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Te Awheawhe Tāke

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This paper contains advice that has been prepared by the Tax Working Group Secretariat for consideration by the Tax Working Group.

The advice represents the preliminary views of the Secretariat and does not necessarily represent the views of the Group or the Government.

Appendix C: Depreciation on Buildings

Further information on potential revenue reducing options

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CONTENTS

CHAPTER 1

Background

Proposal

1.1 Under this option, taxpayers will be able to take depreciation deductions for commercial and industrial buildings, and multi-unit residential buildings at a 2% straight-line or 3% diminishing value rate.

1.2 For the purposes of this paper:

a. A commercial building includes office buildings, retail stores, hotels, restaurants, farm buildings, and other similar buildings built with the intention of being used for commercial purposes;

b. An industrial building includes factories, warehouses, garages, distribution centres, processing facilities and other similar buildings built with the intention to be used for manufacturing or industrial purposes; and

c. A multi-unit residential building refers to two or more flats, units, townhouses, apartments, or houses joined together and built with the intention of being used for residential purposes.[1] This is in contrast with separate or standalone residential buildings.

Problem

1.3 In the absence of taxes, investment would flow to the most productive areas of the economy, maximising our welfare. Taxes, however, can distort people's decisions, with the result that heavily taxed activities may receive less investment, even if they have higher risk-adjusted, pre-tax returns than other investments. The outcome is, as a society, capital is allocated less productively and we are poorer and have lower income and growth than otherwise would have occurred.

1.4 A fundamental principle of New Zealand's tax system is not to advantage any form of investment relative to other forms of investment, unless there is an over-riding reason for doing so. The goal is to ensure horizontal equity and reduce tax-driven distortions by ensuring that tax is as neutral as possible across different forms of investment.

1.5 In the context of depreciation, this means ensuring that tax deductions for depreciation mirror economic depreciation as closely as possible. Failure to allow tax depreciation for assets which fall in value results in an effective tax rate for those assets that is higher than the statutory rate. This is likely to distort investment decisions and lead to underinvestment in those assets relative to other assets. This is explained further in the Appendix on "Depreciation and Investment Incentives".

[1] As per the definition used in the 2013 New Zealand Census on Population and Dwellings.

1.6 Currently New Zealand does not allow any depreciation deductions for buildings. The Secretariat's view is that buildings are likely to depreciate, for reasons explained in this paper. This means:

a. there is a tax distortion in that investments that would be profitable in the absence of tax are likely not being made due to our tax settings;

b. this distortion is inefficient and reduces productivity, likely reducing New Zealand's net welfare; and

c. horizontal equity is negatively impacted as building owners are overtaxed relative to other investors.

The tax distortions and negative impacts on productivity and horizontal equity will increase as the economic depreciation rates of buildings increases.

Content and scope

1.7 This paper looks at the empirical question of whether buildings do, in fact, depreciate and considers whether the decision to remove depreciation on buildings in 2010 should be revisited.

1.8 In this paper, the term "economic depreciation" is used to describe a fall in market value of an asset. This definition is consistent with section EE 6 of the Income Tax Act 2007, which defines "depreciable property" to mean, broadly, property that might reasonably be expected to decline in value.

1.9 When there is a rise in the general price level as a result of inflation, there is a question as to what we mean by economic depreciation. In practice New Zealand and most other countries base depreciation on the historical cost of assets and take no account of inflation. In this paper we ignore inflation. When we talk about setting depreciation allowances to mirror economic depreciation we are talking about setting depreciation allowances to mirror how assets would fall in value if not for inflation. It is an open question as to whether depreciation allowances should be indexed to take account of inflation. Indexation of the tax system is discussed in a separate paper.

1.10 We note that some studies distinguish between depreciation caused by physical deterioration and depreciation due to obsolescence or other factors, but for the purposes of this paper we do not consider such a distinction is helpful. Irrespective of how depreciation arises it will be a cost to business and should be deductible if businesses are not to be overtaxed on their income.

1.11 This paper looks at:

a. the theoretical case for allowing a depreciation deductions for assets that do depreciate;

b. empirical research on whether buildings depreciate as a matter of fact, and the implications of depreciation on effective marginal tax rates (Chapter 2);

c. the decision in 2010 to remove depreciation on most classes of buildings (Chapter 3);

d. relationship with seismic strengthening and a potential capital gains tax (Chapter 4);

e. whether depreciation should be allowed for some types of residential buildings (Chapter 5); and

f. transition, rates of depreciation, cost considerations and distributional impact of reinstating building depreciation (Chapter 6).

