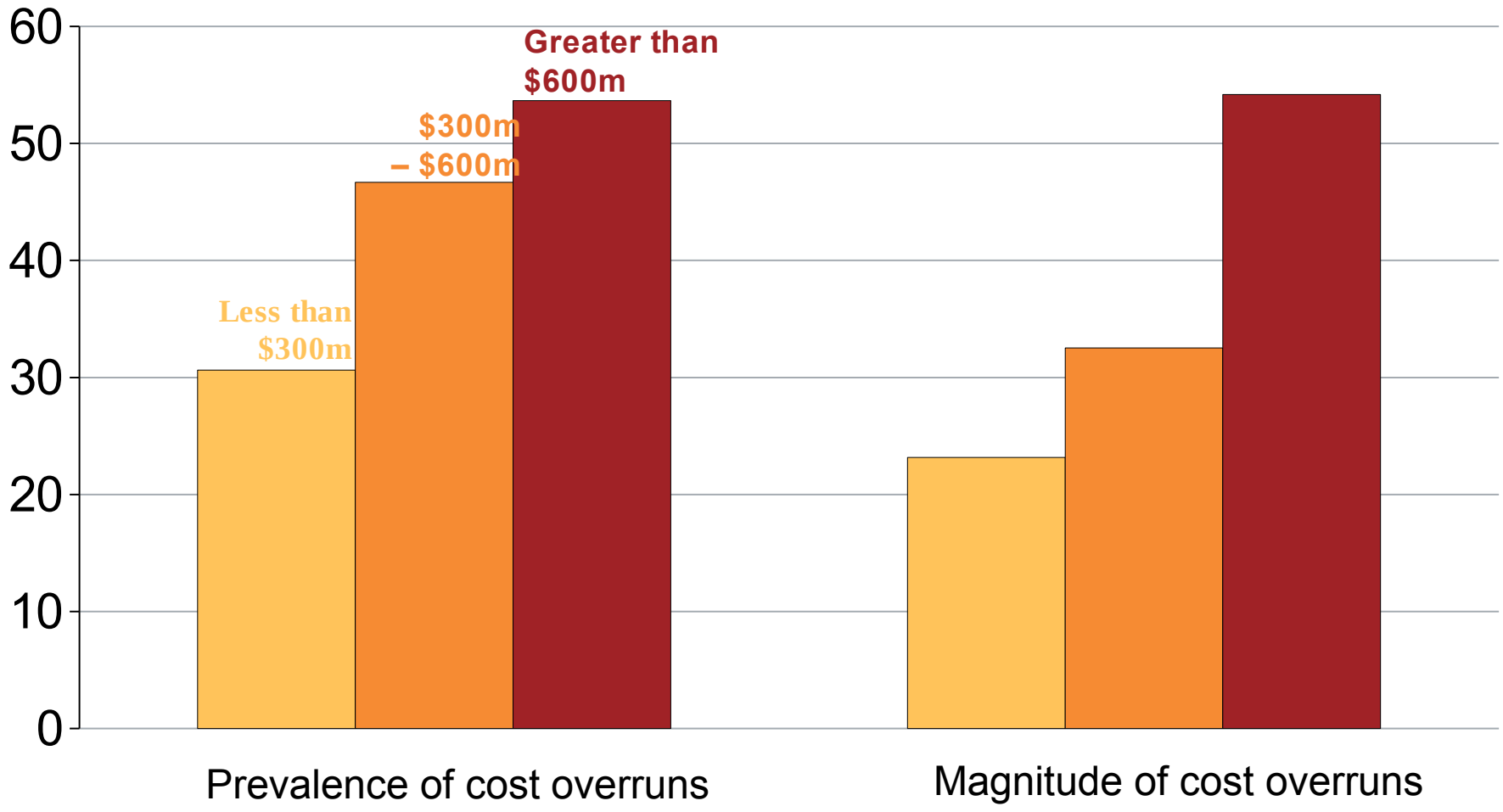
Average magnitude of cost overruns on Australian transport infrastructure projects completed between 2001 and 2015 by mode, per cent



Notes: Australian transport projects completed between 2008 and 2013.
Source: Investment Monitor; Grattan analysis.

