



Tax policy report: Changes to depreciation – Budget 2010

Date:	1 March 2010	Priority:	High
Security Level:		Report No:	T2010/299 PAD2010/032

Action sought

	Action Sought	Deadline
Minister of Finance	Agree to recommendations	8 March 2010
Minister of Revenue	Agree to recommendations	8 March 2010

Contact for telephone discussion (if required)

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1 March 2010

Minister of Finance
Minister of Revenue

Changes to depreciation

Executive summary

The recently released Tax Working Group (TWG) report made recommendations to remove depreciation from buildings where empirical evidence suggests they do not decline in value and to remove the 20% depreciation loading that currently applies to some assets.

Decisions concerning depreciation rates should be viewed in the wider context of the budget package as a whole. Revenues raised from base-broadening facilitate the shift in taxation from income taxation to higher levels of GST by allowing greater reductions in personal tax rates and other compensatory measures than would be possible without them. Moreover, changes to depreciation rates can contribute to a more efficient allocation of taxation across sectors. The TWG was particularly worried about over-investment in property being encouraged by the lower effective rate of tax on the sector.

The revenue estimates are based on analysis of Statistics New Zealand data with resulting uncertainty especially given the lack of data on actual tax depreciation claimed. These risks are further discussed in Appendix I.

Depreciation of buildings

Two strands of evidence support the removal of depreciation for, at least, certain categories of buildings.

One of the factors that raised the TWG's concern was the substantial net tax revenue losses in residential property investment that have occurred in recent years. This suggests that income overall is under-taxed in the residential property sector. While low levels of tax may arise for a variety of reasons (such as appreciation of land and/or buildings and tax depreciation exceeding economic depreciation), removal of depreciation on residential property would provide a direct means of increasing taxes on this sector. Similar factors may apply to commercial real estate since not all income, such as appreciation of land and buildings, is taxed. While these situations may also occur in other sectors, they do not constitute a

substantial part of the income of the business and so would have a lesser impact on the effective tax rate of the sector. In particular, such income is less likely to be material in the case of the industrial sector where the business owns the building which is designed for a particular use.

The evidence on depreciation rates is mixed across countries and across sectors. International studies generally find that buildings depreciate. However the rate of depreciation varies across sectors with most studies suggesting low rates for residential property, medium rates for commercial buildings and higher rates for industrial buildings.

These studies have the limitation that they do not use New Zealand data. To try to correct for this deficiency, the Treasury has obtained and analysed rating valuation data, compiled by Quotable Value (QV). Consistent data has been obtained for the period 1993 through 2008. The data suggests that all categories of buildings have appreciated over the period, although at different rates. Real rates of appreciation derived from the data range from about 1 percent for industrial buildings to 2 percent for commercial buildings and 3 percent for residential buildings. A fourth category, rural, had been appreciating at about 3.5 percent. Rural generally consists of a mix of residential and industrial properties.

However there are a number of factors which could lead to these figures being over-estimates. First the period has been one of abnormally high appreciation in property values generally. Secondly, there are a number of other technical factors that bias the numbers upward. While the methodology employed attempts to control for these factors, some bias likely remains.

Finally, while many countries allow depreciation on all categories of buildings, sometimes at more rapid rates than in New Zealand, a number of countries deny depreciation for residential and commercial buildings. In almost all cases, however, depreciation is allowed for some or all industrial buildings. One reason for New Zealand to consider tighter depreciation rules than apply in many other countries is our lack of a capital gains tax. In many other countries taxpayers will be taxed on any nominal gain in the value of a property when the property is sold which will be an offset to depreciation deductions. In the absence of a capital gains tax, some scaling back of depreciation may be warranted.

Overall, the foregoing suggests that there is a strong case for the removal of depreciation on residential buildings, a less strong but reasonable case for removing depreciation on commercial property and a weaker case for doing so on industrial buildings.

Officials recommend that depreciation be removed for residential buildings. Subject to acceptance of the recommendation below for no grandfathering and the assumptions set out in Appendix I, this is estimated to raise \$280 million in 2011/12.

Officials also recommend that depreciation be removed for commercial buildings. Subject to acceptance of the recommendation below for no grandfathering, removing building depreciation for all buildings other than industrial buildings would raise \$540 million in 2011/12.

Inland Revenue officials recommend, on balance, that current depreciation rates be retained for industrial buildings. Drawing borderlines is complex. It is not recommended to include a

definition of industrial buildings in the Budget night legislation; but, that the intention to retain depreciation for such buildings be announced in the Budget and focussed consultations be carried out to define the borderline before the effective date of the depreciation changes.

The Treasury recommends that depreciation be removed for industrial buildings. Treasury notes that some industrial buildings have less than a 50 year useful life, and so therefore would continue to be allowed depreciation. These include barns, chemical plants, and dairy sheds, for example. Other classes of industrial buildings could be added if it could be shown they have less than a 50 year useful life. Treasury considers that announcing that industrial buildings will be carved out on budget day without knowing how that would be done raises significant fiscal and process risks. The 2011/12 income year begins as early as 1 October 2010 for some taxpayers. This leaves little time for consultation and the development of rules. There is a risk of non-industrial buildings being classified as industrial buildings, raising the fiscal cost more than expected. Subject to acceptance of the recommendation below for no grandfathering, denying depreciation for all buildings including industrial buildings (other than those with a less than 50 year useful life) is estimated to raise \$720 million in 2011/12.

Transition for building depreciation

A key issue with respect to altering the tax depreciation treatment of buildings is whether these changes should only apply to new assets or whether they should apply to the existing stock of assets. Standard practice for changes in depreciation rates is generally to grandfather existing assets. The argument for this treatment is that the investments were made under one set of rules and changing the rules after the investment is made is unfair and causes uncertainty. Changing this treatment will be subject to considerable criticism. Grandfathering existing assets would reduce revenues noted above to an estimated \$85 million in 2011/12, growing to \$240 million by 2013/14 (this assumes that all property types are included in the base. If industrial buildings are excluded these estimates change to \$65 million to \$185 million over this period).

However the standard transitional treatment of depreciable assets is in contrast to how many other changes to the tax system are introduced. Tax rate reductions (which reduce taxes), lowering the thin capitalization safe-harbour, changing the tax rules for offshore investments and many others apply to income from existing assets. Applying the depreciation changes to all assets brings them into line with the treatment of other assets and helps to fund the broader changes including tax rate reductions.

Officials recommend that the changes to depreciation rates for buildings be applied to all assets, existing and newly acquired.

Gains and losses on buildings

Officials have examined whether gains and losses on buildings should be on revenue account, (i.e. taxed and deducted as ordinary income). Such treatment would initially decrease revenues to \$700 million in 2011/12 (\$535 million if industrial buildings continue under the

current rules), increasing in later years to \$775 million in 2013/14 (\$610 million if industrial continue under the current rules). These revenues could be significantly reduced depending on implementation decisions and taxpayer compliance). On balance officials recommend retaining the current treatment where capital and revenue treatment are determined on a case by case basis, (subject to any changes arising from the Property-related tax issues report (T2010/225 PAD2010/28).

In consultation the possibility was raised of allowing owners of commercial and possibly other buildings to elect to continue to claim depreciation if they were prepared to have their properties taxed on revenue account (which would mean that any nominal gains would be taxable and any nominal losses deductible when the buildings were sold). It was argued that this might severely constrain the costs of allowing taxpayers the option of continuing to claim depreciation on these buildings. Officials are concerned, however, that this option would be vulnerable to manipulation. Moreover, it would be very hard to forecast the behavioural effects of the changes so there would be considerable fiscal risks with this option. We recommend against further work on this option.

Depreciation loading

The TWG recommended the removal of depreciation loading. Depreciation loading applies to all new plant and equipment, and accelerates depreciation of an asset by 20%. It does not apply to some types of assets, including buildings, second-hand assets and intangible property.

Loading was originally introduced as an incentive for capital investment. Removal of loading would make the depreciation rates on such assets more closely approximate their true economic lives, increasing the neutrality and efficiency of the tax system. Finally removal of loading provides increased revenue to fund tax rate reductions.

On balance, officials recommend removal of depreciation loading. Removing depreciation loading from new stock is estimated to raise \$140 million in 2010/11, rising to \$370 million in 2013/14.

The issue of whether to grandfather existing assets is also raised with the removal of loading.

The arguments against grandfathering are as outlined above. While grandfathering is normally given to existing assets for changes in depreciation rates, there are many changes that are not grandfathered. As part of a package of changes grandfathering is less warranted. Moreover, it is recommended above that no grandfathering be allowed for the removal of building depreciation. Grandfathering for loading would increase pressure for grandfathering to be extended to buildings.

On the other hand, Inland Revenue notes loading was explicitly introduced as an incentive, and was applied only to newly acquired assets. Removal of loading on assets that were purchased under these rules would penalise businesses that are using a government policy as it was intended. This would undermine the credibility of any future government programmes

designed to change economic behaviour. Moreover use of loading is not directly associated with a low taxed sector as is depreciation of buildings.

On balance, Inland Revenue recommend that depreciation loading be removed on a prospective basis for assets acquired post-Budget 2010. Ministers should note that this is different from the recommended treatment for buildings.

Treasury considers that the case for grandparenting depreciation loading is no stronger than is the case for grandparenting building depreciation, in fact, it is significantly weaker. This is because the magnitude of the change being imposed on building owners (loss of all depreciation) is much greater than the magnitude of the change for taxpayers claiming loading (loss of 20% of depreciation). Further, buildings are owned for significantly longer periods than the short-lived assets that qualify for loading, so the change to building depreciation will impact returns from investments made before the change for a much longer period than those investments made before the depreciation loading repeal.

Treasury recommends that depreciation loading be removed for all assets post-Budget 2010. If loading were also to be removed from the existing stock of assets there would be additional fiscal revenue of \$630 million in 2010/11, but this additional gain reduces to \$160 million by 2013/14, and continues to fall sharply in outyears as the short-lived assets become fully depreciated.

Capital contributions

Currently, taxpayers can claim depreciation on assets at a value that is gross of capital contributions. (A capital contribution is a capital payment to a person compensating them for undertaking some work or service.) This allows taxpayers to claim depreciation for costs that they have not, in fact, incurred. Moreover, if the payor of the contribution is a business, they may also be allowed a deduction, effectively allowing the same costs to be deducted twice. Capital contributions are common among electricity lines companies, although it is likely to exist in other areas of the economy, such as other utility and network companies.

Officials recommend that the cost of the depreciable asset be reduced by the amount that is funded by capital contribution. This will increase revenues by approximately \$5 million in 2010/11, growing to \$8 million in 2013/14. Officials recommend that this change apply from Budget night, to prevent taxpayers accelerating expenditure to take advantage of the more generous treatment currently available

Recommended action

It is recommended (subject to final decisions on a tax package for Budget 2010) that you :

Removal of depreciation on buildings

- (a) **Note** international studies generally find that buildings depreciate.

Noted

Noted

- (b) **Note** that a Treasury analysis of QV data found that on average buildings in New Zealand did not depreciate during the period from 1993 to 2008.

Noted

Noted

(c) **EITHER**

- (i) **Agree** that the depreciation rate for all buildings with an expected useful life of 50 years or more should be set to 0% from the beginning of the 2011/12 income year as part of a tax reform package (Treasury's preferred recommendation).

Agreed/Not agreed

Agreed/Not agreed

OR

- (ii) **Agree** that the depreciation rate for all buildings with an expected useful life of 50 years or more except industrial buildings should be set to 0% from the beginning of the 2011/12 income year as part of a tax reform package and that officials should consult post-Budget 2010 on the boundary between industrial and other buildings (Inland Revenue's preferred recommendation).

Agreed/Not agreed

Agreed/Not agreed

OR

- (iii) **Agree** that the depreciation rate for all residential buildings with an expected useful life of 50 years or more should be set to 0% from the beginning of the 2011/12 income year as part of a tax reform package and that officials should consult post-Budget 2010 on the boundary between residential and non-residential buildings.