CHAPTER 2

Empirical evidence of building depreciation

2.1 Studies of economic depreciation are complex and expensive. This chapter outlines the two main approaches used to derive rates of economic depreciation for buildings and summarises the results from studies.

Outline of empirical approaches

2.2 The two main approaches that are used in the international literature are the asset price approach and the rental approach. Once appropriate adjustments have been made, both of these provide evidence of likely building depreciation.

Used asset price approach

2.3 The used asset price approach estimates depreciation by looking at the prices for assets of different ages in resale markets. It is the perhaps the most commonly used approach for buildings. It attempts to find the pure effect of ageing on the price of a building.

2.4 There are obviously challenges in applying this methodology. It requires a comparison of the value of buildings that are similar apart from their age. This is a difficult comparison to make. It requires distinguishing the value of a building from the value of the land it is on. It also needs to take account of the fact that there can be a bias in looking at second-hand markets because buildings that have depreciated fastest may no longer be around, and businesses may be more inclined to sell their better assets (to get a better sale price) or inferior assets (the "lemons" hypothesis). But studies try to take account of these issues as robustly as possible.

Rental data approach

2.5 The rental data approach estimates depreciation by comparing the rental prices of properties of different ages and using the present value of future rents to calculate economic depreciation.

2.6 This approach has many of the same limitations as the used asset price approach, but avoids any bias caused by businesses being more inclined to sell their better or inferior assets. In addition, depreciation may be underestimated if rents are fixed for long periods, which is common for office buildings. Another limitation is that by looking at gross rents instead of net rents, depreciation may be underestimated as maintenance costs are likely to rise over time.

International evidence

2.7 Studies carried out in the United Kingdom, United States and Canada have mostly focused on non-residential buildings and their results are summarised in the table on the next page:

YEAR	AUTHORS	NON-RESIDENTIAL BUILDINGS			COUNTRY
		Commercial	Industrial	General /other	
1969	Taubman and Rasche	1.2%[2]			US
1981	Hulten and Wykoff	2.0-2.7%	3.6%		US
1986[3]	Baum and McElhinney	1.1% 1.6%			UK
1996[4]	Baum and McElhinney	2.2% 2.9%			UK
1997[5]	Bureau of Economic[6] Analysis	2.5-2.8%	2.9-3.1%	1.7-3.0%	US
1998	Colwell, Munneke and Trefzger	1.0%[7]			US
1999	Gort, Greenwood and Rupert			6.6%	US
1999	Dixon, Crosby and Law	1.1-3.0%[8]	0.5-3.3%		UK
2000	Deloitte and Touche	3.5%-4.5%[9] 1.7-2.5%	2.1% 1.9%		US
2002	Gellatly, Tanguay and Yan[10]	7.6%[11]	13.0%		Canada
2005	Tanguay[12]	5.9%	9.1%		Canada
2007	Gellatly, Tanguay and Yan	5.9-7.4%[13]	8.6-9.7%		Canada
2007	Patry	5.5-8.5%	6.0-9.9%	7.1-7.3%[14]	Canada

2.8 The above table shows that all the international studies have found that commercial and industrial buildings do depreciate, although the estimated rates vary significantly from between 0.5% to 13.0%.

2.9 The estimated depreciation rates in the more recent Canadian studies are significantly higher (5.5 to 13.0%) than the estimates in the earlier studies (0.5 to 6.6%). The Canadian results seem implausibly high for New Zealand, perhaps because of climate, types of building materials used, trends in tenant preferences, or some other unknown reason.

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2 Office buildings.
3 As published in their 1997 paper.
4 As published in their 1997 paper.
5 We note some updates to categories, etc were made in 2003 and 2010 without changing the underlying figures.
6 This study was based in large part on the Hulten and Wykoff (1981) estimates.
7 Office buildings, rate is approximate.
8 Office buildings.
9 Office buildings 3.5%; retail stores 4.5%.
10 This study accounted for retired assets, but Patry (2007) observes that the retirement and survival data in this study are unbalanced and do not represent an accurate example of the capital stock when modelled together. The authors corrected for this in their 2007 study.
11 Office buildings.
12 This study used a 0% discount rate. The author modelled it again with a 2% discount rate and found the discount rate impacted office buildings significantly, with the depreciation rate estimate dropping by about 22%.
13 Office buildings.
14 Average rate for non-residential buildings.