Big projects have larger cost overruns



Australia's guidelines on risk measurement do not recommend any approach consistently

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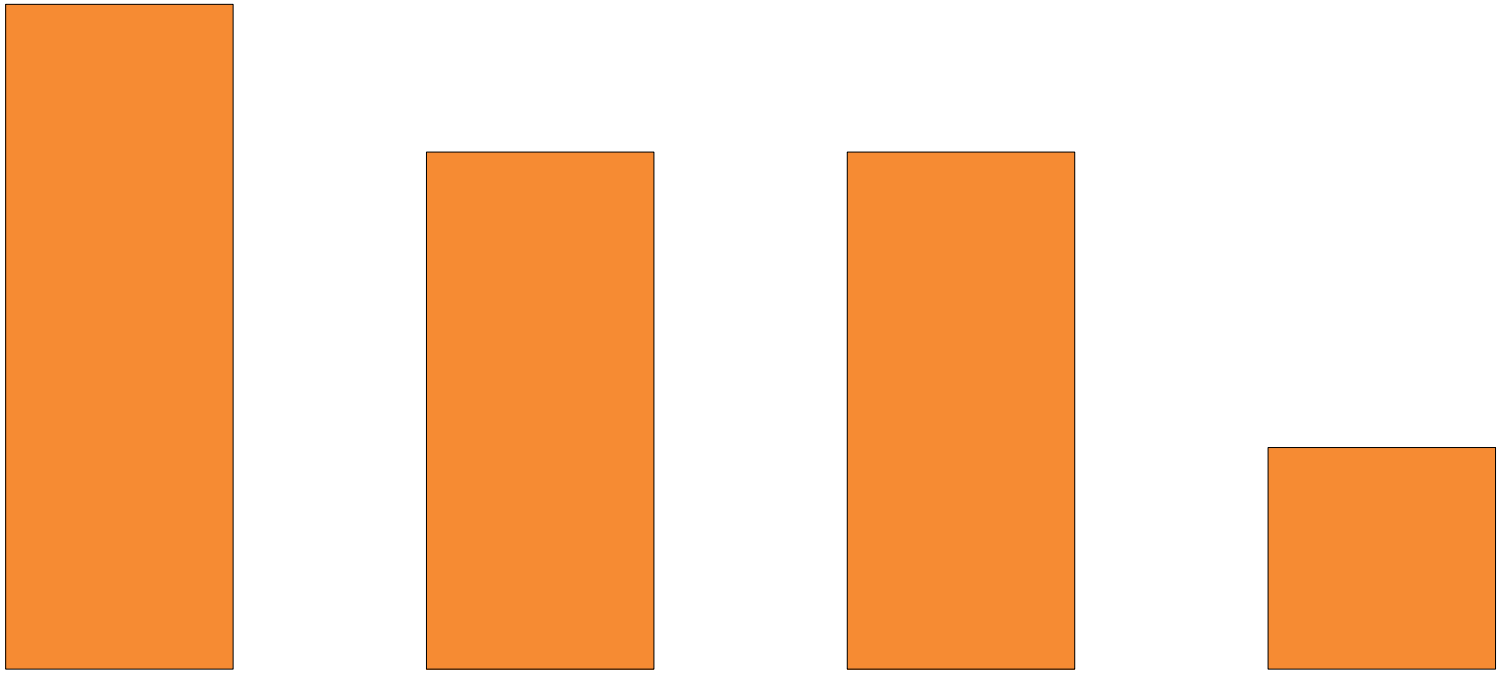
Proportion of transport infrastructure risk assessment guidelines recommend the use of each key risk assessment tool, per cent



