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Melbourne Disability Institute

Partnering for impact

Submission to the Queensland Productivity Commission

Economic advice on the “Net Benefit to the Community” of the National Building Code Regulation to achieve accessible housing

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Acknowledgments

The Melbourne Disability Institute (MDI) and the University of Melbourne are situated on the land of the Woiwurrung (Wurundjeri) people of the Kulin nation and conducts their activities on Aboriginal land. This land has never been ceded and the impacts of colonisation are ongoing. MDI acknowledges Traditional Custodians' continual care for country, the importance of Indigenous sustainability practice and knowledge, and the Woiwurrung and Boon Wurrung's ongoing contributions to the life of this city and this region. MDI pays respects to Elders past, present and emerging.

Artwork

The art on the front and back cover of this report was created by Bruce Plant, an Australian artist with disability known for his colourful, narrative, and abstract primitive style paintings. Born in Melbourne in 1952, he studied at Melbourne University and began exhibiting his work in 1989. Plant's art is often described as joyful, playful, and providing hope and inspiration, with works appearing in public and private collections.

Credit: Plant, Bruce. *Revelation*. Displayed at the Melbourne Disability Institute, Melbourne. Acrylic on Canvas, 104x80cm, 2025.

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Executive Summary

The *Queensland Productivity Commission's Interim Report - Opportunities to Improve Productivity in the Queensland Construction Industry* released on Thursday 31 July 2025 recommended that Queensland opt out of regulatory standards unless a net benefit to the State could be demonstrated. The QPC has argued that the minimum National Construction Code (NCC) accessibility standards fail this test. This conclusion is based on the Final Report of the Centre for International Economics (CIE), which was included in the Regulatory Impact Statement (RIS) on that proposed regulation.

However, the CIE analysis was hotly contested. This was spelt out in a series of reports that span the release of the CIE Draft Report in July 2020, initial and supplementary reports prepared by Dalton & Carter critiquing the CIE economic analysis, and the CIE Final Report in 2021.

Dalton and Carter did not comment on the CIE Final Report because by that stage Housing Ministers in most states had already accepted the proposed accessibility standard reflecting, inter alia, doubt about the economic analysis conducted by the CIE and the positive net benefit documented in the Dalton/Carter analyses.

The reliance of the QPC Interim Report on the CIE's Final Report now requires an assessment of the CIE Final Report – particularly of the extent to which the concerns expressed by Dalton and Carter were adequately addressed by the CIE in their Final Report.

In brief, CIE's response varied across the concerns identified by Dalton and Carter but were mostly actioned by either: i) rejection; ii) acceptance, but with inclusion only in their enhanced qualitative analysis; and/or iii) acceptance, but via inclusion in their one-way sensitivity analyses or scenario analysis. As a result, the central estimates in the CIE Final report, and on which the QPC has relied, are biased, as they over-estimate the costs and under-estimate the benefits.

The key issues which are not adequately addressed in the CIE Final Report central estimates are that:

1. More weight should be placed on the analysis undertaken from a societal perspective than the narrower problem reduction approach;
2. The principle of symmetry in the reporting of costs and benefits is compromised in both the problem reduction approach (costs over-attributed) and their societal WTP approach (benefits under-attributed);
3. The exclusion of benefits by the CIE due to the potential for double counting is excessive and invalidates their conclusions; and
4. The CIE has included the cost of additional space but ignored its ongoing capital value and utility in use.

When these factors are built into the CBA, the benefit-cost ratio becomes 1.7 for Silver and 1.2 for Gold, so the benefits of accessible housing exceed the costs. We also note that Ernst and Young in a comparable Regulation Impact Statement involving accessibility with both "core" (people with a severe disability) and "non-core" beneficiaries (carers, non-users and government), focused their net benefit results on a "whole-of-economy" perspective. Ernst and Young did not report their net benefit results from a 'problem reduction' perspective favoured by the CIE.

There are also a number of additional shortcomings in the central analysis, which although less significant in their individual impact, are consequential when taken together and so would further significantly improve the benefits relative to costs.

These are that:

1. A more accurate assessment for the value of a statistical life year (SLY) is available from a systematic literature review and should have been utilized;
2. An explicit value should have been included for productivity impacts due to the prevention of premature retirement, premature death and preventable morbidity, as well as for people not in the paid workforce; and
3. Improved recognition of broader social justice considerations is vital.

Introduction

An important aspect of the Queensland Productivity Commission's (QPC) recent Interim Report on productivity in the housing industry is ***"…improving the regulation of the of building activity".*** This relates to opportunities under the National Construction Code (NCC), financial regulations, and the operation of workplace health and safety regulation, as well as removing regulatory barriers to modern methods of construction. One aspect of the NCC that has drawn attention is the recent introduction of a new regulation on accessible housing.

This Economic Note relates to QPC recommendations involving building codes and standards – specifically, those aspects that relate to acceptance of the recent NCC regulation on Accessible Housing. The QPC has argued in its Interim Report that there is a strong case for Queensland to opt out of any regulatory change, including changes to the NCC, where a net benefit to the community has not been demonstrated. The QPC has argued that recent changes to the NCC to set minimum accessibility standards fail this test. This conclusion is based on the final report of the Centre for International Economics (CIE) included in the Regulatory Impact Statement (RIS) on that proposed regulation[1].

Prior to the release of the QPC Interim Report the decision by most states to adopt the proposed Accessible Housing regulation reflected, inter alia, debate about the economic analysis conducted by the CIE. More specifically, the CIE finding of negative net benefit for this regulation was strongly contradicted by analysis prepared by two highly experienced economists in economic appraisal[2]. **It is not clear from the QPC's Interim Report whether the QPC is aware of the contested nature of the CIE analysis**. Certainly, there is no mention of the Dalton/Carter reports in Section 12 of the QPC Interim Report covering "Building design and codes"; including the extent and nature of the arguments involved. There is also no reference to the Melbourne Disability Institute submission to the QPC Inquiry.

The discussion about the economic credentials of the accessibility regulation is spelt out in a series of reports that span the release of the CIE draft report in 2020 as part of the ABCB consultation papers[3], initial and supplementary reports prepared by Dalton and Carter

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[1] The CIE, *Proposal to include minimum accessibility standards for housing in the National Construction Code – Decision Regulation Impact Statement*, February 2021. Prepared for the Australian Building Codes Board.