2.10 The international studies also indicate that most non-residential buildings' useful lives are closer to 30 years than to 50 years (Bureau of Economic Analysis, 1997; Patry, 2007; Gellatly, Tanguay and Yang, 2007). It would be helpful to know what evidence there is to support the 50-year useful life estimates used for most buildings in New Zealand but we have not been able to find any. If useful lives of buildings in New Zealand are truly longer than in other countries, that may suggest lower depreciation rates in New Zealand are appropriate, but the 50-year estimate may simply be based on the New Zealand Building Code's requirement that most buildings should last at least 50 years.[15] We note that depreciation due to obsolescence often occurs at a faster rate than depreciation due to physical deterioration, which implies that a building with a 50-year physical life has a lower useful life.[16] For example, Langston (2011) estimates that on average, a building's useful life is roughly 65% of its physical life.

New Zealand evidence

2.11 The only analysis of New Zealand data of which we are aware is the one carried out by Treasury and Inland Revenue in 2010 (see below at [3.10]-[3.12]). There are no academic studies of building depreciation in New Zealand employing either the used asset approach or the rental data approach.

2.12 The joint Treasury–Inland Revenue *Tax policy report: Changes to depreciation — Budget 2010* (1 March 2010) ("2010 Joint Report") also notes that the Property Council of New Zealand ("PCNZ") provided officials with some numbers based on PCNZ members' data showing (at [24]):

a. Capital return on office buildings from 1990 to 2008 averaged -2.1% per year; and

b. Capital return on all commercial and industrial property from 1994-2008 averaged +1.8% per year (but as this index started later than the office building index, it omits a period of negative growth at the start of the 1990s).

Depreciation allowances in other countries

2.13 The table on the next page shows the tax depreciation rates allowed by different countries for manufacturing plants and office buildings as at 2015:[17]

15 Building Regulations 1992, Schedule 1, cl B2.3.1.

16 See Langston, C. (2011). Estimating the useful life of buildings Conference Papers Paper 30. Retrieved from http://epublications.bond.edu.au/aubea_2011/30; and Baum, A., and McElhinney, A. (1997). Trophy or Tombstone? A Decade of Depreciation in the Central London Office Market. Lambert Smith Hampton and HRES, London.

17 Data is taken from OECD. (2017). Corporate Effective Tax Rates: Model Description and Results from 36 OECD and non-OECD countries CTPA/CFA(2017)85.

Country	Rate for manufacturing plants	Rate for office buildings	Depreciation method[18]
Australia	4.0	2.5	SL
Austria	3.0	2.0	SL
Belgium	5.0	3.0	SL
Canada	10.0	6.0	DB
Chile	1.25	2.0	SL
Costa Rica	2.0	2.0	SL
Denmark	4.0	0.0	SL
Finland	7.0	4.0	DB
France	5.0	5.0	DB
Germany	3.0	3.0	SL
Greece	4.0	4.0	SL
Hungary	2.0	2.0	SL
Ireland	4.0	0	SL
Iceland	6.0	3.0	SL
Israel	2.0	2.0	SL
Italy	3.0-7.0	2.0-5.5	SL
Japan	2.7	2.0	SL
Luxembourg	4.0	4.0	SL
Mexico	5.0	5.0	SL
The Netherlands[19]	20.0 (see note)	20.0 (see note)	SL
New Zealand	0	0	-
Norway	4.0	2.0	DB
Poland	10.0	2.5	SL
Portugal	5.0	2.0	SL
Singapore	0	0	-
Slovak Republic	5.0	2.5	SL
Slovenia	3.0	3.0	SL
South Africa	20.0	5.0	SL
Spain	3.0	2.0	SL
Sweden	3.14	2.0	DB
Switzerland	8.0	4.0	DB
Turkey	10.0	10.0	DBSL
United Kingdom	0	0	-
United States	2.56	2.56	SL

2.14 The table above shows that New Zealand is an outlier in the OECD, as only two other surveyed countries[20] (Singapore and United Kingdom) do not allow depreciation on manufacturing plants and office buildings (as examples of industrial and commercial buildings, respectively). Denmark and Ireland allow depreciation on manufacturing plants but not office buildings.