Agreed/Not agreed

Agreed/Not agreed

- (d) **Note** that an option raised in consultation was for taxpayers to be given the option of continuing to claim depreciation on certain buildings if they elect revenue account treatment (whereby any gains or losses would be taxable and any losses deductible when an asset was sold but that officials have concerns with fiscal risks surrounding this option).

Noted

Noted

- (e) **Agree** no further work be done on the option of continuing building depreciation for those who elect revenue account treatment.

Further work/ No further work

Further work / No further work

(f) **Agree** that the depreciation treatment of existing buildings should not be grandfathered.

Agreed/Not agreed

Agreed/Not agreed

(g) **Agree** that as part of Budget-2010 that losses or gains arising from the sale or disposal of a building should remain non-deductible and non-taxable (excepting depreciation recovery) except in the case of temporary buildings or destruction out of the taxpayers control as a result of fires or natural disasters.

Agreed/Not agreed

Agreed/Not agreed

(h) **Agree** to restrict the ability for taxpayers to apply for special depreciation rates for buildings.

Agreed/Not agreed

Agreed/Not agreed

(i) **Note** the fiscal implications discussed in this report (assuming agreement to recommendations (e), (f), (g), and (h) at proposed personal rates, without company tax rate changes or grandfathering, with losses and gains outside the tax base, and subject to assumptions in Appendix I):

Recommendation	\$ million	2010/11	2011/12	2012/13	2013/14
(c)(i)	Depreciation rate set to 0% (all buildings)	0	720	725	730
(c)(ii)	Depreciation rate set to 0% (industrial buildings excluded)	0	540	540	540
(c)(iii)	Depreciation rate set to 0% (residential buildings only)	0	280	280	280

Noted

Noted

Removal of depreciation loading

(j) **Agree** that the 20% depreciation loading on plant and equipment should be removed from the annual depreciation rate calculation with respect to assets purchased after 20 May 2010.

Agreed/Not Agreed

Agreed/Not Agreed

(k) **EITHER**

(i) **Agree** that there should be grandfathering for existing assets (Inland Revenue recommendation) and that the change only applies for assets purchased after 20 May 2010.

Agreed/Not agreed

Agreed/Not agreed

OR

- (ii) **Agree** that there should not be grandfathering for existing assets (Treasury recommendation) and that the change applies to existing assets from the beginning of the 2011/12 income year.

Agreed/Not agreed

Agreed/Not agreed

- (l) **Note** the fiscal implications discussed in this report.

\$ million (without company tax rate changes)	2010/11	2011/12	2012/13	2013/14
Removal of depreciation loading with grandfathering (recs (j) and (k)(i))	140	260	330	370
Removal of depreciation loading without grandfathering (recs (j) and (k)(ii))	140	890	680	530

Noted

Noted

Capital contributions

- (m) **Agree** to reduce the depreciation cost base to the extent that this base is funded through capital contributions made after the date of announcement.

Agreed/Not agreed

Agreed/Not agreed

- (n) **Note** the fiscal implications discussed in this report.

\$ million (without company tax rate changes)	2010/11	2011/12	2012/13	2013/14
Denying deductions for capital contributions (recommendation (m))	5	6	7	8

Noted

Noted

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Background

1. Ministers are currently considering a number of options that could form part of a tax reform package (T2010/36 PAD 2010/02 refers). This report presents a number of potential base broadening measures related to tax depreciation that could be used to fund changes to the mix and type of taxes as part of a wider tax reform package.

2. The recently released Tax Working Group (TWG) report (*A Tax System for New Zealand's Future*) made recommendations to remove depreciation from buildings where empirical evidence suggests they do not decline in value and to remove the 20% depreciation loading that currently applies to some assets.

3. One of the factors that raised the TWG's concern was the steady decline in taxable income declared by rental property investment and substantial net tax revenue losses that have occurred over the past decade. This is illustrated in the following graph which shows that the significant investment in rental housing generated \$150 million in tax revenue losses in 2008.

Returns from rental income



4. The net losses may be an indicator that income overall is under-taxed in the residential property sector. Moreover, it raises the question whether other forms of income earned from property or the use of property in the commercial and industrial sectors may also be under-taxed.

5. The under-taxation and tax losses in the residential property sector may be the result of:

- Interest deductions on highly-g geared properties when some income (including accruing gains on land) is not recognised for tax purposes.

- Tax depreciation deductions on buildings that exceed economic depreciation (i.e., how assets actually fall in value – especially if buildings themselves appreciate and not depreciate).¹

6. Our focus is on the second of these two issues. The government has decided that neither a comprehensive capital gains tax nor a risk free return method (RFRM) on rental property will form part of the tax reform package. This leaves for consideration New Zealand's tax depreciation rules and changes to the treatment of losses in certain circumstances. Changes to the treatment of losses are analysed in the report Property-related tax issues (T2010/225 PAD2010/28 refers). However, the question of whether or not depreciation rates on buildings are excessive extends beyond residential properties. This report discusses possible changes to depreciation for buildings in the residential, commercial and industrial sectors.

7. A key goal for tax policy design is to tax different forms of investment as neutrally as possible so that taxes do not bias investment decisions. To accomplish this, depreciation rates should mirror as closely as possible economic depreciation (i.e. how assets fall in market value through time). Appendix II to this paper explains this point more fully. If depreciation rates exceed economic depreciation, it will be economic for taxpayers to acquire assets that would be uneconomic for a non-taxpayer to acquire. By subsidising investments, the tax system encourages taxpayers to acquire assets that are intrinsically uneconomic. Conversely if depreciation rates fall short of economic depreciation, there will be a tax penalty on investment and taxpayers will be discouraged from undertaking investments that are intrinsically economic. The practical problem with setting depreciation rates is that due to uncertainties as to how assets actually depreciate, there will always be some element of judgement.

8. It is desirable to keep to a minimum the need for complex tax rules, for example, to apply differential taxation to similar assets. Simple rules generally minimise compliance costs and make tax administration easier. However, there is sometimes a trade-off between keeping the rules simple and the goal of neutrality.

9. The tax depreciation rules were reviewed as part of a 2004 Officials Issues Paper². With regard to building depreciation, the report recommended a reduction in the depreciation rate for buildings, but did not consider complete removal of depreciation to be appropriate. The conclusions were based upon studies of depreciation in other countries. This was because of concerns that New Zealand data did not allow officials to disentangle property price movements attributable to additions and extensions to existing properties from those due to general appreciation or depreciation.

¹ There is a further issue. Even if depreciation rates were to reflect how assets would depreciate in the absence of inflation, minor levels of inflation can tend to subsidise investment into longer-lived assets. (Take, for example, an asset that would depreciate by 2 percent in the absence of inflation. With 2 percent inflation, this will maintain its nominal value. Yet under our historical cost depreciation system, we would be allowing depreciation deductions). Because the full nominal interest expense is deductible this can mean that heavily geared investment into longer-lived assets will tend to generate tax losses. The same sort of issue can also arise for shorter-lived assets but inflation has much less effect on encouraging investment into these assets.

²Policy Advice Division of the Inland Revenue Department and the New Zealand Treasury, *Repairs and maintenance to the tax depreciation rules*, <http://www.taxpolicy.ird.govt.nz/publications/files/html/depreciationpaper/>.

10. With regard to depreciation loading, the report noted that loading helps to reduce the bias in favour of longer-lived assets that inflation creates and did not recommend repeal of depreciation loading. At the same time, this was very much a judgement call because loading like other accelerated depreciation measures will tend to encourage taxpayers to undertake intrinsically uneconomic investments. It can also lower capital productivity by introducing biases between different forms of plant and equipment. In a system where building depreciation rates are being reviewed and possibly lowered, it is appropriate to review the recommendations contained in that issues paper

11. Since the issues paper, officials have undertaken further analysis of both of these issues, as well as a review on the tax treatment of capital contributions.

12. This report seeks in-principle decisions on the removal of building depreciation, removal of the 20% depreciation loading and tax treatment of capital contributions as part of a taxation package for the 2010 Budget.

Depreciation on buildings

13. The current depreciation rules are based on most buildings having a 50 year estimated useful life. Under normal accounting principles this would result in a 2% straight-line depreciation rate. Taxpayers are provided with the option of either a 2% straight-line, or 3% diminishing value, annual depreciation rate. There other classes of buildings that have shorter estimated useful lives and higher depreciation rates, as illustrated in the table on page 19.

14. The current depreciation rules for buildings differ somewhat from the treatment of other types of depreciable assets. First, depreciation loading does not apply to buildings. Secondly, losses arising from the sale or destruction of a building are generally not deductible.³

Do buildings depreciate?

15. The TWG recommended removing tax depreciation on buildings where empirical data shows they do not decline in value, as this would mean tax depreciation is distorting.

16. As has been discussed above, economic theory suggests that tax depreciation rates should mirror how an asset declines in value. When tax depreciation rates mirror economic depreciation, we avoid a situation whereby the tax depreciation rules artificially encourage or discourage investment in particular types of assets.

17. At one level it might seem to be odd to claim that buildings might not depreciate. Clearly some buildings are bulldozed and replaced by new buildings. By the time that a building is bulldozed, it has clearly depreciated. However, if a building is expected to last for a very long period (and numerous buildings appear to last well beyond 50 years) and are adequately maintained, there may be little real depreciation and buildings may appreciate in nominal terms. Moreover, if building costs of are appreciating through time, this will tend to

³ The exceptions to this rule are temporary buildings and buildings that are destroyed by a natural disaster.

lead to real appreciation of the existing stock of buildings. The question of whether or not buildings depreciate must ultimately be judged by the data.

18. There have been a larger number of studies on economic depreciation although these are very largely based in the United States and found diminishing value economic depreciation rates generally between 2 and 4 percent. These economic depreciation measures are of how buildings fall in real value (i.e., adjusting for inflation). The following table provides more details on these studies.

Hulten and Wykoff (1981) ⁴	Estimated declining balance (a diminishing value equivalent) rates of depreciation for various building types, but excluding rental housing. Their best geometric approximations to economic depreciation were 2.02 percent for retail stores, 2.47 percent for offices, 2.73 percent for warehouses and 3.61 percent for factories.
Jorgenson and Sullivan (1981)	Extended Hulten and Wykoff’s analysis to owner-occupied housing, finding a rate of economic depreciation of 1.3 percent. ⁵
Bureau of Economic Analysis (1997)	Based on the results of empirical studies on the prices of used structures in the United States; estimated economic depreciation rates which include 1.14 percent for new residential buildings with one to four-unit structures, 1.40 percent for new residential structures, ⁶ 3.14 percent for industrial buildings and 2.47 percent for office buildings.
Deloitte and Touche (2000)	Estimated economic depreciation rates of between 2.10 and 4.48 percent for different classes of building. ⁷ For residential property the estimated depreciation rate was 3.95 percent. ⁸
Gravelle, J. (2000) ⁹	Surveys studies on economic depreciation for buildings (including Deloitte and Touche). Concludes that buildings probably depreciate at rates in excess of 2 percent, but probably less than 4 percent. ¹⁰ This conveys a good impression of the imprecision and uncertainties involved in estimating economic depreciation. It also implies that New Zealand’s diminishing value rate of 3 percent ends up being well within the bounds of plausible estimates of economic depreciation from overseas studies, although economic depreciation rates may differ in New Zealand.

19. The above studies all have the limitation that they do not use New Zealand data. Ultimately, the best rates of depreciation for New Zealand to use will depend on how buildings depreciate in New Zealand. The Treasury has obtained and analysed rating valuation data, compiled by Quotable Value (QV). The methodology for this analysis is set out in Appendix III.