[2] Andrew Dalton, Director AdHealth Consulting and former Associate Professor, Deakin Health Economics, Deakin University and Rob Carter, Foundation Professor (Disability Economics) The University of Melbourne and Emeritus Professor, Deakin University (former Alfred Deakin Professor and Foundation Director of Deakin Health Economics, Deakin University.

[3] The draft CIE report was released as a consultation report, viz: The CIE (2020), *Proposal to include minimum accessibility standards for housing in the National Construction Code: Consultation Regulation Impact Statement*, July 2020,

critiquing the CIE economic analysis[4], and the CIE final report in 2021[5]. The purpose of this note is to bring this discussion up to date by assessing the response of the CIE to the Dalton/Carter critique contained in their final report.

The Story So Far

Dalton/Carter Initial Critique of the CIE Draft Report

Two key sets of cost/benefit results (i.e. net benefit calculations) are presented in the CIE draft report; namely those based on: i) 'a problem reduction approach' targeted on those with housing accessibility needs; and ii) a broader societal approach based 'willingness to pay' that included benefits to the general community from improved design and accessibility. Dalton and Carter concluded that while the CIE had provided a helpful analysis of a complex set of issues, they identified four key issues, which if taken together, would reverse the CIE conclusions. They provided alternative cost-benefit calculations to illustrate their argument.

Of the four key issues, two related to the principle of symmetry in the presentation of benefits and costs for a specified research question, study perspective and context. One issue related to the elements included in the opportunity cost of space, while the last related to the discount rate used in the net present value calculations, having regard to published reviews of appropriate methodology and practice. Dalton and Carter also noted the importance of social justice in welfare economics, together with a series of technical points that, if accepted, would provide additional value to implementing the regulation on housing accessibility standards.

The principle of symmetry:

The principle of symmetry requires that benefits and costs are reported in a way that avoids bias or confounding. This is a key principle identified by the Office of Best Practice Regulation (OBPR). If all the costs are counted then all the benefits should be counted, commensurate with the study viewpoint adopted. If only some of the benefits are counted, then costs should be presented in a symmetrical way – that is, calculated in full, but apportioned between those receiving the benefits. If only some of the costs are counted, then similar care is required to include only symmetrical benefits.

The 'problem-reduction' approach:

In this approach favoured by the CIE, all costs of the options are included, but only those benefits that result from improved access for those with housing access needs – both direct

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[4] Dalton A & Carter R (2020), *Economic advice prepared to assist with responses to the Consultation Regulation Impact Statement on minimum accessibility standards for housing in the National Construction Code*, prepared for the Melbourne Disability Institute, University of Melbourne and the Summer Foundation, 18 August 2020, as Appendix 1 of the submission by Melbourne Disability Institute (MDI) and Summer Foundation to the public consultation.
Dalton A & Carter R (2020), *Economic advice prepared to assist with responses to the Consultation Regulation Impact Statement on minimum accessibility standards for housing in the National Construction Code, Supplementary Information* prepared for The Melbourne Disability Institute, University of Melbourne and the Summer Foundation, 6 October 2020.

[5] The CIE, *Proposal to include minimum accessibility standards for housing in the National Construction Code – Decision Regulation Impact Statement*, February 2021

(problem reduction) and indirect (altruistic benefit) – are included. **In this approach significant benefits that flow directly from improved design and functionality to the general community are not included**. Note also that the altruistic benefit included here is a caring externality on behalf of private individuals, it is quite different to capturing the government's commitment to social justice, including ensuring access to 'merit goods'[6] like health care, education and livable housing.

Dalton and Carter saw it as problematic to count all the costs of implementing each option, but only a component of the associated benefits. They argued that if the boundary around benefits is confined to those that flow from assisting a target sub-group, then the cost side needs to be apportioned accordingly between this target sub-group and the general population. To do otherwise would bias the benefit-cost relationship against the economic credentials of the target sub-group.

The societal 'willingness-to-pay' approach:

In this approach the CIE focused on the value of improved functionality to both those with accessibility needs and the general community. The issue in contention was the extent to which the CIE excluded benefits and cost offsets due its interpretation of the need to avoid double-counting. Dalton and Carter agreed with the need to avoid double-counting but disputed the extent of overlap assumed by the CIE and again provided alternative results. This issue was taken up in more detail in their Supplementary Report (see below).

The opportunity cost of space:

The CIE analysis assumed that the additional space per dwelling (e.g., 0.48 sqm for Silver option) is a sunk cost for the sole benefit of people with mobility impairments and has no lasting value or benefit. Dalton and Carter argued that the cost of the additional space required for more accessible housing has at least an equal resale value, i.e. 'capital gain' for improved design and utility and that all house space has an inherent value which is not zero. Importantly, Dalton and Carter proposed that the value of the space is the sum of both the enhanced functionality from improved accessibility, plus the enhanced capital value.

Further, in their 'problem-reduction approach', the CIE did not measure 'utility-in-use', over and above problem-reduction benefits (e.g. reduced falls). In their suggested re-analysis, Dalton and Carter included a minimum combined estimate for capital gain and 'utility-in-use' as being the retained capital value of the additional space (equal to the market price at the time of purchase).

The discount rate:

The discount rate is a factor that is applied to allow a comparison between costs and benefits today and in the future to calculate the 'present value'. In this study the discount rate assumption has a huge impact on the estimated benefit cost ratios because most of the costs are upfront, and the benefits are in the future. Therefore, any reduction in the discount

[6] Musgrave raised this term in his "Theory of Public Finance" (Musgrave 1959). The recognition of merit goods was a watershed moment in the development of economic theory as it recognised that there were goods and services whose consumption was so meritorious that they should be made available on terms more generous than in the marketplace. The work of Pigou and Marshall in the 'material welfare' tradition consolidated the importance of merit goods and challenged the then prevailing libertarian views that any interference with consumer sovereignty by government must reduce utility (Robinson 1986).

rate assumption will favour the benefit side more than the cost side. Most economists acknowledge that the prevailing bond rate is the best ‘rule of thumb’ for the discount rate and the current 30- year bond rate in Australia then prevailing was 1.87%. The long-term bond rate is currently 4.3%. Based on their extensive evaluation experience, Dalton and Carter argued that the CIE findings should have been based on at most a 3% discount rate (not the 7% used).