18 Straight line (SL), Declining Balance (DB) or Declining Balance with a switch to Straight Line (DBSL).

19 Despite the apparently high depreciation rates allowed, the Netherlands only allows depreciation to be taken up to certain values based on values established by the municipality.

20 The survey did not include data from the Czech Republic or Estonia.

Effective marginal tax rates on buildings

2.15 Putting aside inflation, when tax depreciation on buildings is set at a higher or lower rate than economic depreciation, the effective tax rate on investment in buildings will differ from the statutory rate. When there is inflation (and the tax system is not indexed for inflation), effective tax rates will be higher than the statutory rate, even if the tax depreciation rate is set at the economic depreciation rate.

2.16 Like all modelling exercises, results depend on assumptions. In this case, the relevant assumptions are the actual rate of economic depreciation, the risk-free rate, and inflation. Modelling results also use the corporate tax rate and the tax depreciation rate. For the examples below we assume the risk-free rate is 3%.

2.17 If we assumed that office buildings actually depreciate on a declining balance basis at 2.47% (the assumption used by the OECD, sourced from the BEA study) and there were no inflation, then the effective tax rate on office buildings in New Zealand currently is 41%. This would fall to 28% if we introduce tax deprecation at 2.47% on a declining balance basis.

2.18 If inflation is 2% (and the tax system is not indexed for inflation), the effective tax rate would once more be 41% under current tax rules with no tax deductions for depreciation. The effective tax rate would fall to 32.3% if we introduced tax depreciation at 2.47% on a declining balance basis.

2.19 To increase neutrality, we should set the tax depreciation rate at the economic depreciation rate. As the discussion above reveals, knowing this with certainty is impossible. However, this is a situation where close enough is likely to be good enough. Assuming that buildings depreciate at between 2 and 4% (the Gravelle bounds), tax depreciation set at between 2 and 4% (with status quo also shown) provides the following effective tax rates (risk-free rate assumed to be 3%, with no inflation:

		Tax depreciation rates (declining balance)			
		0% (status quo)	**2%**	**3%**	**4%**
Economic depreciation rate (declining balance)	**2%**	39.3%	28.0%	24.5%	21.7%
	3%	43.8%	31.8%	28.0%	25.0%
	4%	47.6%	35.3%	31.2%	28.0%

In practice so long as building depreciation deductions are not indexed for inflation there will be some biases caused by inflation just as there are for other depreciating assets. These have not been taken into account in the table above.

2.20 The table on the next page shows how this compares with other countries' effective marginal tax rates on office buildings, using the OECD's corporate

tax rates as at 2015[21] and assuming economic depreciation of 2.47% for office buildings, 3.14% for manufacturing plants (per the BEA study), risk-free rate of 3% and inflation at 2%:[22]

Country	Rate for manufacturing plants	Rate for office buildings
Australia	27.83%	30.98%
Austria	26.24%	27.95%
Belgium	28.60%	32.87%
Canada	20.03%	23.30%
Chile	31.05%	25.25%
Costa Rica	35.89%	33.28%
Denmark	21.65%	35.90%
Finland	17.67%	20.29%
France	38.69%	35.98%
Germany	31.57%	29.13%
Greece	24.02%	21.97%
Hungary	23.45%	21.44%
Ireland	11.39%	20.66%
Iceland	14.64%	19.21%
Israel	32.02%	29.56%
Italy	21.85% to 32.71%	22.82% to 34.64%
Japan	34.83%	35.50%
Luxembourg	27.08%	24.86%
Mexico	25.00%	22.90%
The Netherlands[23]	8.46% (see note)	7.61% (see note)
New Zealand	44.32%	41.49%
Norway	29.71%	32.58%
Poland	9.95%	19.73%
Portugal	24.56%	32.75%
Singapore	29.54%	27.19%
Slovak Republic	17.99%	22.81%
Slovenia	17.94%	16.30%
South Africa	9.74%	21.23%
Spain	29.33%	31.16%
Sweden	26.27%	26.93%
Switzerland	17.54%	21.45%
Turkey[24]	14.67%	13.28%
United Kingdom	33.85%	31.31%
United States[25]	42.62%	39.82%
OECD average	**25.16%[26]**	**26.63%[27]**

2.21 The table above shows that removing tax depreciation has had the effect of raising New Zealand's effective marginal tax rates on buildings above every other OECD country.