⁴ *The Measurement of Economic Depreciation Using Vintage Asset Prices: An application of the Box-Cox Power Transformation*, Hulten, Charles R. and Franck C. Wykoff, *Journal of Econometrics* 15 No. 8 (April 1981).
⁵ *Inflation and Corporate Capital Recovery*, in *Depreciation, Inflation*, Jorgenson Dale W. and Martin A. Sullivan, in *Depreciation, Inflation and the Taxation of Income from Capital*, edited by Charles R. Hulten, 1981.
⁶ *The measure of depreciation in the US national income and production accounts*, Bardara M. Fraumeni, *Survey of Current Business*, July 1997.
⁷ Deloitte and Touche, *Analysis of the Economic and Tax Depreciation of Structures*, Washington DC, June 2000.
⁸ This study argues for a system of historical cost depreciation provisions which would provide the same present value of deductions as real economic depreciation.
⁹ *Depreciation and the Taxation of Real Estate*, Gravelle, J. CRS Report to Congress (October 2000).
¹⁰ This study is cited in support of the Hulten and Wykoff estimates of building depreciation in *Report to the Congress on Depreciation Recovery Periods and Methods*, United States Treasury, July 2000 (page 116).

20. The valuation data obtained from QVNZ covers the period 1993 through 2009. The data separates land and improvement values for each property and allows us to control for properties that have building consents issued, and therefore we can exclude the effect of capital improvements that require building consents. The data reported below is for buildings which obtained no building consents between 1993 and 2008 to avoid the building improvement bias. It means that we are restricted to considering buildings that were in place in 1993. It includes only properties that existed in 1993 and 2009, so we can control for the addition of new buildings that might increase the average value of the housing stock.

21. The data indicate that residential buildings increased in value by 5.37% in nominal terms over the 16 year period or 2.97% in real terms. Commercial and industrial buildings have also appreciated in both real and nominal terms (although by smaller amounts than residential buildings).

Summary of analysis of QV data

Nominal	Average yearly change in value – 1993-2008		
	Improvement value	Land value	Capital value
Commercial	4.42%	7.64%	5.78%
Industrial	3.39%	9.94%	5.88%
Residential	5.37%	10.72%	7.77%
Rural	5.89%	11.54%	9.59%
All property	4.94%	10.78%	7.68%

Real	Average yearly change in value – 1993-2008		
	Improvement value	Land value	Capital value
Commercial	2.04%	5.18%	3.37%
Industrial	1.04%	7.43%	3.46%
Residential	2.97%	8.19%	5.31%
Rural	3.48%	8.99%	7.09%
All property	2.55%	8.25%	5.23%

22. However, we have some concerns with using the QV data in its raw form.. A summary of the potential biases include:

- The data also does not include the value of buildings that have been scrapped during this period, which means our data may understate buildings’ economic depreciation rates. We have looked at the impact of scrapping and tested this against the above figures, and found that they are sensitive to this assumption. See Appendix III for further information.
- The 17 year period for which we have data may be unusual, in particular, property values in 2000 through 2008 period showed strong growth. To examine the impact of

this measure, we have looked at property value indexes over a longer period and compared this to the figures in the above table, based on the assumption that the growth in improvement values will continue on the same long run average. We have also looked at the year-on-year percentage change in values across different property types. This analysis is discussed further in Appendix III. It is acknowledged, however, that if the QVNZ valuation data covered a longer period the results may be different. That is, with any data set that is being analysed, the start and end points that are chosen can change the results significantly.

- While officials can control for improvements that require building consents, we cannot control for improvements that do not require building consents. This may mean the data overstates building appreciation (because the values reflect new capital improvements that are not captured by our control).
- The data does not separate owner-occupied and rental residential housing. It is possible that rental houses may depreciate faster than owner-occupied property.

23. The perceived weaknesses in the QVNZ valuation data (particularly the short period that it covers) is likely to result in strong lobbying for the retention of depreciation on buildings. The counter to this criticism is that, while the QVNZ data is imperfect, it does present some evidence that buildings in New Zealand do not depreciate. In addition, even if the evidence for non-depreciation is not as strong for some categories of buildings, a reason for New Zealand to adopt tighter depreciation rules than apply in many other countries is our lack of a capital gains tax. In many other countries taxpayers will be taxed on any nominal gain in the value of a property when the property is sold which will be an offset to depreciation deductions. In the absence of a capital gains tax, some scaling back of depreciation may be warranted.

24. Property Council of New Zealand (PCNZ), through KPMG, provided officials with a chart of the capital return (generally, change in value of capital assets) of PCNZ members' commercial and industrial buildings from 1990 through 2008. The office building index shows the capital return on office buildings from 1990 to 2008 was, on average -2.1% per year, showing net capital depreciation over that period. A broader index of all members' commercial and industrial property from 1994 to 2008 shows on average a net positive 1.8% per year average annual growth. This index started later than the office building index and omits a period of negative growth in the beginning of the 1990s that is captured in the office building index.

25. For Treasury's QV data analysis, a period of declining prices in the early 1990s was captured although overall there was net appreciation over the period. The decline in market values from 1990 to 1993 may have been reflected in the QV data from 1993 to 1995 due to a delay of up to three years before market price changes are reflected in QV values (this is explained in Appendix III).

26. We are unaware of any other data that would allow us to refine our analysis on the values of New Zealand buildings across time. Therefore a decision about whether all buildings or only certain categories of buildings depreciate is somewhat of a judgement call –

weighing up international literature, international tax treatment, the QV data and understanding of what seems reasonable.

27. Setting aside rural properties which consist of properties with both residential and industrial uses, the strongest appreciation from New Zealand data (and the weakest evidence of depreciation in other countries) is for residential real estate. This, together with concerns about the negative level of tax being collected from residential rentals provides grounds in our view for removing depreciation on residential properties. However, New Zealand data suggests that it is not only residential real estate but also commercial and possibly industrial properties that have been increasing in both real and nominal value over the last 15 years.

28. Any move to remove depreciation deductions is likely to lead to taxpayer criticism. However, failing to remove depreciation where buildings do not depreciate is likely to perpetuate over investment in buildings. The strongest criticism is likely to arise with industrial buildings where there are likely to be strong views that some are built to last for a defined period and will depreciate.

Options available for altering building depreciation

29. On the basis of the data available on building values, there are a number of options available for altering building depreciation. These raise a number of issues:

- Whether to differentiate between different classes of building.
- How to transition from the current treatment of buildings to any new treatment.
- The application date of any new treatment.
- How to treat losses and gains arising from the sale or disposal of buildings.
- How to deal with the impact any changes would have on repairs and maintenance and building fit-out.

Whether to differentiate between different classes of building

30. While all classes of building appear to have increased in value on average over the test period, some have appreciated at a slower rate than others. Given the concerns over the data, a conservative approach could be to deny depreciation for only some classes of building. There is a considerable variety of tax treatments overseas but some countries have rules distinguishing between different types of buildings as illustrated in the following table prepared by KPMG:

International summary of depreciation treatment of buildings

Country	Depreciation treatment		
	Residential rental buildings	Commercial buildings	Industrial buildings
Australia	Yes	Yes	Yes
Germany	Yes (but at a lower rate than non-residential buildings)	Yes	Yes
Hong Kong	Yes	Yes	Yes
Ireland	Generally no	No	Yes if used for certain manufacturing activities
Japan	Yes	Yes	Yes
Malaysia	No	No unless explicitly allowed by the Minister of Finance	Yes
Singapore	No	No	Yes
Thailand	Yes	Yes	Yes. Hotels, hospitals and buildings used in research are classified as industrial buildings.
The Netherlands	Yes, but this is capped using the building's rating valuation	Yes, but this is capped using the building's rating valuation	Yes, but this is capped using the building's rating valuation
United Kingdom	No	No	No (Previous tax relief is being phased out)
United States	Yes	Yes	Yes

31. Denying depreciation when there is an expected fall in value would create an investment bias. At the same time, differentiating between different categories of buildings will create pressure on the distinction between different types of buildings, over and above the current uncertain boundary between buildings and plant. Such differentiation may create economic inefficiency, as taxpayers may change their behaviour or waste resources in order to prove they fall into a category with more generous depreciation provisions.

32. These concerns need to be balanced against the data across different building classes.

33. The most compelling case for allowing depreciation on certain categories of buildings is industrial buildings. The QV data suggests real appreciation rates that are close to one percent, international literature suggests that these depreciate the fastest and international tax treatment more often allows depreciation deductions for such buildings (as compared to residential and commercial buildings). Additionally, many industrial buildings are designed to perform more like plant and equipment, rather than like an ordinary building. Examples are milk powder drying buildings, tanneries, abattoirs and chemical works.¹¹

34. The table of depreciation rates issued by the Commissioner of Inland Revenue lists a number of specific industrial buildings have short estimated useful lives.¹² As a result, we

¹¹ Some of these appear to currently be considered a "structure", as opposed to a "building". However, the Office of the Chief Tax Council is reviewing this, and these will all be re-classified as a building.

¹² The table of depreciation rates also includes rates for other structures such as dams and bridges. However, these are outside the scope of this report.

recommend limiting removal of building depreciation to those structures with estimated useful lives of at least 50 years. This may reduce the concern over disallowing depreciation deductions on industrial buildings, particularly if taxpayers are able to have additional classes of short-lived industrial buildings added to the table of depreciation rates.

35. Having a specific list of short-lived buildings that continue to receive tax depreciation will create pressure to further expand the list of depreciable structures, compromising the integrity and equity of the tax system. However, such a trade-off may be justified if not allowing depreciation deductions means that the tax rules get in the way of otherwise sensible investment decisions.

36. Concerns around industrial buildings should, to some extent, be addressed by the existing categories of building with short useful lives (as set out in the following table) and the ability to add new classes of depreciable asset.¹³ In our estimates of the fiscal gains from denying depreciation, we have not taken into account applications for reconsideration of estimated useful lives. There is likely to be much more pressure to consider allowing shorter lives for classes of buildings under the Treasury preferred option of denying depreciation for all buildings than under the Inland preferred option of carving out industrial buildings. This may mean that there is a smaller cost of allowing a carve out for industrial buildings than we have estimated. However, this error could also go the other way, as taxpayers will have incentives to reclassify buildings as industrial.

¹³ Through this mechanism, taxpayers who can prove to the Commissioner that their class of building (such as certain types of industrial buildings) is expected to decline in value would continue to receive tax depreciation deductions.

Current classes of building

Building class	Estimated useful life (years)	Current DV depreciation rate	Proposed treatment
Barns	20	10.0%	Continue to depreciate
Buildings (default class)	50	3.0%	No depreciation
Buildings (portable)	12.4	13.5%	Continue to depreciate
Buildings w/ prefabricated stressed-skin insulation panels ¹⁴	33.3	4.5%	Continue to depreciate
Buildings w/ reinforced concrete framing	50	3.0%	No depreciation
Buildings w/ steel or steel and timber framing	50	3.0%	No depreciation
Buildings with timber framing	50	3.0%	No depreciation
Chemical works	33.3	6.0%	Continue to depreciate
Dairy sheds (in Agriculture industry category)	33.3	6.0%	Continue to depreciate
Fertiliser works	33.3	6.0%	Continue to depreciate
Fowl houses	20	8.5%	Continue to depreciate
Grandstands	50	3.0%	No depreciation
Hothouses (glass or other)	20	8.5%	Continue to depreciate
Hothouses (PVC or similar)	12.5	13.5%	Continue to depreciate
Pighouses	20	8.5%	Continue to depreciate
Shade houses (glass or other)	20	8.5%	Continue to depreciate
Shade houses (PVC or similar)	12.5	13.5%	Continue to depreciate
Tanneries	33.3	4.5%	Continue to depreciate

37. On the basis of the above analysis, there are several options that could be considered for Budget 2010 in respect of whether or not to differentiate between different categories of buildings. Officials have consulted on these options as discussed in more detail in the consultation section of this report

38. In order to keep the rules simple and maximise fiscal revenue, the depreciation rate of all buildings with an expected useful life of 50 years or more could be set to 0% from the beginning of the 2011/12 income year as part of a tax reform package. This needs to be weighed against the conflicting data on whether all buildings appreciate. Fiscal revenue from this option would be \$720 million in 2011/12, increasing in later years. This is Treasury's preferred option.