Notes: Prevalence rates were calculated over the subsample of each of these guidelines which provided quantitative risk measurement
Source: Australian risk management guidelines listed in Appendix A.4 of *Terrill and Danks (2016),* and Investment Monitor; Grattan ana

Small contingencies can achieve a lot when they are managed at the portfolio level

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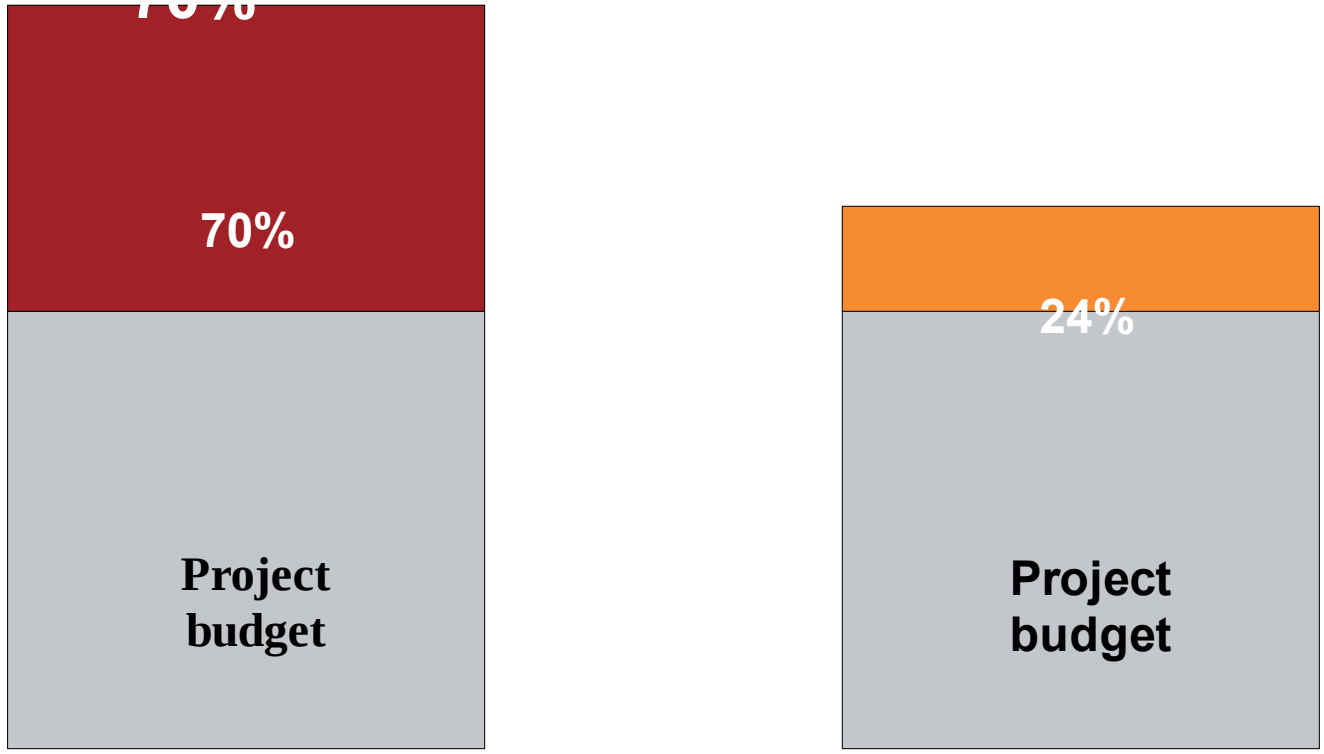
Value of the contingencies to ensure projects will finish within initial budget commitments with 90 per cent probability, per cent of initial project value



Managed at the project level

Managed at the portfolio level

Notes: Australian transport projects completed between 2008 and 2013.
Source: Investment Monitor; Grattan analysis.