21 Data is taken from OECD. (2017). *Corporate Effective Tax Rates: Model Description and Results from 36 OECD and non-OECD countries* CTPA/CFA(2017)85.

22 We note that if inflation is removed, the effective tax rates would be lower than the rates shown in the table.

23 The Netherlands' effective marginal tax rates are likely to be understated, as the Netherlands only allows depreciation to be taken up to certain values based on values established by the municipality.

24 Rates for Turkey have been estimated using the DB method.

25 Rates for the United States were calculated using the 39% tax rate from the OECD paper.

26 25.67% if the Netherlands is removed.

27 27.21% if the Netherlands is removed.

CHAPTER 3

Budget 2010 removal of depreciation on buildings

3.1 From the 2011–12 income year, depreciation on buildings was reduced from 2% straight-line or 3% diminishing value to 0% for buildings with an estimated useful life of 50 years or more. Depreciation is still available for buildings with an estimated useful life of fewer than 50 years.

Background to the decision

3.2 The Tax Working Group ("TWG") report *A Tax System for New Zealand's Future: Report of the Victoria University of Wellington Tax Working Group* (January 2010) recommended "[r]emoving depreciation buildings (or certain categories of buildings) if empirical evidence shows that they do not depreciate in value". The TWG considered that the issue deserved further consideration as it could help fund reductions in corporate and personal tax rates and there could also be efficiency benefits if tax depreciation more closely matched economic depreciation.

3.3 Inland Revenue and Treasury subsequently prepared the 2010 Joint Report recommending the removal of depreciation for residential and commercial buildings. Inland Revenue recommended retaining depreciation for industrial buildings, while Treasury recommended removing depreciation for all buildings with a useful life of 50 or more years.

3.4 The proposal to remove depreciation on buildings was announced in the 2010 Budget.

Reasons for the 2010 Joint Report's recommendations

3.5 The 2010 Joint Report's recommendations were based on two strands of evidence:

a. First, there were substantial net tax revenue losses in residential property investment, suggesting that income overall was undertaxed in that sector. Removal of depreciation on residential buildings was a direct means of increasing taxes on that sector, and the Report considered that similar factors may also apply to commercial real estate. The Report observed this factor may be less relevant for the industrial sector where a business owns a building which was designed for a particular use. Although the Report recognised that undertaxation in the residential sector could also be due to appreciation of land not being taxed, it noted that the government had decided not to implement a capital gains tax or a risk-free return method ("RFRM") tax, leaving room only to consider changes to the depreciation rules or treatment of losses (at [5]-[6]).

b. Second, Treasury's analysis of QV data suggested that on average, buildings in New Zealand did not depreciate during the period from

1993 to 2008. See below at [3.10]-[3.12] for details of the analysis and its limitations.

3.6 The 2010 Joint Report referred to several international studies[28] but dismissed them on the basis that they did not use New Zealand data (at [19]).

3.7 The 2010 Joint Report also considered the tax treatment of buildings in a number of overseas countries, relying on information provided by KPMG, and noted that a number of countries denied depreciation for residential and commercial buildings (Ireland, Malaysia, Singapore and United Kingdom), while recognising most countries allowed depreciation on buildings generally (Australia, Germany, Hong Kong, Japan, Thailand, the Netherlands, United States).

3.8 However, the 2010 Joint Report considered New Zealand's lack of a capital gains tax was a reason to consider tighter depreciation rules than many other countries, as taxpayers in many other countries would be taxed on a nominal gain when the property is sold, which would offset depreciation deductions to a degree (at [23]).

3.9 The 2010 Joint Report concluded that there was a "strong case" for removing depreciation on residential buildings; "less strong but reasonable case" for commercial property"; "weaker case" for industrial buildings.

Treasury analysis of QVNZ data

3.10 The QVNZ valuation data covered the period from 1993 to 2009 and separated land and improvement values for each property. The Treasury's analysis mostly controlled for properties that had building consents issued, and therefore excluded the effect of capital improvements that required building consents. The data reported below was for buildings which existed in both 1993 and 2009, but obtained no building consents in that period.

3.11 The data indicated that on average, residential, commercial and industrial buildings appreciated in both real and nominal terms, with commercial buildings appreciating by 1.85% per year in real terms and industrial buildings appreciating by 1.48% per year in real terms.