¹⁴ Officials understand that this category is mostly used by freezing works and other large, industrial cool stores. It is therefore unlikely that other buildings could be reasonably classified under this category.

39. Alternatively, given that the most compelling case for allowing depreciation on certain categories of buildings is industrial buildings, the depreciation rate of all buildings except industrial buildings could be set to 0% from the beginning of the 2011/12 income year. Officials could then consult post-Budget 2010 on the boundary between industrial and other buildings. This is Inland Revenue's preferred approach. Continuing to allow depreciation deductions for industrial buildings would reduce the fiscal revenue to \$540 million in 2011/12.

40. Concerns have also been raised in consultation about whether commercial buildings also depreciate. Therefore, a third option would be for the depreciation rate for all residential buildings with an expected useful life of 50 years or more to be set to 0% from the beginning of the 2011/12 income year. Officials could then consult post-Budget 2010 on the boundary between residential and non-residential buildings. Denying depreciation for only residential properties would reduce the fiscal revenue to \$280 million in 2011/12. However, this cost could be mitigated by requiring buildings that continue to depreciate to be taxed on revenue account. This option is discussed further in the loss/gain on sale or disposal section of this report.

Transition

41. A key issue with respect to altering the tax depreciation treatment of buildings is whether these changes should only apply to new assets or whether they should apply to the existing stock of assets.

Should changes to building depreciation be grandfathered?

42. Grandfathering existing buildings would mean that only buildings acquired after the announcement of the law change would cease to be depreciable. All buildings acquired prior to the announcement would continue to be able to claim depreciation deductions as at present.

43. The advantages of this option include that it will be perceived as fair in relation to previous investment decisions and will not create business uncertainty in relation to future investment decisions. This is particularly so for classes of building, such as industrial or commercial, where the evidence regarding appreciation is weaker. It is also the standard practice in respect of changes to the tax depreciation rules which generally grandfather the existing stock of assets.

44. However, the disadvantages of grandfathering include much lower fiscal revenue, estimated to be \$85 million in 2011/12, growing to \$240 million by 2013/14 (\$65 million to \$185 million if industrial buildings are excluded from the base). This assumes losses/gains on sale are not deductible/taxable and no change to the company tax rate. Appendix I provides more detail on the methodology and key assumptions behind this costing. Horizontal equity might also be harmed, as businesses that had acquired buildings prior to any change will be better off than those owning an identical building acquired after the change. It is also likely to result in economic inefficiency, as current building owners will have the incentive to hold onto their buildings longer than what would otherwise be best. Finally, grandfathering is not standard practice for other tax changes.

45. Grandparenting existing buildings may create transitional lock-in difficulties as the owners of existing assets may be reluctant to dispose of, or move from, building premises that are depreciating to a new building that is not depreciating.

46. Whether or not existing buildings are grandparented, there would be a windfall loss to existing building owners (because the resale value of buildings will fall even if there is grandparenting). However, the windfall loss will be greater if there is no grandparenting. In consultation with the PCNZ, they indicated the change would reduce their members' distributable earnings by about 10% and reduce their unit values by about 10% (they have already fallen about 5% due to uncertainty and would likely fall another 5% upon announcement). Some highly geared property investors are likely to be adversely affected. However, no grandparenting means that individual income tax rates could fall, so investors will be partially compensated by lower income taxes on their investments.

47. On balance, officials recommend that the depreciation treatment of existing buildings should not be grandfathered.

Options for applying depreciation changes to existing assets

48. There are a number of options for applying depreciation changes to the existing stock of buildings.

49. The usual practice when an asset is moved from inside the tax-base to outside it is to crystallise the current tax position through a deemed sale and acquisition. While this would raise revenue due to the depreciation recovery that would take place, this option has many disadvantages. It will result in taxpayers being liable for a tax when they do not necessarily have the revenue to pay it. There would also be significant compliance and administration costs due to the need to carry out valuations on all buildings in order to give effect to this option. As such, this option is not considered feasible for the building depreciation changes.

50. Applying the depreciation changes to the existing stock of buildings could also be achieved by deeming buildings to no longer be depreciable property from the announcement of the law change. Buildings would instantly shift from within the tax-base to outside it. However, this would mean no depreciation recovery and a windfall gain for those who have over claimed depreciation on their buildings.

51. Officials therefore recommend removing building depreciation deductions for existing buildings by setting the depreciation rate of buildings to zero.

52. A major advantage of this option is that it keeps buildings within the structure of the depreciation rules. This means that, for example, the provisions for depreciation recovery on the sale of an asset will still apply to buildings. Any over-payment of depreciation allowances will be clawed back without the valuation and liquidity issues of option three. Additionally, the provisions relating to the application of provisional rates will also still apply, allowing for specific classes of building to depreciate where appropriate.

53. Due to this eventual depreciation clawback this option results in reasonably high fiscal revenue are estimated to be \$720 million in 2011/12 (\$540 million if industrial buildings are

excluded from the base), increasing in later years. This assumes no gain or loss on sale being taxable or deductible and no change to the company tax rate. Appendix I provides more detail on the methodology and key assumptions behind this costing.

54. This option would not remove the 'lock in' that the current depreciation rules create. Taxpayers who currently own a building valued at higher than its adjusted tax-book value have the incentive to delay selling in order to delay depreciation recovery.

55. If this option were adopted, officials recommend that the law allowing taxpayers to apply for an individual special depreciation rate (as opposed to a rate for a special class of assets) be changed so that it does not apply to buildings as this would undermine the decision to remove tax depreciation for buildings.

Loss/gain on sale or disposal

56. An issue closely related to decisions on depreciation rates is how to treat losses or gains on the disposal or sale of a building.

57. Current law does not allow for losses arising from the sale or disposal of a building to be deducted except in some exceptional circumstances. Similarly, gains over and above the original cost of a building are not taxable. However, if depreciation is removed from buildings generally then it may be desirable to review this treatment.

58. Officials preferred option is to maintain the status quo, where generally no deductions arising from the sale or demolition of a building are allowed, as this is the simplest option available.

59. The advantages of this option include that it is consistent with the treatment of other capital account assets, such as shares. Capital account assets are those which are not reasonably expected to decline in value on average. As such, realised losses on such assets are not generally tax deductible. This option should also not involve any additional administration or compliance costs as it is only maintaining the status quo. The fiscal costs are as detailed in paragraph 53 above.

60. However, disallowing depreciation deductions on buildings while also denying deductions for realised losses may be perceived as unfair and harmful to businesses. There is also a risk that pressure will be put on the definition of temporary buildings as capital losses are tax deductible for these structures.

Other options

61. Officials have identified other possible options for the treatment of losses or gains on disposal. These are:

- Moving to an across the board revenue account treatment. Under this option taxpayers would be able to deduct losses arising from the sale or demolition of their buildings but would also be subject to tax on any gains on sale.

- Allow taxpayers to elect revenue account treatment. Under this option taxpayers would be able to elect into a revenue account treatment. This would involve generally removing depreciation from buildings, but giving taxpayers the option to elect to have their buildings on revenue account, with deductible realised losses and taxable realised gains.
- Allowing a loss on sale.

62. While these options would help address concerns over buildings that may decline in value, such as certain industrial or commercial buildings, they have a number of disadvantages:

- The public may view these options as a capital gains tax, something the government has publicly announced it will not introduce.
- Risk of overstating capital losses. If losses on sale are deductible taxpayers have the incentive to obtain valuations that overstate the value of land and understate the value of buildings. Due to the difficulties in apportioning value between land and buildings, and the associated taxpayer manipulation that can occur, these options would require the implementation of complex anti-avoidance rules.
- Risk of under-taxing gains on buildings. Taxpayers would have an incentive to structure to avoid the taxation on buildings, for example by holding a building in a company and selling the shares. Detailed rules would be required to track such transactions, which would create substantial complexity. Even with such rules, officials are concerned that such manipulation is likely to mean a substantial reduction in the fiscal revenue of this option.
- Taxation of pre-announcement capital gains. In order to avoid criticism, it may be necessary to make any taxation of capital gains prospective. This would require a valuation of all buildings as at budget day so that the new rules only capture post-announcement gains, imposing significant compliance costs on taxpayers.

63. As such, officials do not recommend these options be considered for the Budget 2010 tax reform package.

Impact on fit-out and repairs and maintenance

64. Under current law, expenditure that is required to maintain an asset in its original condition is considered 'repairs and maintenance', and can be immediately deducted. Expenditure on an asset over and above making good wear and tear is capital expenditure, so forms part of the cost for tax depreciation purposes.

65. Removing depreciation from buildings is likely to put some additional pressure on what constitutes repairs and maintenance. This is because any capital expenditure would no longer be deductible through tax depreciation. As such, taxpayers would have a small increased incentive to pass off capital improvements as tax deductible repairs and maintenance. A similar issue arises with building fit-out.

Application date

66. Due to the complexity of issues and the potential for provisional tax problems if removal of depreciation were done from a specific date, it is recommended that any changes to tax depreciation rules for buildings apply from the beginning of the 2011/12 income year (which begins at the earliest from October 2010).

Depreciation loading

67. The TWG recommended the removal of depreciation loading although the possibility of applying this removal to existing plant and equipment was not discussed. Depreciation loading applies to all new plant and equipment, and accelerates depreciation of an asset by 20%. It does not apply to some types of assets, including buildings, second-hand assets and intangible property.

68. Removing depreciation loading would reduce depreciation rates on qualifying assets by 20%.

Arguments for removing depreciation loading

69. There are several arguments for removing depreciation loading. First, it is effectively an investment subsidy, and can make investment decisions profitable even when its pre-tax rate of return is less than the cost of the required funds to the economy.

70. Secondly, loading was introduced as a corrective measure to encourage investment in plant and equipment as against buildings, second-hand assets and intangible property. Removing building depreciation substantially reduces this imbalance and means the loading incentive is no longer required.

71. Finally, a recent study of capital taxation in New Zealand found that current depreciation allowances are over-generous.¹⁵

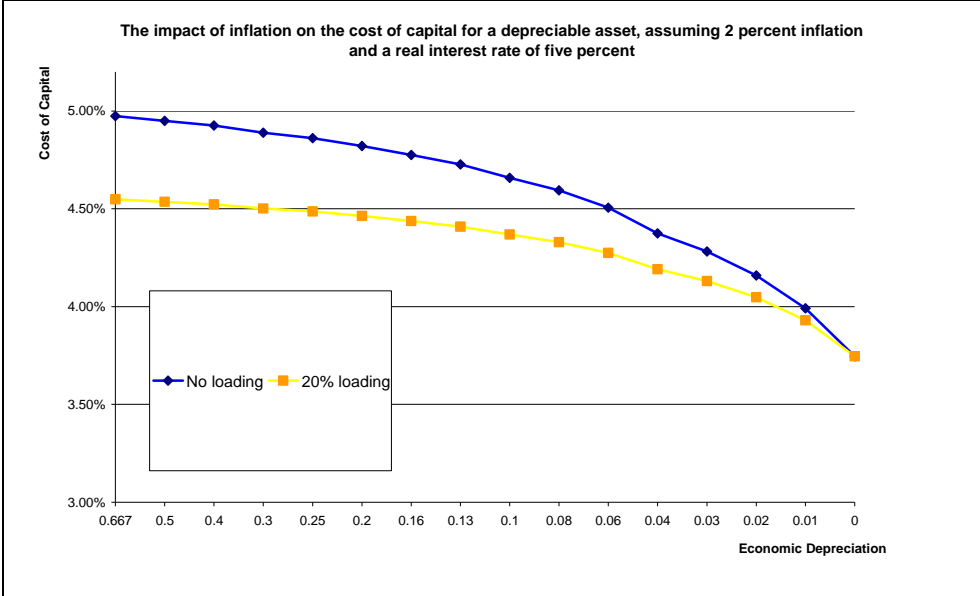
Arguments against removing depreciation loading

72. Removing depreciation loading will impact on the cost of capital for New Zealand businesses. However, this impact needs to be considered in light of all components of the Budget tax reform package. Officials will report on these issues as part of the final report on the tax reform package.