Other issues that have a smaller impact:

Individually the issues mentioned below would have a minor impact on the CIE draft results but taken together they would further improve the economic credentials of the proposed regulation. These issues cover: i) including the most up-to-date estimate from the international literature for the value of a statistical life year (i.e., using a SLY value of $7.0M rather than $4.5M); ii) including a value for intangibles such as pain and suffering avoided; iii) and including a value for the productivity impacts of premature retirement, premature death and morbidity (as well as people not in the paid workforce – that is “domestic production” – which can also be quite large).

Conclusion from the initial Dalton/Carter report of 18 August 2020:

Dalton and Carter argued that there were four key assumptions in the social cost-benefit analysis conducted by CIE that should be amended. Changing these assumptions in the cost-benefit model tip the balance so that the benefits of changing the NCC outweigh the costs to the Australian community. This is illustrated in Table 1 below using the societal ‘willingness-to-pay (WTP)’ approach.

Table 1: Benefit Cost Ratio (BCR) Comparison in the CIE and Dalton/Carter Reports

	Option 1	Option 2	Option 3	Option 4	Option 5
1. Base case benefit-cost ratios in CIE report in RIS	0.77	0.14	0.11	0.09	1.00
2. Adjust for symmetry in cost and benefits using the WTP approach (25% overlap to allow for building modification being reflected in both approaches)	2.00	0.68	0.54	0.39	1.48
3. Symmetry applied to WTP approach (25% overlap), plus add capital value of space to benefit side	2.46	1.10	0.95	1.03	1.48
4. Add in effect of 3% discount rate to row 3.	2.99	1.34	1.16	1.26	1.81

Source: Constructed from various tables presented in: Dalton and Carter (August 2020) “*Economic advice prepared to assist with responses to the Consultation Regulation Impact Statement on minimum accessibility standards for housing in the National Construction Code*”, p5.

Dalton/Carter Supplementary Report of 6 October 2020

This Supplementary Report was provided following discussions with representatives from the Australian Building Codes Board (ABCB) and the Centre for International Economics (CIE). Several key matters in the Dalton/Carter report of 18 August were discussed, and further input was invited on matters of disagreement that remained. In their Supplementary

Report Dalton and Carter focused on three key issues that had a major impact on the net benefit result, viz; i) the choice of evaluation approach on which to base the net benefit conclusion; ii) the exclusion of major benefits due to an assumption of double-counting; and iii) the exclusion of any capital value for the additional space.

Choice of evaluation approach – problem reduction verses societal WTP approach

In their Supplementary Report, Dalton and Carter first reaffirmed their view that the societal WTP approach was a much closer match to the Australian Guidelines for Regulatory Impact Statements[7] and was, therefore, strongly preferred. This contrasted with the CIE preference for the problem-reduction approach. While both approaches have value in the information they provide, the choice of preferred method is important as each method delivers a different answer on the net benefit to the community of the proposed regulation.

The CIE's preference for the problem reduction approach outlined earlier was based on a data collection judgement – that revealed data on potential problem reduction and associated resource cost impacts was more reliable than assessing WTP preferences based on hypothetical scenarios.

Dalton and Carter on the other hand, while not disagreeing with this position on measurement accuracy, placed more weight on selecting the most appropriate study perspective in assessing costs and benefits of the proposed regulation. For Dalton and Carter, the choice of study perspective was a threshold issue in that it defined the boundary around relevant costs and benefits for inclusion in assessing the proposed regulation. In this, the Guidelines for Regulatory Impact Statements on Cost Benefit Analysis clearly support the primacy of a societal perspective, to which both quantitative and qualitative assessments should be applied.

While both study perspective and measurement rigor certainly matter, there is a natural sequence or hierarchy of steps in undertaking economic evaluation. This is reflected with the *Design Frame* preceding the *Analytic Frame* in the textbook prepared by Gold and colleagues following the Washington Panel (Gold et. al., 1996) and in the *Identification* step preceding the *Measurement* and *Valuation* steps in the textbook prepared by Drummond and colleagues (Drummond et. al., 3rd Edition 2006). Rigor is important but not an end in and of itself. It is to be balanced against other evaluation principles, particularly threshold design issues. It is useful to note that this tension between accuracy and relevance is not a new issue in the decision sciences. Carveth Read, a 19th and 20th century philosopher and logician, for example, captured the essence of this discussion in his oft quoted statement, '… that it is better to have an approximate measure of the right thing than an accurate measure of the wrong thing!' Often attributed to John Maynard Keynes, this notion has been influential in economic and financial analyses for many years.

To conclude on this design issue, both the problem reduction and societal WTP approach have value (i.e., neither is wrong per se), but more weight should be placed on the broader societal perspective in assessing net benefit for the community of a proposed regulation in accordance with the RIS Guidelines.

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[7] Australian Government, Department of Prime Minister and Cabinet, Office of Impact Analysis

The exclusion of major benefits due to an assumption of double-counting:

Nature of the problem:

The next threshold issue that remained unresolved was the CIE exclusion of significant benefits due to what they regarded as ‘double counting’. Again, Dalton and Carter had a very different view on the extent of overlap, which again had a significant impact on the net benefit calculation.

To clarify this issue, ‘double counting’ can occur when the same benefit is counted in two different ways and summed for the same target population. As an example, double counting would occur if a change in the value of real estate resulting directly from a transport improvement, were included while also valuing the savings in travel time resulting from the transport improvement. In this example, two things are assumed: i) *attribution* – that is, the increase in property values was attributed directly to the improvement in travel time; and ii) the *same people* who receive the travel time benefit are also receiving the property improvement benefits. Here the saving in travel time was the direct benefit and the improvement in property values was the indirect benefit. Most analysts would agree in this situation that to count both the value of travel time savings and the increase in property would double count the benefit from the transport improvement. Some analysts, however, might still see the property impact as a second round or ‘ripple effect’ that warranted inclusion. Such decisions are clearly judgements that should be reported, discussed and illustrated through sensitivity analysis.