	Average yearly change in value: 1993-2008		
Real	Improvement value	Land value	Capital value
Commercial	1.85%	5.19%	3.33%
Industrial	1.48%	6.59%	3.65%
Residential	2.25%	7.89%	4.67%
Rural	1.79%	9.10%	6.77%
All Property	2.08%	8.24%	4.95%

3.12 Limitations of the Treasury's analysis include (most of which were recognised in the 2010 Joint Report):

[28] Hulten and Wykoff (1981); Jorgenson and Sullivan (re owner-occupied housing) (1981); Bureau of Economic Analysis (1997); Deloitte and Touche (2000) and Gravelle (2000).

a. *Survivorship bias* — because the data only included buildings which existed at both 1993 and 2009, it did not include scrapped buildings. When Treasury applied an assumption of 0.6% buildings scrapped per annum, they found that the numbers in their tables were lowered by approximately 0.6% pa and concluded that the numbers were very sensitive to the scrapping assumption (Appendix III at p 3).

b. *Relatively short time period* — there may have been unusual or cyclical elements in building prices over the period from 1993 to 2009. In particular, property values showed strong growth from 2000 to 2008. We also note that there have been a number of earthquakes in more recent years that are likely to have increased the depreciation estimates if they had occurred during the sample period. Treasury attempted to adjust for the period of strong growth but there is no reliable way to do so.

c. *Improvement bias* — as recognised in the 2010 Joint Report, the analysis has not been able to control for improvements that did not require building consents.

d. *Severely depreciated buildings* — controlling for building consents may also remove from the sample buildings that depreciated so badly (whether due to physical deterioration or obsolescence) that substantial remediation or capital improvement work was required.

e. *Difficulties in separating building value from land* — this difficulty may be particularly pronounced during a period of rapidly appreciating property prices. This is also a limitation of the used asset price and rental data approaches.

f. *Reliance on QV values* — the Treasury analysis assumed the QV rating values were reflective of the actual values for building and land (for most observations, appreciation was shown as a result of a revaluation rather than a sale).

Consultation

3.13 As the proposal to remove depreciation was announced in the Budget, consultation was limited and did not follow the Generic Tax Policy Process.

3.14 Officials did consult with:

a. Four senior tax practitioners, who expressed strong views that buildings do depreciate and expressed surprise with the QVNZ data analysis;

b. Property Council of New Zealand ("PCNZ"), who referred to international evidence showing buildings do depreciate and expressed concerned over QVNZ data and possible biases. PCNZ also engaged KPMG and NZIER to consider the issue.[29]

[29] See KPMG *Tax Depreciation — non-residential buildings* (8 February 2010) and NZIER *Depreciation and land tax: Assessment of selected Tax Working Group recommendation* (5 February 2010).

c. Housing New Zealand Corporation, who explained that the average age of their properties was around 50 years, but were modernised approximately every 20 years (re-wiring, re-lining, re-cladding and re-roofing, but usually not adding new kitchens and bathrooms).

CHAPTER 4

Relationship to other property taxation issues

Seismic strengthening

4.1 Seismic strengthening in many cases will be capital expenditure,[30] with the effect that no deduction is available under the current law.

4.2 If depreciation deductions for buildings were allowed, a building owner would be able to add the costs of any strengthening work (and other capital improvements) to the cost base of their building and receive depreciation deductions for that strengthening work over time. Benefits would also arise for those who have undertaken earthquake strengthening in the past.

4.3 This approach is preferable to allowing immediate deductions for seismic strengthening (as several submitters have proposed) for two reasons:

a. strengthening work may often be carried out at the same time as other capital improvements, making it difficult and costly to isolate the costs of the strengthening from other costs; and

b. if immediate deductions for seismic strengthening were allowed prospectively, building owners who acted promptly and who have already carried out strengthening would not receive any deduction. Those owners would effectively be penalised relative to building owners who delayed in carrying out strengthening.

4.4 We do not consider that an immediate tax deduction is a good way of addressing any positive externalities from improving building safety. Some building owners would not benefit from a tax deduction, for example charities or taxpayers in loss situations, but these owners may nevertheless carry out strengthening work. Externalities, whether positive or negative, can be addressed in a more targeted way with direct subsidies or regulation.

Capital gains tax

4.5 If a capital gains tax is introduced, any difference between tax depreciation and economic depreciation would be reversed on realisation.