73. In 2005, it was argued that depreciation loading reduces the effect that inflation might otherwise have on investment decisions (favouring long-lived assets over short-lived assets). Even relatively low rates of inflation can provide a bias favouring investment in long-lived assets. The graph below shows how the existing flat 20 percent loading substantially reduces

¹⁵ Chen, Duanjie and Mintz, "Capital Taxation in New Zealand: A Review from an International Perspective", *The New Zealand Treasury* (2009)

the bias caused by inflation and historic cost accounting. The graph shows the effects that this bias has on the cost of capital (the minimum real pre-tax rate of return at which investment becomes profitable). The vertical axis shows the cost of capital and the horizontal axis shows depreciation rates – the lower the depreciation rate, the longer the asset’s useful life. The steeper the downward slope of the line, the greater the tax bias in favour of long-life assets.



74. Removing building depreciation substantially reduces this imbalance and means the loading incentive is no longer required.

Officials’ recommendation

75. On balance, officials recommend that depreciation loading be removed.

Transitional options for removing depreciation loading

76. Any change to depreciation loading could be applied to all assets, including existing assets, or only to newly acquired assets.

77. In the case of application to all assets, the change would require taxpayers to reduce the depreciation rates on the relevant assets in their tax asset registers. Taxpayers are also likely to raise concerns, calling the change retrospective, as having depreciation changes impact the existing stock of assets is not standard practice.

78. Making a retrospective change may be particularly problematic for depreciation loading, as the policy was introduced with the intention of creating an incentive for businesses to increase their capital investment. Removing loading from existing assets would hurt businesses that were simply using a government policy as it was intended.

79. In the case of application only to new assets, the change would mean that the depreciation rate for all assets acquired subsequent to the law change would be the Commissioner’s published economic rates, without loading. Owners of existing assets would

continue to their existing rates, with loading. This would raise horizontal equity arguments, as businesses that had acquired assets prior to any change will be better off than those owning an identical asset acquired after the change. It is also likely to result in economic inefficiency, as current owners will have the incentive to hold onto their assets longer than what would otherwise be best.

80. Removing loading on assets acquired post Budget 2010 is estimated to raise \$140 million in 2010/11, rising to \$330 million in 2013/14 (assuming no change in the company tax rate). If loading were also to be removed from the existing stock of assets there would be additional fiscal saving of \$630 million in 2011/12, but this additional gain quickly disappears, and has reduced to \$160 million by 2013/14.

81. On balance, Inland Revenue recommend that depreciation loading be removed on a prospective basis for assets acquired post-Budget 2010. Ministers should note that this is different to the recommended treatment for buildings.

82. Due to this inconsistency, the Treasury recommends that depreciation loading be removed for all assets post-Budget 2010. Treasury considers that in general, changes to tax rules should not be retrospective as that would undermine confidence in the stability of the investment environment for future investors.

83. Considering the respective positions of building owners and those claiming depreciation loading, Treasury considers that the case for grandfathering seems much stronger for building depreciation than it is for the loading. This is because the magnitude of the change is much greater for building depreciation (losing all of the depreciation as opposed to 20% for loading). Owning a building is generally a longer term investment than ownership of the short-lived assets that qualify for loading, so removal of building depreciation has a much longer-term effect on investors than removal of depreciation loading. Having recommended removal of building depreciation without grandfathering, Treasury considers it inappropriate and unfair to building owners to grandparent changes to depreciation loading. As with investors in property companies, investors in other companies that will be disadvantaged by the removal of depreciation loading will benefit from lower income tax rates on their investment income.

Application date

84. Officials recommend that depreciation loading be removed with respect to assets acquired on or after Budget day. If loading were allowed for assets purchased before the beginning of the taxpayer's income year, then some taxpayers would be advantaged compared to others depending on their balance dates. For example, a taxpayer with an early balance date could acquire assets entitled to loading only up to 1 October 2010, while a taxpayer with a late balance date could acquire assets subject to loading up to 1 September 2011.

85. If you agree not to grandparent existing assets, officials recommend that any change to depreciation loading for existing assets be implemented from the beginning of the 2011/12 tax year.

Capital contributions

86. A capital contribution is a capital payment to a person compensating them for creating a new, or enhancing an existing asset. For example, to obtain a power supply, a farmer might need to have power lines between the farmhouse and the farm boundary installed. The lines company charges the farmer to install the new lines via a capital contribution agreement. Under this agreement, the ownership, the ownership of the newly installed power lines reverts to the lines company for no, or nominal, consideration. At the same time the farmer will also enter a power supply or transmission agreement from the same company.

87. Under current tax rules, the lines company does not pay tax on the capital contribution from the farmer. However, it can capitalise and claim depreciation on the total cost of the newly installed lines. This means the recipient can claim a tax deduction for the full amount of expenditure through depreciation even though they have not had to pay the full economic cost. The problem is exacerbated where the person paying the capital contribution is also able to claim a tax deduction.

88. We are aware of this practice being common amongst electricity lines companies, although it is likely to exist in other areas of the economy, such as other utility and network companies.

89. It is recommended that the cost of the depreciable asset is reduced by the amount that is funded by capital contribution. This treatment will mirror the treatment for Government grants received to create an asset by a taxpayer (i.e. the asset owner capitalises and depreciates the net cost of the asset).

Application date

90. Officials recommend that this proposed change apply from Budget night, to prevent taxpayers accelerating expenditure to tax advantage of the more generous treatment currently available.

Revenue implications

91. Based on the average amount of capital contribution reported by lines companies from 2000-2008, it is estimated that the revenue impact from denying deductions for capital contributions is approximately \$5 million in 2010/11 growing to \$8 million in 2014.

Consultation

92. As these proposals may form part of the Budget-2010 tax reform package, consultation has been limited and has not followed the normal Generic Tax Policy Process. This is likely to result in criticism given the broad ranging impact of these proposals and also carries risks that there could be unintended consequences of changes to the tax depreciation rules.

Consultation with senior tax practitioners

93. Officials consulted with four senior tax practitioners. The majority had strong views that certain buildings do depreciate and that a mechanism is needed for dealing with such buildings. They also expressed some surprise with the results of the analysis of the QV data.

94. They agreed that applying different rules to different categories of building, while difficult (acknowledging boundary problems), would address their concerns that if a specific class of building depreciated, then depreciation deductions should be allowed. Officials believe this is achieved to a certain extent through the existing provisions allowing taxpayers to apply for provisional depreciation rates.

95. There was also support, in principle, for allowing taxpayers to opt to hold their buildings on revenue account as a trade-off for continuing depreciation deductions. Officials have analysed this option in the loss/gain on sale or disposal section of this report.

96. The representatives also agreed that the most feasible transition option is to set the depreciation rate of buildings to zero with no grandfathering.

97. There were some specific concerns regarding the effect this would have on property trust unit prices and certain industries, such as retirement villages.

Consultation with Property Council New Zealand

98. Officials also consulted with representatives of the Property Council of New Zealand (PCNZ). Key points raised by the PCNZ were:

- International evidence strongly supports retaining depreciation on non-residential buildings.
- There are concerns over the usefulness of QV data and whether this can be relied upon. Biases include not being able to control for capital improvements, that data does not take account of the value of buildings scrapped, and that the short period of data means that when the measurement period begins and ends can have a significant effect on results. There were also concerns about errors in the way that QV keys in the data and allocation of values between land and buildings. In a subsequent conversation between Treasury officials and KPMG, KPMG were largely satisfied that most of the concerns that were raised were addressed in how officials analysed the data.
- PCNZ data suggests that commercial buildings decline in value (on average), if the survey period is expanded. PCNZ provided a time series data on commercial property values. Their analysis suggests that the average capital return on CBD office buildings (1990 – 2009) was -2.1 percent per year and that with some extrapolation (to include the recession of the early 1990s) the average capital return for the New Zealand composite property index for the same period was -1.5 percent.
- Removing tax depreciation would negatively impact upon the 50,000 investors in the NZX listed property sector. It is estimated that distributions will reduce between 6-10

percent. Wider impacts are also likely as investors in a PIE funds with interests in the property will also have returns reduced.

- Removing tax depreciation would mean inbound international investors demand greater returns to compensate them for the loss of depreciation deductions and some impact on the economics of some buildings currently under construction.
- Rents fall as commercial buildings age. This would be consistent with economic depreciation for commercial buildings.

Office of the Valuer General

99. Officials have also consulted with the Valuer-General regarding the suitability of rating valuating data in addressing the question as to whether buildings can be reasonably expected to decline in value. The Valuer-General was confident that rating valuations are a true reflection of a property's market value at the date that the rating valuation is issued. He also explained that all rating valuations are audited to ensure consistency and accuracy. Anecdotally, the Valuer-General thinks that over a working life buildings generally appreciate (given regular maintenance and capital improvements) but that ultimately they do depreciate as they have a finite life. He also mentioned that certain industrial buildings (his example was a warehouse) are more prone to depreciation – as changes in transportation and storage technologies made older buildings less desirable.

Housing New Zealand Corporation

100. Officials also consulted with Housing New Zealand Corporation (HNZC) in relation to their experiences with managing and maintaining the government's residential housing stock. Their experiences may offer some insight into the private rental sector.

101. HNZC is responsible for approximately 65,000 properties. The average vintage of these properties is 1960s. This makes the average age somewhere around 50 years. However, HNZC advise that properties are modernised approximately once every twenty years. Modernisation can involve re-wiring, re-lining, re-cladding and re-roofing, but often does not include adding new kitchens and bathrooms. HNZC currently spend approximately \$200 million on maintaining and \$200 million improving their existing stock of buildings). HNZC considers that maintenance and capital renewal makes good any depreciation. They also mentioned that rental blocks suffer more wear and tear than stand alone properties.

102. HNZC does not often dispose of a property on the open market. Rather they tend to demolish and rebuild. HNZC is currently looking at ways to intensify its use of residential land, by for example, replacing stand-alone-dwellings with multi-dwelling arrangements. They also note that the amenity value for residential housing has changed. For example, in the 1970's the average floor area for a residential property was approximately 110m². Today, the average floor area is approximately 200m².

Fit with overall objectives

103. The tax system aims to raise the required revenue for Government at least economic cost. The overall objectives of tax reform are to:

- reduce the impact of taxation on the efficiency and growth of the economy;
- have a tax system that supports New Zealand's competitiveness globally in a sustainable manner;
- improve the fairness, coherence and integrity of the tax system by reducing opportunities to avoid tax;
- be consistent with the government's equity objectives; and
- overall revenue neutrality.

104. Changes to the taxation of capital contributions will help improve the fairness, coherence and integrity of the tax system by ensuring that closely substitutable payments are taxed in the same way.

105. The changes to building depreciation will remove incentives to invest in property at the cost of more productive investments. This will help to reduce the impact of taxation on the efficiency and growth of the economy and improve the fairness, coherence and integrity of the tax system.

106. The changes to building depreciation and loading will also help fund the wider tax reform package, ensuring overall revenue neutrality. Changes to the mix and type of taxes which make up the wider package will reduce the impact of taxation on the efficiency and growth of the economy, create a tax system that supports New Zealand's competitiveness globally in a sustainable manner, and improve the fairness, coherence and integrity of the tax system by reducing opportunities to avoid tax.

107. The TWG prepared some high level distributional analysis of these changes. Officials will provide our analysis as part of the final tax reform report.

Administration and compliance costs

108. These are the high level costs for the various scenarios for possible changes to the deductibility of building depreciation, removing the depreciation loading and changes around capital contributions.

Administration costs

109. In each case, the costing is based on this being a stand alone piece of work. Savings may be gained if it is possible to combine one of these options with other parts of the Budget-2010 package.