Transferring this transport example to our accessibility regulation, double counting would occur in a situation where anticipated resource cost savings (e.g., reduced medical costs) from say a reduction in falls due to improved accessibility was included, as well as an improvement in wellbeing directly related to the reduction in falls. So, in a cost utility study this might occur if the quality-of-life instrument included a question on mobility. In a cost benefit study, it might occur if the WTP scenario included reduced falls in the scenario description.

This is the essence of the double counting problem. When resource cost savings due to improved accessibility are included, can you also include the value of improved quality of life or improved wellbeing? The answer depends on a few things. First, are the target populations the same? If not, then double counting is unlikely. If the target populations are the same, then whether: i) attribution between the value outcome and the activity involving resource cost saving is clear; ii) the extent to which the target population would be cognizant of the cost saving, which in turn is impacted by who pays; and iii) irrespective of awareness, the extent to which the respondents in the WTP included the cost saving in their responses. This is influenced by whether, and if so, how clearly, the cost offset aspects were specified in the WTP scenario. Next, we explore these issues in a little more detail.

The issue of overlap and double counting in more detail:

In the CIE’s ‘problem reduction approach’ only those benefits that result from improved access for those with housing access needs – both direct (problem reduction) and indirect (societal altruistic benefit or ‘caring externality’) – are included. The direct benefits from problem reduction are interpreted as *resource cost savings* from: i) ‘reduced falls’; ii) ‘reduced time in hospital/transition care’; iii) ‘reduced loneliness’; iv) ‘reduced home modification costs'; v) 'reduced carer-related costs'; vi) 'reduced incidence of moving'; and vii) 'reduced premature/ inappropriate entry to aged care'.

In their broader 'societal perspective' measured through WTP, benefits to the *general community* from improved design and accessibility are also included. Note this is a different target population to the elderly and those with a disability who have housing access needs. With the exception of home modifications required for ageing in place, these additional benefits to the general community are interpreted as the *value of improved accessibility*, not as cost offsets. The value of improved accessibility is argued in terms of; i) 'getting in and out'; ii) 'moving around indoors'; and iii) 'living with mobility on same level as an entrance' (refer Table 2).

Dalton and Carter argued that: i) benefits to those with housing access needs in the 'problem reduction approach' (the elderly and/or those with a disability) were not the same as the benefits to the general community in the societal WTP approach; ii) that the two approaches involved two different target populations; iii) which, a priori, could be summed to measure total benefit. They saw the only areas of clear overlap as the altruism or caring externality, which would apply to both populations, and is clearly specified as a line item in both approaches. Another possible area of overlap is 'reduced home modifications', which is listed as resource savings in both approaches; but even here for the general population it is about ageing in place, while for those for accessible housing needs it is much more immediate.

Table 2:Comparison of Direct Benefits in the Problem-Reduction & Societal WTP Approaches

Table 7.2, CIE Report		Table 7.3, CIE Report	
CBA Benefit - Problem Reduction Approach	***Interpretation***	**CBA Benefit – Broader WTP Approach**	***Interpretation***
Reduced falls	*The value of resource savings*	Getting in and out	*Value of aspects of accessibility*
Reduced time in hospital/transition care	*The value of resource savings*	Moving around indoors	*Value of aspects of accessibility*
Reduced costs associated with loneliness	*The value of resource savings*	Living with mobility on same level as an entrance	*Value of aspects of accessibility*
Reduced home modification costs	*The value of resource savings*	Minimal modification required for ageing in place	*The value of resource savings*
Reduced carer related costs	*The value of resource savings*		
Reduced incidence of moving	*The value of resource savings*		
Reduced premature/ inappropriate entry to aged care	*The value of resource savings*		

Table Notes: Table 7.2 is from p.112, CIE Report, while Table 7.3 is from p.113, CIE Report.

Dalton and Carter argued, that if these two factors were excluded, it is hard to see overlap in other items that concerned the CIE. The CIE perspective was that the resource savings listed as 'benefits' in their Table 7.2 (CIE Report) would have been integral to the WTP estimates provided by the respondents to their survey. Dalton and Carter disagreed and argued that the main survey is clearly about "…housing features that affect accessibility" (p230, CIE Report) and the associated amenity/loss of amenity. All questions are drafted accordingly – they are short, targeted, with specific focus. Overlap between this survey and issues other than the amenity of housing features would be unlikely and quite sporadic if it occurred. Such overlap would not constitute a valid argument for exclusion based on double counting, particularly omitting a whole benefit category.

Central to this issue of potential overlap in benefits is what unstated considerations respondents would have included in their valuations given in response to the WTP questions asked of them. There is widespread agreement in the economic literature that respondents' valuations in WTP are highly dependent on the depth, breadth and clarity of the scenarios/questions put to them. In particular, important dimensions need to be clearly described. It is most problematic to simply assume that respondents include factors that are not clearly specified, or which are not mentioned at all.

Dalton and Carter then focused further on the extent of overlap between the benefits defined in the problem-reduction approach and the societal WTP approach. Rather than assume extensive, if not total overlap, a more realistic assumption in their view was that *only privately borne costs and inconvenience (or disutility)* were likely to be considered in the WTP responses in any consistent way.

The costs payable by either public healthcare or private health care insurance, and therefore unlikely to be considered by WTP respondents, would then be:

- Health care costs of reduced falls ($46M);
- Reduced time in hospital/transition from earlier discharge ($187M); and
- Reduced premature/inappropriate entry to aged care ($210M);

Given the costs of carers ($557M) and home modification costs ($478M) involve public subsidies, it could also be argued that the list of savings should be greater, but for simplicity it is assumed here that there are no such public subsidies, and all costs are borne privately.

In their extended analysis, Dalton and Carter thus included additional results that excluded the four items from Table 2 that estimate the value of private costs avoidable with accessible housing: namely ‘reduced loneliness’, ‘reduced home modifications’, ‘reduced carer-related costs’, and ‘reduced incidence of moving’. The assumption being that these impacts are borne privately without public subsidy and might have been captured in the valuations for: ‘getting in and out’, ‘moving around indoors’, ‘ease of entrance’, and ‘modifications for ageing’. Secondly, they may have been picked up in the value attached to the altruism question, which does mention health risks. Dalton and Carter viewed the total omission of private resource savings on an assumption of possible double counting as very conservative but explored this option nonetheless in order to provide sensitivity testing closer to the CIE position. Table 3 below summaries the resulting net benefit calculations.