4.6 For example, if depreciation deductions were allowed, if a building was acquired for $500,000, depreciated down to $400,000, and ultimately sold for $350,000, the building owner would be entitled to depreciation deductions of $100,000 over time and a capital loss of $50,000 on sale. Economic depreciation, being the building's fall in value, would be $150,000, which would match the available tax deductions ($100,000 depreciation plus $50,000 loss on sale).

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[30] The expenditure will be capital in nature when the work done is part of an overall project that changes the character of the building, or is so extensive that it results in the reconstruction, replacement or renewal of the asset, or substantially the whole of the asset — see IS 12/13 *Income tax — Deductibility of Repairs and Maintenance Expenditure — General Principles* (29 June 2012) at [186]–[187] and Examples 17, 21 and 23.

4.7 If instead the building was sold for $450,000, the building owner would have depreciation recovery income of $50,000, reversing out the excess depreciation deductions claimed.

4.8 If the building actually appreciated and sold for $550,000, the building owner would have depreciation recovery income of $100,000 (being all the depreciation deductions claimed over time), plus an additional taxable capital gain of $50,000. In this case, economic *appreciation* would be $50,000, which would match the net taxable income ($50,000 gain on sale; the depreciation deductions being cancelled out by the depreciation recovery income).

4.9 A capital gains tax therefore captures any actual economic depreciation or appreciation on disposal (putting aside inflation).

CHAPTER 5

Residential buildings

5.1 If depreciation allowances for commercial and industrial buildings are reinstated, consideration should also be given to allowing depreciation for residential buildings as well. There is some evidence that residential buildings also depreciate with somewhat lower depreciation rates for standalone residential buildings than for multi-unit residential buildings. The Bureau of Economic Analysis (2003) estimated that new 1-to-4-unit structures depreciated at a rate of 1.14% and that new 5-or-more-unit structures depreciated at a rate of 1.40%. In contrast, the Bureau estimated office buildings depreciated at a rate of 2.47% and manufacturing plants depreciated at 3.14%. This is some evidence in support of revisiting tax depreciation rates for residential buildings in New Zealand, but it is more limited than the evidence in support of non-residential buildings.

5.2 In New Zealand, there may be an additional reason why multi-unit buildings may depreciate more rapidly than standalone residential buildings. The special provisions for "earthquake-prone" buildings in the Building Act 2004 apply only to non-residential buildings and residential buildings that are either two or more storeys; or are used as a hostel, boarding house or other specialised accommodation.[31] Owners of earthquake-prone buildings may be required to carry out seismic work on their buildings to bring them up to standards. Although we do not have empirical evidence of this, it is reasonable to expect that these requirements may cause earthquake-prone residential buildings to suffer higher rates of depreciation than other residential buildings, to factor in the possibility that additional seismic work costs may be required.

5.3 As noted above,[32] costs of seismic work may often be treated as capital expenditure. The non-deductibility and non-depreciability of such work could create a larger tax disincentive to building and investing in multi-unit residential buildings (which are more likely to be multi-storeyed), compared to investing in standalone residential buildings. This in turn may negatively impact housing affordability, which is one of the current Government's priorities.

5.4 On balance, we consider that there would appear to be some evidence that multi-unit dwellings are likely to depreciate, and weaker evidence that standalone residential buildings might do so as well. It seems a judgement call whether or not to reinstate depreciation for residential buildings. Our recommendation is to reinstate depreciation for multi-unit residential buildings as well.

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31 Section 133AA(2) of the Building Act 2004.

32 See footnote 30 above.

CHAPTER 6

Transition, rates of depreciation, cost considerations and distributional impact

Transition

6.1 When building depreciation was removed in 2010, this applied to both existing and new buildings. If depreciation on buildings were to be allowed, it should apply prospectively on existing and new buildings:

a. For buildings owned before 2010 that have not received any capital improvements, the depreciation cost base should be the same as it was at the time.

b. For buildings owned before 2010 that have received capital improvements, the cost of those improvements should be added to the depreciation cost base at the time.

c. For buildings that were acquired after 2010, the depreciation cost base should be their acquisition cost plus any subsequent capital improvements.