Building depreciation

Scenario	Implementation(Capital)	Ongoing (pa)
Depreciation rate reduced to 0%.	Nil (absorbed by existing baseline)	\$ 1 million

Removing depreciation loading

Scenario	Implementation	Ongoing (pa)
Depreciation loading removed for new assets from budget night.	Nil (absorbed by existing baseline)	Nil (absorbed by existing baseline)

Capital contributions

Scenario	Implementation	Ongoing (pa)
Cost of depreciable asset is reduced by the amount that is funded by capital contribution.	Nil (absorbed by existing baseline)	Nil (absorbed by existing baseline)

Compliance costs

110. Businesses are likely to incur some minimal compliance costs in relation to building depreciation changes if liquidity issues arise requiring refinancing and if building fit-out and repairs and maintenance boundaries are not clearly defined

111. Any potential compliance costs associated with removing depreciation loading and capital contributions are considered insignificant.

Next steps

112. The next step is to include these proposals in a budget Cabinet paper seeking approval to include these amendments in a taxation bill to be enacted on Budget Night under urgency.

Appendix I

Assumptions underlying fiscal revenue from depreciation changes

Methodology and key assumptions

The fiscal costings are based on capital stock and formation series for residential and non residential buildings from 1972-2009 (Source: Statistics NZ). Because calculating depreciation on these figures would overstate revenue (as the stock series are based on market value, whereas depreciation is based on cost price), the model calculates market, cost and book values:

- Capital stock values for 1972 are used as starting values for market, book and cost values of the building stock.
- Every year from 1972, a proportion of properties are scrapped (based on an assumption), built (capital formation data), sold (assumption re likelihood of sale varies for residential (8%) and non-residential properties (5%)) or held and depreciated.
- Sales occur at various rates below and above market value, with varying degrees of probability (assumption). The same pattern of sales is assumed for residential and non-residential sales. The structure of the sales pattern assumes that market is higher than cost.
- These sale prices and likelihood of sales are highly determinative of outcomes.

Key assumptions about the base include:

- 80% non residential buildings are in the base and all are depreciated. 80% allows for non-residential buildings that are owned by government or non tax-paying entities (midpoint between Statistics NZ estimate, and Treasury estimate).
- 28.9% of residential buildings are in the base (based on census data); 85% of these are depreciated (this is higher than analysis of a sample of IR3R returns would indicate, at 70%).
- From 2009 onward, capital formation growth is as set out in Treasury's HYEUF09 forecast. Market valuation growth reverts to trend across the years beyond 2009 (4% for residential, 0.3% for non residential).
- The base is assumed in 2011/12 to be approximately 57% non-residential buildings. The revenue for 2011/12 is assumed to be 61% non-residential buildings.

Other assumptions:

- Taxpayers are assumed to comply with depreciation clawback; and in Option 3 (taxing gains, and allowing losses), no gaming of sales (i.e. realising losses, and avoiding taxation of gains through company structures) is included in the costing.

- Average tax rates are set for both residential and non-residential properties by a weighted average of personal and company tax rates on a sample of IR10 data. 25% of companies are assumed to be in loss, reducing the average tax rate applied. Personal tax rates applied are the same as for other tax changes at existing thresholds. Costings are done on the basis of a company tax rate cut, and without a company tax rate cut.
- The first year of fiscal revenue affect provisional tax payments, and are not lagged into the following year.

Key risks with costings

- *Lack of tax return data:* tax depreciation claimed is not captured within Inland Revenue so there is a large amount of uncertainty in knowing if our estimation based on general Statistics NZ data matches depreciation deductions being claimed.
- *Assumptions about scrapping, likelihood of sale, and pattern of sales:* an increase in scrapping, decrease in the likelihood of sales, or decrease in the average price assumed for sales, would decrease revenues but costings are generally less sensitive to these assumptions.
- *Assumptions about percentage of buildings included in base, and percentage that are depreciating:* a decrease in this would materially affect revenues, as described below.

Residential buildings: We used census information on tenure of private dwellings, which suggests 28.9% of private dwellings are rented. This gives a potential stock of about \$78bn of rented dwellings. From this we removed the government owned dwellings (about \$6bn from Treasury information on Housing NZ or \$7bn from Statistics NZ information on sectoral ownership) and dwellings which are not being depreciated (we have no robust information on the latter). To capture the above 2 effects we assumed that \$12bn of the potential \$78bn was not in the tax base by applying an 85% assumption to our potential base.

Sensitivity

A 5% change to the "85%" assumption for residential rentals in the tax-depreciable base (eg 80%) will change (reduce) the fiscals by \$15 million.

Non-residential buildings

About \$115bn of non-residential buildings are potentially in the base, but we need to remove from this buildings owned by government (eg hospitals, schools) and buildings owned by other exempt taxpayers (eg charities). We used an assumption that only 80% of non-residential buildings in SNZ's capital stock series are in the tax base. This was a compromise assumption between two different data sources; SNZ building work put in place data suggesting 73% and QVNZ data suggesting 87%.

Sensitivity

A 5% change to the "80%" assumption for non-residential buildings in the tax-depreciable base (eg 75%) will change (reduce) the fiscals by \$25 million

- *Average tax rates:* these are assumed to be the same across owners of residential and non-residential properties, and are based on the proposed personal income tax rate structure, without a company tax rate change. They are also sensitive to assumptions about percentage of companies in loss-making situations.

We have used an average tax rate of 23.7 percent (under the tax cut package). This figure is based upon IR 10 data and an assumption about whether the companies are in profit. IR10s with depreciation claims on them give the following data splits:

- Companies 70% - used a profit assumption 80% in profit, 20% in loss to get a weighted 24% average rate (assumes no company cut)
- Trusts 8% - used a 33% tax rate;
- Partnerships 13% - weighted average based on entity of partners. Used individual rate (see below) for the 91% who are individuals - otherwise used the company average rate (24%) or the trust rate (33%). The overall weighted partnership average rate was 20.1% with personal tax cuts, or 22.8% without.
- Individuals 8% - used taxable income on IR10s with depreciation to determine the appropriate marginal rate. The split was:

Income = \$0	16.7%
Income under \$14k	11.0%
Income between \$14k-\$48k	36.6%
Income between \$48k-\$70k	14.2%
Income over \$70k	21.5%

Using the scenario personal tax scale, this gives an average marginal rate of 18.9% (or 21.9% without personal tax cuts). The weighted average rate is hence $70\% * 24 + 8\% * 33 + 13\% * 20.1 + 8\% * 18.9 =$ approximately 23.7% (the percentage figures above are rounded).

The risks with this approach are that it assumes IR10s are representative, that the marginal rates may be understated (as removing depreciation deductions could increase the marginal rate), that 70% of all depreciating allowances are claimed by companies (the remainder are claimed by trusts, partnerships, or individuals), and that 80% companies in profit may be an overstatement.

Sensitivity

A 1% change in the assumed average tax rate changes the fiscal estimates by \$30m. If we dropped the companies in profit assumption to 70% in profit, this affects the overall average rate by 2%, which reduces the fiscal gain \$60m from \$720m to \$660m

- *Compliance:* the model assumes full compliance with depreciation clawback (all options), and that taxpayers will not be able to avoid having gains on sale taxed (option 3 only).

Costings for alternative options:

Depreciation denied for all buildings:

\$ million	2010/11	2011/12	2012/13	2013/14
Depreciation rate set to 0% (no gains or losses) without grandfathering	0	720	725	730
Depreciation rate set to 0% (no gains or losses) with grandfathering	0	85	165	240
Depreciation rate set to 0% (gains and losses) without grandfathering	0	700	730	775
Depreciation rate set to 0% (gains and losses) with grandfathering	0	85	145	205
Depreciation rate set to 0% (losses only) without grandfathering	0	545	530	520
Depreciation rate set to 0% (losses only) with grandfathering	0	85	140	190

Depreciation denied for all non-industrial buildings

\$ million	2010/11	2011/12	2012/13	2013/14
Depreciation rate set to 0% (no gains or losses) without grandfathering	0	540	540	540
Depreciation rate set to 0% (no gains or losses) with grandfathering	0	65	130	185
Depreciation rate set to 0% (gains and losses) without grandfathering	0	535	565	610
Depreciation rate set to 0% (gains and losses) with grandfathering	0	65	115	160
Depreciation rate set to 0% (losses only) without grandfathering	0	405	395	385
Depreciation rate set to 0% (losses only) with grandfathering	0	65	105	145

Depreciation denied for residential buildings

\$ million	2010/11	2011/12	2012/13	2013/14
Depreciation rate set to 0% (no gains or losses) without grandfathering	0	280	275	275
Depreciation rate set to 0% (no gains or losses) with grandfathering	0	40	75	105
Depreciation rate set to 0% (gains and losses) without grandfathering	0	300	335	380
Depreciation rate set to 0% (gains and losses) with grandfathering	0	40	65	95
Depreciation rate set to 0% (losses only) without grandfathering	0	205	200	190
Depreciation rate set to 0% (losses only) with grandfathering	0	40	60	85

These costings are based on the proposed personal tax rates. Changing the company tax rate from 30% to 28% would reduce these costings by approximately 5%

Appendix II

Setting depreciation rates to mirror economic depreciation

Economists often argue that depreciation deductions should be based on ‘economic depreciation’, i.e., on the way in which assets actually depreciate. The reason is that this would in theory mean that investments which are marginal (i.e., with a zero net present value) for a non-taxpayer would also be marginal for taxpayers. This would avoid depreciation provisions biasing the types of investments that are undertaken.¹⁶

There is a subtle issue which is worth mentioning. Allowing economic depreciation would not mean that taxes have no effects on investment decisions. In general, taxes will affect prices of products and inputs including possibly interest rates. As a result, this will generally affect decisions of both taxpayers and non-taxpayers about the viability of different investments. All economic depreciation would do is ensure that given the prices that arise in the presence of taxes, investments that are marginal would be marginal for both taxpayers and non-taxpayers.

The result can be shown most simply if we ignore uncertainty. Suppose that there is no inflation, that the interest rate is 5 percent per annum and that an asset is to be acquired at the end of year 0 and will produce net revenue (i.e. revenue net of operating costs) of \$120 at the end of year 1, \$115 at the end of year 2, \$110 at the end of year 3 and \$105 at the end of year four and which then expires. This would be a marginal investment to a non-taxpayer if it cost exactly \$400. This is the present value of the future cash flows ($400 = 120/1.05 + 115/1.05^2 + 110/1.05^3 + 105/1.05^4$). The value of the asset to the non-taxpayer would be \$400 at the end of year 0, \$300 at the end of year 1 immediately after the year 1 cash flow (because $300 = 115/1.05 + 110/1.05^2 + 105/1.05^3$), \$200 immediately after the year 2 cash flow, \$100 immediately after the year 3 cash flow and \$0 after the year 4 cash flow. Thus, this asset has economic depreciation (i.e., a decline in market value) of \$100 in each of years 1, 2, 3 and 4.

Ideally, taxes would not distort which investments are undertaken. This would require that investments that are marginal for non-taxpayers are also marginal for taxpayers on any marginal tax rate. For taxpayers, asset valuations will depend on the timing of depreciation deductions. A very special property of economic depreciation (and one which endears it to economists) is that it would ensure that investments that are marginal for non-taxpayers would also be marginal for taxpayers on any tax rate.

Table 1 illustrates this for an asset where, for simplicity, we assume a tax rate of 40 percent. So long as tax depreciation mirrors economic depreciation, the taxpayer on a 40 percent tax rate will find that an asset costing \$400 which provides these net revenues is exactly marginal on an after-tax basis. The same is true for taxpayers on any other tax rate as well.

Table 1

¹⁶ The classic paper on this is Samuelson, P.A., 1964, ‘The Deductibility of Economic Depreciation to Insure Invariant Valuations’, *Journal of Political Economy*, 72(6), 604-606. Samuelson’s article ignores uncertainty. For an extension which includes uncertainty see, Fane, G., 1987, ‘Neutral Taxation Under Uncertainty’, *Journal of Public Economics*, 33, 95-105.