The CIE base case for the ‘problem reduction’ approach reports ratios of 0.77 and 0.14 for Options 1 (Silver) & 2 (Gold) respectively. Restriction of the savings to only those accruing to the public purse still produces ratios of 2.06 and 0.80 respectively. The Silver standard clearly has a positive net-present value (NVP) with these resource savings added, while the Gold standard is approaching a positive NPV. The addition of benefits not included so far and/or a lower discount rate may well bring the Gold standard into a positive NPV as well. Other points also raised by Dalton/Carter include: i) adding an allowance for the capital value of additional space required for accessibility; ii) including the most up-to-date estimate for value of a statistical life (VSL); iii) adding productivity aspects linked to premature death, premature retirement, hospitalisations, and practitioner visits (as routinely estimated in health economics); iv) adding a value for intangibles, particularly quality of life improvement; and v) including an updated value for carer’s time. It is to these additional points that we now turn, as set out in Table 3, which is reproduced below from the Dalton and Carter report.

Table 3: Modifying the CIE double counting assumptions by including net resource savings accruing to government budgets (only excluding private resource savings)

	Option 1	Option 2	Option 3	Option 4	Option 5
	$million	$million	$million	$million	$million
Benefits					
Reduced falls	45.68	51.69	54.52	15.13	154.27
Reduced time in hospital/transition care	186.88	211.45	223.04	61.89	631.05
Reduced costs associated with loneliness					
Reduced home modification costs					
Reduced carer related costs					
Reduced incidence of moving					
Reduced premature/inappropriate entry to aged care	209.54	237.09	250.09	69.40	707.58
Getting in and out	0.00	0.00	0.00	0.00	0.00
Moving around indoors	5354.20	7335.76	7335.76	2191.92	2462.30
Living with mobility on same level as an entrance	330.27	1558.63	1558.63	0.00	605.54
Minimal modification required for ageing in place	0.00	6423.79	6423.79	1919.42	1685.88
Societal benefits	1031.33	1106.60	1106.60	326.25	1900.96
Total benefits	**7157.90**	**16925.01**	**16952.43**	**4584.01**	**8147.58**
Costs					
Construction costs	-1866.72	-12384.81	-15904.40	-3602.32	0.00
Opportunity costs of space	-1571.81	-8831.55	-11162.57	-6541.11	0.00
Industry re-training costs	-28.47	-28.47	-28.47	-28.47	0.00
Subsidy	0.00	0.00	0.00	0.00	-7455.55
Total costs	-3467.00	-21244.83	-27095.44	-10171.90	-7455.55
Net benefit/costs	**3690.90**	**-4319.82**	**-10143.01**	**-5587.89**	**692.03**
Cost-Benefit ratio	**2.06**	**0.80**	**0.63**	**0.45**	**1.09**

Source: Dalton and Carter (2020) "*Economic advice prepared to assist with responses to the Consultation Regulation Impact Statement on minimum accessibility standards for housing in the National Construction Code*: *Supplementary information*", p5.

The omission of capital value

The third major area of disagreement related to the CIE treatment of capital value resulting from additional space. The CIE report estimates the additional space required to accommodate the accessibility improvements and correctly values the (opportunity) cost of this space at current market value. **The 'value' of the benefit from this additional space though can be thought of as having two intrinsic components, an *investment characteristic* and a *utilisation characteristic*.** This is recognised in the CIE report, but which also outlines the difficulty of estimating the 'speculative expectation on capital gains' that may have been in the minds of respondents. They then ignore the investment value entirely and only focus on the value in use using a 'renter model' (p.218, CIE report). Dalton and Carter support the renter model for value in use but disagreed strongly with the omission of capital value.

For Dalton and Carter an important question was whether in the presence of uncertainty, it is better to ignore an important benefit category, particularly to homeowners, or to include a modest estimate. If the outcome is important, inclusion seems preferable to omission. *Both the capital and utilisation characteristics are important*. Dalton and Carter agreed with the CIE view that estimates of the expected capital gain in the mind of respondents to the survey (made prior to the Covid pandemic) may be difficult. However, the CIE approach effectively implied a capital write-off to zero, which they argued was equally difficult to justify.

Therefore, Dalton and Carter proposed that a balanced and conservative approach would be to assume that the capital value is constant without further real gain – that is, assume a floor value for the capital characteristic equal to the initial outlay or cost of the additional space.

This is clearly very conservative given that all homeowners purchase their homes with an expectation of capital gains and often significant capital gains. They argued that respondents may have included a risk premium in their WTP valuation, but an approach that assumes a constant capital value would be a much closer estimate of the 'true' valuation than the CIE approach of recognising the cost but not the retained value. Table 4 shows this allowance for retaining the capital value of the additional space based on the initial outlay or cost of the additional space. Table 4 builds on the results shown in Table 3 by including an allowance for the retained value of the property. The CBA ratios show the benefits for all options exceed costs and range from 2.52 to 1.04.

Table 4:Restriction of net resource savings to only those accruing to government budgets, plus an allowance for retained capital value of the cost of additional space

	Option 1	Option 2	Option 3	Option 4	Option 5
	$million	$million	$million	$million	$million
Benefits					
Reduced falls	45.68	51.69	54.52	15.13	154.27
Reduced time in hospital/transition care	186.88	211.45	223.04	61.89	631.05
Reduced costs associated with loneliness					
Reduced home modification costs					
Reduced carer related costs					
Reduced incidence of moving					
Reduced premature/inappropriate entry to aged care	209.54	237.09	250.09	69.40	707.58
Getting in and out	0.00	0.00	0.00	0.00	0.00
Moving around indoors	5354.20	7335.76	7335.76	2191.92	2462.30
Living with mobility on same level as an entrance	330.27	1558.63	1558.63	0.00	605.54
Minimal modification required for ageing in place	0.00	6423.79	6423.79	1919.42	1685.88
Societal benefits	1031.33	1106.60	1106.60	326.25	1900.96
Capital value of increased space	1571.81	8831.55	11162.57	6541.11	0.00
Total benefits	**8729.71**	**25756.56**	**28115.00**	**11125.12**	**8147.58**
Costs					
Construction costs	-1866.72	-12384.81	-15904.40	-3602.32	0.00
Opportunity costs of space	-1571.81	-8831.55	-11162.57	-6541.11	0.00
Industry re-training costs	-28.47	-28.47	-28.47	-28.47	0.00
Subsidy	0.00	0.00	0.00	0.00	-7455.55
Total costs	-3467.00	-21244.83	-27095.44	-10171.90	-7455.55
Net benefit/costs	**5262.71**	**4511.73**	**1019.56**	**953.22**	**692.03**
Cost-Benefit ratio	**2.52**	**1.21**	**1.04**	**1.09**	**1.09**