Rates of depreciation

6.2 If tax depreciation were to be allowed once more for industrial and commercial buildings and possibly certain types of residential buildings, there is the question of what rate or rates of depreciation to allow. Because of our lack of knowledge of exactly how buildings depreciate, there will always be a large element of rough justice in any rate that is chosen. We suggest going back to the rates of depreciation that were allowed prior to the 2010 tax changes of 3% diminishing value or 2% straight line. Allowing 3% diminishing value is in the middle of estimates of economic depreciation suggested by Gravelle (2000). It seems well within international norms. We doubt that we have a sufficiently robust evidence base to be varying rates of depreciation between different categories of building. The 2% straight-line option is an alternative which is likely to provide a similar present value of tax deductions over the life of a building.

Costs

6.3 Based on data from Statistics New Zealand on capital stock and capital formation between 1972 to 2017, and applying the same costing model used by Officials in 2010, Inland Revenue forecasts that reinstating depreciation from 1 April 2019 for the following building types would result in the following decreases in tax revenue (rounded to the nearest $5 million):

Building type	$m increase/(decrease)				
	2019/20	2020/21	2021/22	2022/23	2023/24
Industrial	(255)	(255)	(250)	(250)	(250)
Commercial	(545)	(535)	(535)	(535)	(535)
Multi-unit residential	(115)	(110)	(110)	(110)	(110)
Subtotal (Industrial, Commercial, Multi-unit Residential)	**(915)**	**(900)**	**(895)**	**(895)**	**(895)**
All other residential	(545)	(535)	(525)	(520)	(520)
All	**(1,460)**	**(1,435)**	**(1,420)**	**(1,415)**	**(1,415)**

6.4 The forecast has assumed that taxpayers choose to depreciate on a 3% diminishing value basis.

Distributional impact

6.5 Allowing depreciation on certain types of buildings would directly primarily benefit owners of the buildings that qualify. Indirectly it would also benefit other persons through greater investment in buildings increasing productivity, and some of the benefits of increased investment will be passed on to consumers.

6.6 These distributional impacts are not able to be quantified.

CHAPTER 7

Conclusion

Summary of analysis

7.1 To ensure that tax is as neutral as possible across different forms of investment tax deductions for depreciation mirror economic depreciation as closely as possible.

7.2 International studies consistently show that buildings do depreciate, although the evidence as to rate of depreciation is mixed with estimates ranging from 1.0% to 9.9% (once outliers are removed). Depreciation rates in New Zealand may be in the lower end of that range if, on average, the useful lives of buildings in New Zealand are longer than in other countries.

7.3 Although a preference for New Zealand data is understandable, there are some real limitations to the QVNZ data used, particularly the time period selected (which was a period of strong growth in property prices and did not cover a number of recent earthquakes) and difficulties in separating land from building values. The Treasury's 2010 analysis should therefore be treated with those caveats in mind. Intuitively, there does not seem to be any reason why a building in New Zealand would not depreciate, when studies have shown that buildings in many other countries do in fact depreciate — there is nothing to suggest that construction materials in New Zealand are vastly superior to those in other countries, or that New Zealand tenants' preferences do not change over time.

7.4 New Zealand is a clear outlier (along with Singapore and the United Kingdom) in the OECD in not allowing any depreciation deductions for commercial or industrial buildings, resulting in a higher effective marginal tax rate on buildings than any other country in the OECD. A key reason why the 2010 Joint Report nevertheless recommended that New Zealand adopt tighter depreciation rules than other countries was because of our lack of a capital gains tax. That reason may no longer apply as a capital gains tax would capture any actual economic appreciation on disposal.

7.5 In light of the international evidence consistently showing buildings do depreciate, the limitations of the Treasury's 2010 analysis, and the fact that New Zealand is a clear outlier in not allowing any building depreciation, the 2010 decision to remove depreciation on buildings should be reconsidered. The case for reintroducing building depreciation is particularly strong if a capital gains tax is introduced as any difference between tax depreciation and economic depreciation would be reversed on realisation.

Recommendations for the Tax Working Group

7.6 The Secretariat suggests that the Tax Working Group:

a. note that there is international evidence that buildings depreciate;

b. note that the international evidence on depreciation is especially strong for industrial and commercial buildings with some evidence that residential buildings depreciate;

c. note that the evidence that multi-unit residential buildings depreciate is stronger than the evidence that standalone residential buildings depreciate;

d. recommend that tax depreciation for commercial, industrial and multi-unit residential buildings be reinstated at a 2% straight-line or 3% diminishing value rate; and

e. indicate if the Group wants a section on building depreciation to be drafted for the interim report.

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