	Year 0	Year 1	Year 2	Year 3	Year 4
Revenue		120	115	110	105
Economic depreciation		100	100	100	100
Assessable income		20	15	10	5
Tax		8	6	4	2
After tax cash flow		112	109	106	103
Asset value	400	300	200	100	0

For the taxpayer, the after-tax interest rate is 3 percent because interest income is taxable and interest expense is deductible. This will be the appropriate interest rate at which to discount after-tax cash flows. At the end of year 0, the value of the asset to the taxpayer will be \$400 as $400 = 112/1.03 + 109/1.03^2 + 106/1.03^3 + 103/1.03^4$. Similarly, the value at the end of years 1, 2, 3 and 4 immediately after the cash flows and tax payments will be \$300, \$200, \$100 and \$0 respectively, just as for a non-taxpayer.

By contrast, suppose that capital expenditure could be immediately expensed. In this case, the taxpayer would be willing to pay \$418.86. Thus, the taxpayer would undertake investments that would not be profitable for non-taxpayers. This means that taxes are encouraging investment in assets which are not inherently economic. Conversely, suppose instead that no depreciation were allowed until year 4 when the full cost of the asset could be written off. In this case the taxpayer would be prepared to pay only \$389.88. Thus, an investment which is marginal for a non-taxpayer would be sub marginal for a taxpayer. This is also inefficient as taxpayers will have incentives not to undertake investments which are intrinsically economic.

While (depending on the viewpoint of the reader) all of this may or may not be an interesting piece of economic theory, it is a long way from giving much guidance as to how assets should be depreciated for tax purposes. The problem is that economic depreciation is exceedingly difficult to measure. Even if a tax authority were to know the economic life of an asset (and expected economic lives are difficult to determine), economic depreciation will depend on an asset's profile of cash flows. There will normally be considerable uncertainty about this matter even for taxpayers acquiring the assets, let alone for the Commissioner in attempting to set depreciation rates.

Appendix III

QVNZ Depreciation Data Analysis

Methodology

Two sets of data were obtained from QVNZ that detailed Counts, and total Capital, Land, and Improvement Values from 1993-2009 for two sets of properties. Both sets of data were broken down by region and by property type. The datasets included:

- All properties that had buildings that existed in 1993 and also in 2009;
- Those properties which had buildings that existed in 1993 and also in 2009 that had not been the subject of a building consent in that time.

As QVNZ realise that it is difficult to adequately control for building consents in some territorial authorities (TAs), they also provided us a list of the TAs that could not adequately control for building consents. From the information provided by QVNZ, we created 3 datasets, broken down by property types (aggregated into Commercial, Industrial, Residential, and Rural property types):

- All buildings and all TAs (1);
- Only those TAs that can control for building consents, and controlled buildings; (2)
- Only those TAs that can control for building consents, but all buildings (3). This was included as a control for the second dataset above.

We also imputed a fourth set of data- only including properties for which the building had been the subject of a building consent (4). This was calculated by reference to the total with and without building consents in datasets (2) and (3).

We used these datasets to find the average capital, land and improvement value per year for each property type (aggregating into commercial, industrial, residential, and rural property types). These average values were then adjusted for inflation using the consumer price index.

These average values were then used to create a number of outputs, as detailed below.

Other points about the methodology:

- We checked the original data for obvious inconsistencies, and made further enquiries from QVNZ on a number of points.
- We also calculated the count of the properties from the full dataset in our other two datasets. Relative to dataset (1), dataset (2) has approximately 41% of the properties; dataset (3): 71%, and dataset (4), 26%.

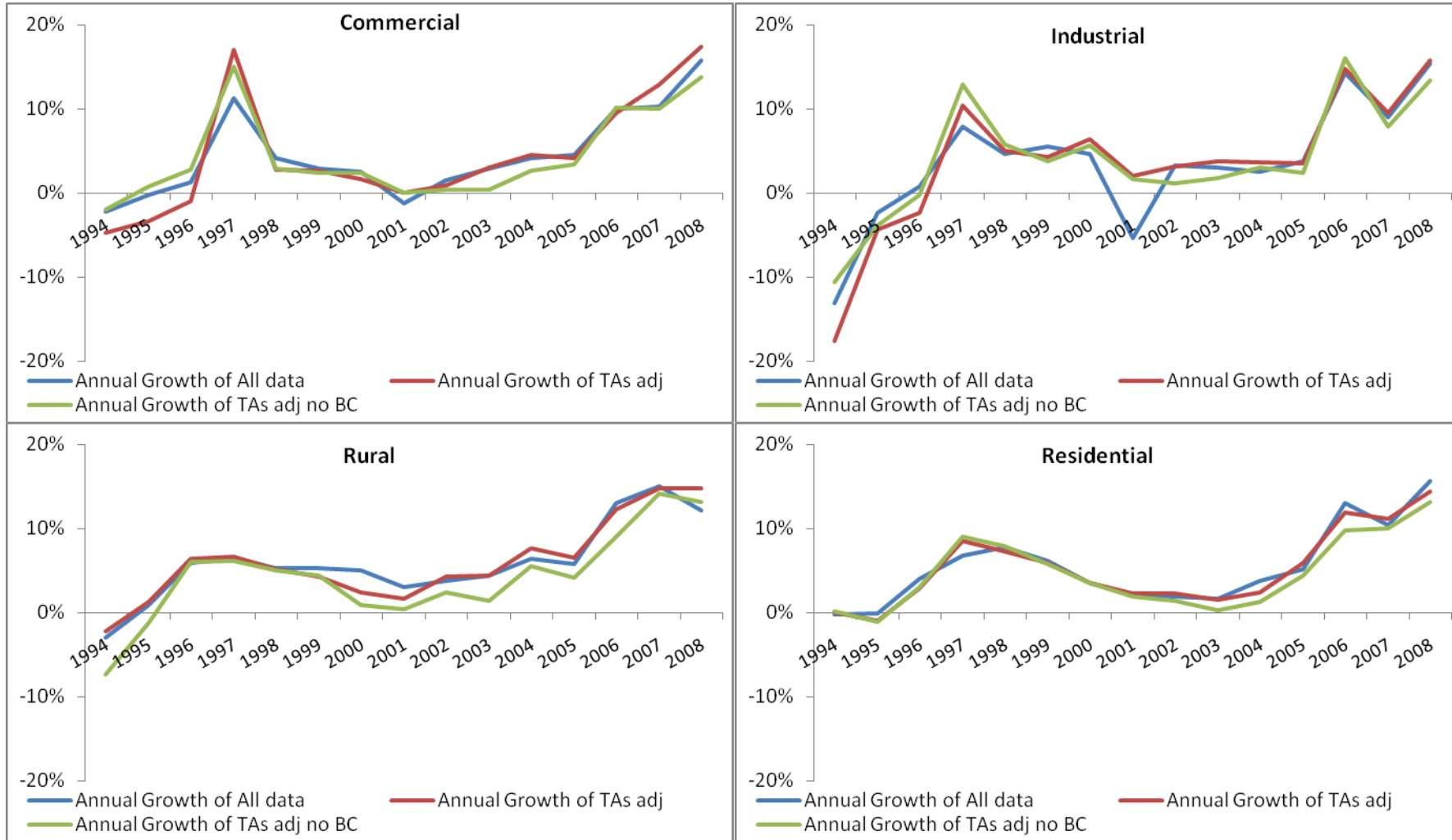
- The year-on-year percentage change was compared to the year-on-year change in the relevant property index (e.g. the house price index, the commercial property index, etc). Depending on the TA, QV ratings may change annually, biannually, or 3 yearly. Therefore, there may be up to a 3 year lag before changes in market values are reflected in QV data. Further, the 3 yearly change explains why in some years the change in value appears to spike as it could reflect up to 3 years of appreciation. Once corrected for lags, the trends of the dataset were similar to those of the relevant property index. Methods used to correct for lags included bringing forward the relevant index by 3 years, and looking at 3 year moving averages across the period.
- As the data possibly has survivor bias (because it is restricted to buildings that existed in 1993 and also in 2009), we attempted to approximate the impact of this on the average annual percentage changes. These are shown below.

Key Outputs

Year-on-year percentage change

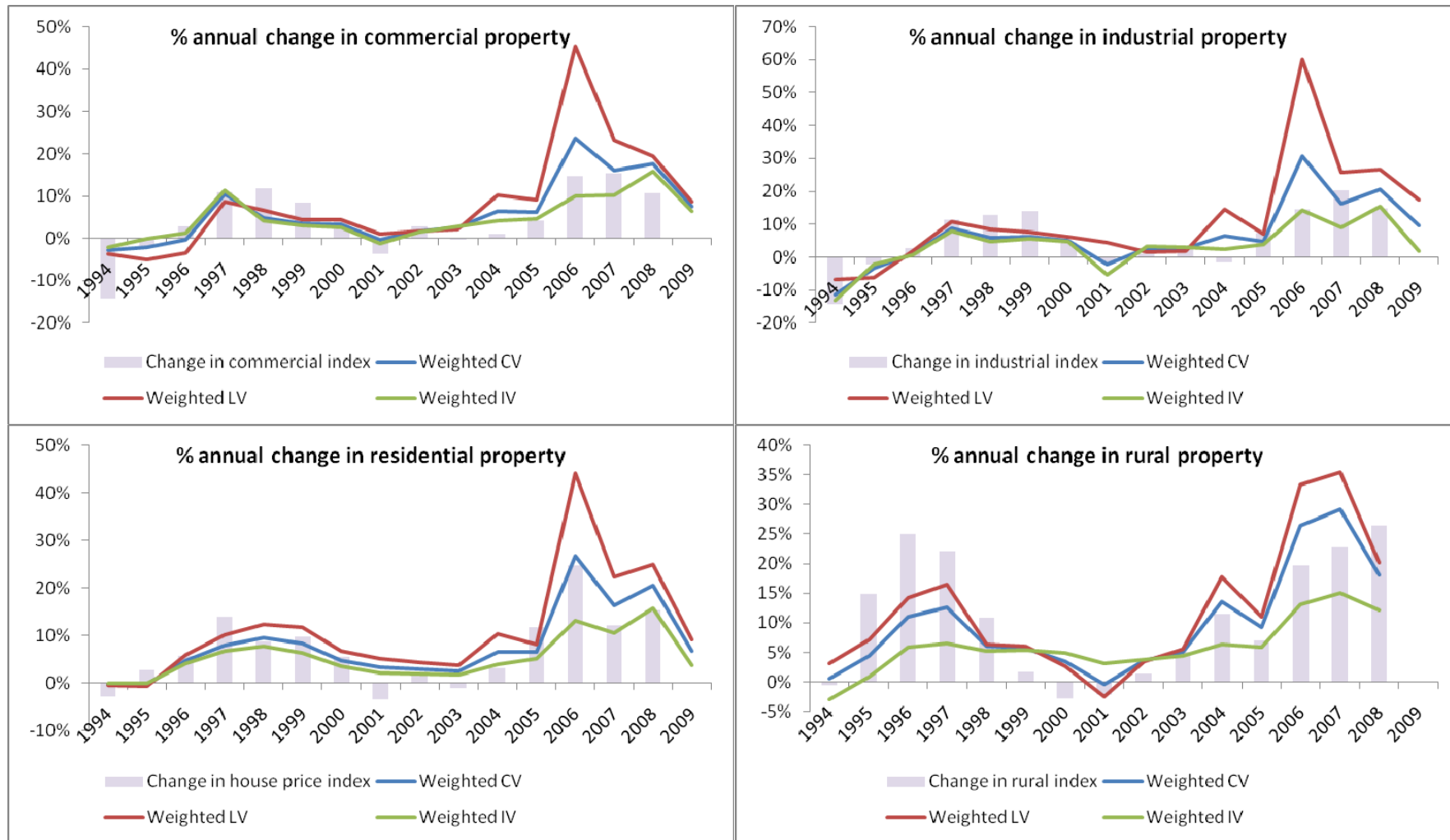
Comparison between datasets:

From both the nominal and the real average value datasets, we calculated the year-on-year percentage change for the average improvement figures, for each dataset. The nominal percentage changes are presented below for datasets (1) blue), ((2) green), and ((3) red):



Improvement value in full dataset (1):

From both the nominal and the real average value datasets, we calculated the year-on-year percentage change for each of the average capital, land and improvement figures, for the full dataset (1). The change in the commercial index has been delayed for three years (i.e. relates to 1990-2005).