It is important to note that the additional material provided by Dalton and Carter in their Supplementary Report was to be interpreted as additional information on selected major issues, with other points made in their original submission still applying. These included:

- The value of a statistical life (VSL) used in the CIE report, which was out of date and not reflecting the latest estimate available in the international literature;
- The need to include a value for intangibles like pain and suffering;
- The need to include a value for productivity impacts related to premature retirement, premature death and morbidity;
- The need to include a more accurate estimate for the value informal care; and
- Selection of an appropriate discount rate that reflected the current long term bond rate.

The CIE Final Report of February 2021

As mentioned, the reliance of the QPC Interim Report on the CIE's Final Report now requires an assessment of the CIE Final Report – particularly of the extent to which the concerns expressed by Dalton and Carter documented above were adequately addressed by the CIE. Before doing so, a brief summary of the Dalton/Carter critique is provided as reminder of the key issues.

Brief Summary of the Dalton/Carter Critique

Dalton and Carter in their original critique acknowledged the depth and breadth of the information provided by the CIE and noted CIE's caution about the substantial uncertainty of their results due to the quality of the information base. This said, Dalton and Carter had four major concerns, which taken together reversed the conclusions documented in the CIE Draft Report. These concerns were that:

1 More weight should be placed on the analysis undertaken from a societal perspective than the narrower problem reduction approach;

2 The principle of symmetry in the reporting of costs and benefits was compromised in the CIE Draft Report for both the problem reduction approach (costs over-attributed) and their societal Willingness to Pay (WTP) approach (benefits under-attributed);

3 The exclusion of benefits due to the potential for double counting by CIE was excessive and invalidated their conclusions; and

4 The CIE had included the cost of additional space but ignored its ongoing capital value and utility in use.

There were also a number of additional concerns, viz:

1 A more accurate assessment for the value of a statistical life year (SLY) was available from a systematic literature review and should be utilized;

2 A more accurate assessment for the value of informal care was available from a Deloitte Access Economics report and should be utilized;

3 An explicit value should be included for intangibles such as reduced pain and suffering;

4 An explicit value should be included for productivity impacts due to the prevention of premature retirement, premature death and preventable morbidity, as well as for people not in the paid workforce;

5 The discount rate used in the CIE analysis was well in excess of the long-term bond rate; the ‘rule of thumb’ used for time preference in economic appraisal in the health sector; and

6 Improved recognition of broader social justice considerations was vital.

4.3.2 The CIE Response

The extent to which these concerns were addressed in the CIE Final Report is summarised in Table 5. Their response varied across the concerns listed but were mostly actioned by either: i) rejection; ii) acceptance, but with inclusion only in their enhanced qualitative analysis; and/or iii) acceptance, but via inclusion in their one-way sensitivity analyses or scenario analysis.

The net result is that major issues of disagreement with the potential to reverse the net benefit calculation still remain.

Table 5: Current State of Play on the Dalton/Carter Critique of the CIE Analysis of 'Net Benefit' from the NCC Accessible Housing Regulation

Dalton/Carter Concerns	CIE Response in Final Report	Comments
Four Major Concerns		
1. More weight should be placed on the analysis undertaken from a societal perspective than on the narrower problem reduction approach.	The CIE maintained their preference for the problem reduction approach. Broader issues are broached in the qualitative analysis and sensitivity analyses, but not in their primary results.	***CIE position puts undue weight on accurate measurement compared with adopting the correct study perspective.*** Note the Office of Best Practice Regulation (OBPR) favours the societal perspective for evaluating the net benefit of proposed regulations.
2. The principle of symmetry violated as costs over-attributed in the problem reduction approach.	CIE agreed criticism by Dalton and Carter was valid but preferred to adjust the benefit side than attribute costs across beneficiaries. Included qualitative acknowledging (only) of benefits to persons without limited mobility (e.g., visits from family & friends). Argued adjusting cost side would underestimate the costs of achieving the regulation.	***CIE action hides the problem rather than adjusting the net benefit for it.*** The point of BCA ratios (or a net benefit calculation) is to provide a symmetrical assessment of costs and outcomes for the target population. This is often achieved through attribution of costs and/or benefits as appropriate. An accurate estimate of financial cost (i.e., affordability objective) is a different consideration and can be provided separately. Acknowledgement in the qualitative analysis is helpful but leaves the quantitative results severely compromised.
3. The principle of symmetry violated as benefits under-attributed in the societal WTP approach (should include resource cost savings not subject to double counting).	CIE maintained their view that the two approaches were primarily measuring the same benefits and need to avoid double counting.	***Stays as principle point of disagreement.*** The assumption of double counting assumes a number of things, viz: i) that the target populations are the same; ii) that the causal relationship between the value outcome and the activity involving the resource cost saving is clear; iii) the extent to which the target population would have been cognizant of the cost saving (i.e., impacted by who pays);and iv) even if aware of i) to iii), the extent to which the respondents in the WTP included the cost saving in their responses (i.e., was it clearly specified in the WTP scenario?; Did they take it into account?). These considerations cast considerable doubt on CIE assumption of extensive double counting.
4. The net benefit calculation should include an estimate for retained capital value and utility-in-use.	CIE maintained their exclusion of capital value of the additional space from the primary analysis. Did provide one-way sensitivity testing on this issue.	***Stays as principle point of disagreement.*** CIE's one-way sensitivity testing used an inadequate estimate for capital value – used the 'opportunity cost of capital' rather than the actual cost of construction. The assumption by CIE that all additional space that improves accessibility has zero future value is extreme and not reflected in market values.

Dalton/Carter Concerns	CIE Response in Final Report	Comments
Six Additional Concerns		
5. Include an up-to-date estimate for the value of a statistical life year (VSL) drawing on recent research findings.	The CIE advised it discussed this issue with the OBPR, which reiterated that CIE should follow 'best practice' of drawing the VSL value from the international literature. As the more recent value was not then published, CIE maintained their 2014 value and included sensitivity analysis with the 2024 value.	***Missed the opportunity to update the VSL*** in their core analysis using a systematic review in the process of being published (since published in the Journal of Health Policy. The VSL used in the CIE report of $4.5M was considerably lower than the value of $7.0M reported in the systematic review. Further, the CIE one-way sensitivity testing of the VSL value produced counter-intuitive results (i.e., made the net cost higher) that were not explained by the CIE.
6. A more accurate assessment for the value of informal care was available and should be utilised.	CIE acknowledged that their rate was too low and adjusted their analysis accordingly.	***Issue resolved***
7. An explicit value should be included for intangibles like reduced pain and suffering	Unclear how addressed – potentially in the consideration of mental health and quality of life impacts, which were both quantified and described in the qualitative assessment	Given the uncertainty in such estimates and the provision in the quantitative analysis of a substantial quality of life estimate, this issue can be classified as resolved.
8. An explicit value should be included for productivity impacts due to the prevention of premature retirement, premature death and preventable morbidity.	The CIE agreed this is a relevant issue but only included in it in their qualitative analysis using survey data provided by MDI.	***Stays as point of disagreement.*** Dismissal of estimate from the core analysis using best available evidence is disappointing, particularly since established methods are available from health economics.
9. The discount rate used in the CIE analysis was well in excess of the long-term bond rate; the 'rule of thumb' used for time preference in economic appraisal in the health sector	Acknowledged the argument but maintained the rate specified by the OBPR. Provided sensitivity analysis testing other discount rates.	***Accept CIE had little choice but to do this given OBPR position.*** Sensitivity analysis helpful.

Dalton/Carter Concerns	CIE Response in Final Report	Comments
10. Document broader social justice considerations.	The CIE confirmed the important social justice overlay but saw their analysis as an opportunity to inform decision-makers on the most efficient way of achieving social justice and human rights objectives. Covered mostly in the qualitative discussion.	The CIE saw this issue only in 'distributional' terms and effectively argued that all distributional measures have a dead-weight loss. They therefore missed the opportunity to point out the efficiency rationale inherent in the threshold recognition of 'merit goods'; whose consumption was so important for societal welfare that government involvement was essential. Examples include defence, education, health care and liveable housing. The concept of merit goods had a profound impact on the development of normative economic theory.

Assessing the Remaining Differences

In assessing the Dalton/Carter and CIE positions, it would be helpful to "triangulate" one against the other to tease out the balance of evidence one way or the other. If there were a significant number of factors favouring a more positive net balance, particularly in the presence of important qualitative impacts, then this might provide compelling evidence to maintain the accessibility standard and "not throw the [accessibility] baby out with the [anti-regulation] bathwater".

Without access to the detailed CIE modelling, such an assessment relies on the CIE uncertainty and scenarios analyses that responded to a range of issues raised in submissions. It is difficult to use the CIE sensitivity analyses in any detailed way, however, as only benefit/cost ratios are shown. Without the actual dollar amounts for the cost and/or benefit changes being reported, addition of the various changes to move towards a more helpful 'best case', 'worst case', 'most likely case' presentation is not possible. Further, apart from limited scenario analysis, only one-way analyses are provided – that is, each parameter is varied separately to the others.

Given this, the next best option is to assemble a table that summarises the ease by which the net loss conclusion of the CIE can be turned into a substantial net benefit. This is presented in Table 6, where for the Silver and Gold accessibility options, the CIE 'central case' is progressively adjusted to reflect feasible changes raised by either Dalton and Carter and/or by the CIE itself. It is clear from Table 6 that the negative community benefit concluded by the CIE can easily change into a positive community benefit of $M 3,812.20 (Silver) and $M 2,989.64 (Gold) through adoption of:

- The CIE estimates for 'societal benefits' and 'direct employment effects' from their scenario analysis; and
- The Dalton/Carter inclusion of resource cost savings that flow to government (i.e., still excluding those savings to private individuals based on possibility of double-counting); and
- The CIE adjustment to cater for retained capital value which is excluded from the CIE central case.

This reversal is obtained without adjustment for a range of additional factors also listed in Table 6, which if taken together, would considerably improve the economic credentials. Further, the changes included for 'societal benefit' and 'retained capital value', based on CIE adjustments in their Final Report are far less than Dalton/Carter would advocate for the same issues. In the case of capital value, for example, the CIE's adjustment based on the opportunity cost of capital (Silver $M 1,255.38 and Gold $M 7,709.42) is still very conservative compared to the suggested Dalton/Carter adjustment based on the retained capital value being equal to the cost of construction (Silver $M 5,243.10 and Gold $M17,906.95), which assumes no capital gains over the assessment period.

Table 6: Achieving a Break-Even or Net Benefit Result for the Silver and Gold Accessibility Standards

Benefits/Costs	Option One – Silver $M	Option 2- Gold $M	Comments
1. Start with latest CIE estimates of benefit from their Final Report			
Benefits included in central case[1]	2,680.50	4,570.28	Full detail included in Table 3 "Estimated Net Impact" p 16.
Add Societal benefits[2]	666.62	794.92	Based on the CIE Final Report
Add Direct employment benefits[3]	342.67	532.17	Based on the CIE Final Report
Total benefits (including societal & direct employment benefits	**3,689.79**	**5,897.37**	**Based on the CIE Final Report**
2. Then include net resource savings from Dalton/Carter report where no double-counting exists (i.e. savings accruing to government budgets).			
'Getting in and out'	0.00	0.00	Based on Dalton/Carter Table 3, line 11 p14. in Supplementary Report
'Moving around indoors'	5,354.20	7,335.76	Based on Dalton/Carter Table 3, line 12 p14. in Supplementary Report
'Living with mobility on same level as entrance'	330.27	1,558.63	Based on Dalton/Carter Table 3, line 13 p14. in Supplementary Report
'Minimum modification required for ageing in place'	0.00	6,423.79	Based on Dalton/Carter Table 3, line 14 p14. in Supplementary Report
Sub-total of net resource savings to government	5,684.47	15,318.18	
Total of CIE benefits + Dalton /Carter net resource savings to government	**9,374.26**	**21,215.55**	**Involves debate about the extent of double-counting assumed in the CIE reports**
3. Then calculate the cost side and deduct from benefits to calculate the net benefit			
Costs included in the central case [4]	6,817.44	25,935.33	Full detail included in Table 3 "Estimated Net Impact" p 16.
Cost component included on opportunity cost of capital [5]	1,255.38	7,709.42	
Net cost with opportunity cost of capital excluded	**5,562.06**	**18,225.91**	**Deducted to account for capital value of increased space using CIE method**
Net Benefit to Society	***3,8122***	***2,989.64***	
Benefit Cost ratio	***1.7***	***1.2***	
4. Then note the various technical issues raised by Dalton/Carter and by the CIE that would improve the net benefit even further			
Dalton/Carter: Include an appropriate value for social justice and human rights considerations	-	-	The CIE included a "social justice" value based on their WIP survey, but the scenarios involved were unlikely to capture the full impact involved. **Partially resolved.**

Benefits/Costs	Option One – Silver $M	Option 2- Gold $M	Comments
Dalton/Carter: Include updated value for a Statistical Life Year (VSL)	N/A	N/A	Dalton/Carter couldn't calculate without access to CIE model in time available for response. CIE did include an updated value in their sensitivity analysis, but this resulted in problematic answers where the BCA ratio was actually worse. **Issue unresolved.**
Dalton/Carter: Include updated value for informal care used in Deloitte Access Economics report	0	0	Accepted by CIE and included in their Final Report. No further adjustment required. **Issue resolved.**
Dalton/Carter: Include a value for intangibles (i.e., pain and suffering	-	-	CIE did include a value for improved quality of life impact, but unclear extent to which intangibles picked up. **Issue partially resolved.**
Dalton/Carter: Include a value for the prevention of premature retirement, premature death and premature morbidity	-	-	Dalton/Carter couldn't calculate without access to CIE model in time available for response. CIE included this in their qualitative assessment. **Issue unresolved in terms of quantitative impact.**
Dalton/Carter: Adopt a 3% discount rate in line with standard practice in health economics			CIE restrained by OBPR guidance and included as part of sensitivity testing. **No further action.**
CIE[6]: Increase probability of renter with accessibility needs living in new accessible rental property (25% higher than random allocation)	N/A	N/A	The CIE only report univariate B/C ratio changes so can't report the actual estimates involved. In their analysis B/C ratios improved from 0.39 to 0.43 (Silver) and from 0.18 to 0.19 (Gold).
CIE[7]: Alternative allocation assumption for owner-occupiers.	N/A	N/A	The CIE only report univariate B/C ratio changes- improved from 0.39 to 0.57 (Silver) and from 0.18 to 0.26 (Gold).
CIE[8]: Increase regulatory period from 10 to 20 yrs	N/A	N/A	The CIE only report univariate B/C ratio changes- improved from 0.39 to 0.60 (Silver) and from 0.18 to 0.20 (Gold).
CIE[9]: Increase life of dwelling assumptions	N/A	N/A	The CIE only report univariate B/C ratio changes- improved from 0.39 to 0.29 (Silver) and from 0.18 to 0.13 (Gold). Unclear why ratios worsen.
CIE[10]: High problem scenario	N/A	N/A	The CIE only report univariate B/C ratio changes- improved from 0.39 to 0.48 (Silver) and from 0.18 to 025 (Gold).

Table Notes

1.Taken from CIE Final Report Table 8.4, line 2, p200
2.Taken from CIE Final Report Table 8.4, line 3, p200
3.Taken from CIE Final Report Table 8.4, line 4, p200
4.Taken from CIE Final Report Table 8.4, line 6, p200
5.Taken from CIE Final Report Table 3, line 13, p16
6. to 10. Taken from CIE Final Report Table 8.3, p203-204

Conclusion

The *Queensland Productivity Commission's Interim Report* - *Opportunities to Improve Productivity in the Queensland Construction Industry* released on Thursday 31 July 2025 has argued that the minimum National Construction Code (NCC) accessibility standards fail the test of achieving net community benefit. This conclusion is based on the Final Report of the Centre for International Economics (CIE), which was included in the Regulatory Impact Statement (RIS) on that proposed regulation.

The point of this Economic Note is to demonstrate that this contention is incorrect and that reflects economic analysis that is strongly contested. The key issues which are not adequately addressed in the CIE Final Report central estimates are that:

- More weight should be placed on the analysis undertaken from a societal perspective than the narrower problem reduction approach;
- The principle of symmetry in the reporting of costs and benefits is compromised in both the problem reduction approach (costs over-attributed) and their societal WTP approach (benefits under-attributed);
- The extensive exclusion of benefits by the CIE due to the potential for double counting is excessive and invalidates their conclusions; and
- The CIE has included the cost of additional space but ignored its ongoing capital value and utility in use.

We note in relation to the RIS study perspective that Ernst and Young in a comparable Regulation Impact Statement involving accessibility with both "core" (people with a disability) and "non-core" beneficiaries (carers, non-users, and government), net benefit results were reported from a "whole-of-economy" perspective. Ernst and Young did not report their net benefit results from a 'problem reduction' perspective favoured by the CIE[8].

When these factors are built into the CBA, the benefit-cost ratio becomes 1.7 for Silver and 1.2 for Gold, so the benefits of accessible housing exceed the costs.

There are also a number of additional shortcomings in the central analysis, which although less significant in their individual impact, are consequential when taken together and so would further significantly improve the benefits relative to costs. These are that:

- A more accurate assessment for the value of a statistical life year (SLY) is available from a systematic literature review and should have been utilised.
- An explicit value should have been included for productivity impacts due to the prevention of premature retirement, premature death and preventable morbidity, as well as for people not in the paid workforce.
- Improved recognition of broader social justice considerations is vital.

[8] Ernst and Young *Accessible Adult Changes Facilities in Public Buildings,* Final Regulation Impact Statement, September 2018.

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