Average annual percentage change (nominal and real)

For all datasets:

From each dataset, we calculated the average nominal and real annual percentage change for capital, improvement, and land values:

Value	Dataset	Average annual nominal growth					Average annual real growth				
		C	I	R	Rur	All property	C	I	R	Rur	All property
IV	(1): Full dataset	4.42%	3.39%	5.37%	5.89%	4.94%	2.04%	1.04%	2.97%	3.48%	2.55%
	(2): Full (no BC) TA adj dataset	4.23%	3.85%	4.63%	4.17%	4.46%	1.85%	1.48%	2.25%	1.79%	2.08%
	(3): Full TA adj dataset	4.32%	3.57%	5.21%	5.93%	4.89%	1.94%	1.20%	2.81%	3.51%	2.50%
	(4): Full BCs only dataset	4.32%	3.58%	6.20%	7.29%	5.59%	1.94%	1.22%	3.78%	4.84%	3.18%
LV	(1): Full dataset	7.64%	9.94%	10.72%	11.54%	10.78%	5.18%	7.43%	8.19%	8.99%	8.25%
	(2): Full (no BC) TA adj dataset	7.65%	9.08%	10.41%	11.65%	10.77%	5.19%	6.59%	7.89%	9.10%	8.24%
	(3): Full TA adj dataset	6.15%	8.99%	10.51%	12.11%	10.77%	3.73%	6.51%	7.99%	9.55%	8.24%
	(4): Full BCs only dataset	5.64%	9.06%	10.74%	12.70%	11.00%	3.23%	6.57%	8.21%	10.13%	8.47%
CV	(1): Full dataset	5.78%	5.88%	7.77%	9.59%	7.68%	3.37%	3.46%	5.31%	7.09%	5.23%
	(2): Full (no BC) TA adj dataset	5.74%	6.07%	7.11%	9.26%	7.40%	3.33%	3.65%	4.67%	6.77%	4.95%
	(3): Full TA adj dataset	5.07%	5.58%	7.47%	9.93%	7.56%	2.68%	3.17%	5.02%	7.42%	5.10%
	(4): Full BCs only dataset	4.85%	5.46%	8.13%	10.67%	7.98%	2.46%	3.06%	5.66%	8.14%	5.52%

Inclusion of a scrapping assumption (as per costing, 0.6% of buildings scrapped per annum) for the full dataset lowers the numbers in this table by approximately 0.6% per annum. Therefore, these numbers are very sensitive to the scrapping assumption.

Average annual growth across all periods (full dataset):

Start of period is in left hand column- end of period is in top row. Red highlighted cells indicate depreciation; orange indicates low appreciation (< 1.5%). This indicates that for most of the shorter time periods within the sample period, there is no net building depreciation.

Nomina		1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
All proper	1993		-3.0%	-2.1%	-0.4%	1.6%	2.5%	3.0%	3.1%	2.9%	2.8%	2.8%	2.9%	3.1%	3.8%	4.3%	4.9%	4.9%
	1994			-1.2%	0.9%	3.1%	4.0%	4.3%	4.1%	3.8%	3.6%	3.4%	3.5%	3.6%	4.4%	4.8%	5.5%	5.4%
	1995				3.1%	5.4%	5.8%	5.7%	5.2%	4.6%	4.3%	4.0%	4.0%	4.1%	4.9%	5.4%	6.1%	5.9%
	1996					7.7%	7.1%	6.5%	5.8%	4.9%	4.5%	4.2%	4.2%	4.3%	5.1%	5.6%	6.3%	6.2%
	1997						6.5%	5.9%	5.1%	4.2%	3.9%	3.6%	3.7%	3.8%	4.8%	5.4%	6.2%	6.0%
	1998							5.4%	4.5%	3.5%	3.2%	3.0%	3.2%	3.5%	4.5%	5.2%	6.2%	6.0%
	1999								3.6%	2.6%	2.5%	2.4%	2.8%	3.1%	4.4%	5.2%	6.3%	6.0%
	2000									1.6%	1.9%	2.0%	2.6%	3.1%	4.6%	5.5%	6.6%	6.3%
	2001										2.3%	2.3%	2.9%	3.4%	5.2%	6.1%	7.3%	6.9%
	2002											2.2%	3.2%	3.8%	5.9%	6.9%	8.2%	7.6%
	2003												4.1%	4.6%	7.2%	8.1%	9.4%	8.5%
	2004													5.1%	8.7%	9.5%	10.8%	9.4%
	2005														12.5%	11.7%	12.8%	10.6%
	2006															10.9%	12.9%	9.9%
	2007																14.9%	9.4%
	2008																	4.1%
	2009																	

Real		1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
All proper	1993		-5.7%	-4.8%	-3.1%	-0.7%	0.6%	1.3%	1.1%	0.9%	0.8%	0.8%	0.8%	0.9%	1.5%	2.0%	2.6%	#N/A
	1994			-4.0%	-1.8%	1.0%	2.3%	2.8%	2.3%	1.9%	1.6%	1.5%	1.5%	1.5%	2.2%	2.6%	3.2%	#N/A
	1995				0.5%	3.6%	4.5%	4.6%	3.6%	2.9%	2.4%	2.2%	2.1%	2.1%	2.8%	3.1%	3.7%	#N/A
	1996					6.8%	6.5%	5.9%	4.3%	3.4%	2.8%	2.5%	2.3%	2.3%	3.0%	3.4%	4.0%	#N/A
	1997						6.1%	5.5%	3.5%	2.5%	2.0%	1.7%	1.7%	1.7%	2.6%	3.0%	3.8%	#N/A
	1998							4.8%	2.2%	1.4%	0.9%	0.9%	1.0%	1.1%	2.1%	2.7%	3.5%	#N/A
	1999								-0.4%	-0.3%	-0.3%	-0.1%	0.2%	0.5%	1.7%	2.4%	3.4%	#N/A
	2000									-0.2%	-0.3%	0.0%	0.3%	0.7%	2.1%	2.8%	3.9%	#N/A
	2001										-0.4%	0.2%	0.5%	0.9%	2.6%	3.4%	4.5%	#N/A
	2002											0.7%	1.0%	1.3%	3.3%	4.1%	5.3%	#N/A
	2003												1.3%	1.6%	4.2%	5.0%	6.2%	#N/A
	2004													1.9%	5.6%	6.3%	7.5%	#N/A
	2005														9.6%	8.5%	9.4%	#N/A
	2006															7.5%	9.3%	#N/A
	2007																11.2%	#N/A
	2008																	#N/A
	2009																	#N/A

Adjustment for high growth and inflation period:

The relevant building indices were used to compare against the table and the graphs for the period 1990-2005. Given this period experienced high real property growth, we compared this against the average growth rate across the relevant index for the longest period available. We then used the proportion of the difference between these allocable to improvement values to adjust the growth rate of the improvement values to proxy the rate of building depreciation/appreciation for a longer period. The table below shows this adjustment for the full dataset (1):

Nominal	1993-2008			1990-2005	Longest available period	
	Improvement value	Land value	Capital Value	Relevant Index	Relevant index	Adjusted improvement value
Commercial	4.42%	7.64%	5.78%	4.14%	2.63%	2.01%
Industrial	3.39%	9.94%	5.88%	5.37%	3.43%	1.98%
Residential	5.37%	10.72%	7.77%	6.97%	4.22%	2.92%
Rural	5.89%	11.54%	9.59%	10.42%	5.41%	3.32%
All property	4.94%	10.78%	7.68%	-	-	-

Real	1993-2008			1990-2005	Longest available period	
	Improvement value	Land value	Capital Value	Relevant Index	Relevant index	Adjusted improvement value
Commercial	2.04%	5.18%	3.37%	2.14%	0.63%	0.38%
Industrial	1.04%	7.43%	3.46%	3.34%	1.43%	0.43%
Residential	2.97%	8.19%	5.31%	4.91%	2.22%	1.24%
Rural	3.48%	8.99%	7.09%	8.29%	3.41%	1.67%
All property	2.55%	8.25%	5.23%	-	-	-

Concerns with QVNZ data analysis

Officials' primary concerns with the dataset are (as set out in the body of the paper):

- The data also does not include the value of buildings that have been scrapped during this period, which means our data may understate buildings' economic depreciation rates. The scrapping rates assumed above may understate true scrapping, and therefore the average annual change rate may be too high.
- The 17 year period for which we have data may be unusual, values in 2000 through 2008 period showed strong growth.
- While officials can control for improvements that require building consents, we cannot control for improvements that do not require building consents. This may mean the data overstates building appreciation (because the values reflect new capital improvements that are not captured by our control).
- The data does not separate owner-occupied and rental residential housing. There is some international evidence that rental houses depreciate faster, so this lack of separation may result in further overstatement of the above results.

DRAFT- this has been referred to the Department of Building and Housing but has not yet been worked through with them.

Appendix IV

Treasury Estimates of the Impact on the Housing Market of Not Allowing Deductions for Depreciation on Investor Housing

Summary:

- This note addresses the question: what impact on rents, house prices, quantities of housing and owner-occupancy rates might follow if those owning investor housing were no longer able to claim depreciation as a tax deduction?
- The analysis is based on an integrated model of the rental and owner-occupied housing sector (see: <http://www.treasury.govt.nz/publications/research-policy/wp/2009/09-05/>)
- The key finding is that any changes in rents and house prices are likely to be modest.
- The annual foregone tax revenue per rental property from allowing deductibility for depreciation is estimated at \$570 in 2006).¹⁷ If the average rent is \$300 per week and this amount were added directly to rents, the increase would be about 3.7%. However this is an absolute upper bound as it assumes (unrealistically) that no adjustments would take place in the housing market following the change in deductibility of depreciation.
- The model allows for a full set of adjustments in the housing market capturing the supply response to changes in house prices, the demand for rental property from tenants and the supply of rentals by investors.
- Using the best estimates of the likely values of the underlying parameters of the model, rents would be expected to rise in the medium term by about 0.7%.
- House prices could fall by about 0.2%.
- In all cases the results are shown with upper and lower bounds. In the most extreme case, using the largest estimate of the supply elasticity of rental properties, rents would rise 2.2% in the long run.
- The model compares the position with and without deductibility for depreciation. It does not trace out the time path as the housing market adjusts – ie it is a comparative static rather than a dynamic model.
- Any increase in rents raises the costs of renting relative to ownership. This is further accentuated by any tendency for house prices to rise. As a consequence the owner-occupancy rate would rise. In the medium term this could involve up to an additional 10,000 households moving into owner-occupancy.

¹⁷ This figure is calculated by estimating the 2006/07 revenue from depreciation allocated to residential properties (using the costing model used for the depreciation costings, and reworking the average tax rate to take account of 2006 tax rates); and by reference to the number of rental properties in 2006 (from Census data).

- The results are intended to be indicative of the possible magnitudes. Details of the analysis and the assumptions are set out below. No allowance is made for reductions in the potential revenue take where properties are sold at a loss. If this option were adopted it would further reduce the present estimates.
- The results presented here are calibrated to 2006, and assume that depreciation was denied from the 2006/7 financial year. This allows Census data on tenure to be used. Providing that the depreciated book value of rental houses and housing prices have moved approximately proportionately, it is not expected the results for 2010 would change significantly.

Summary: Impacts on the Housing Market based in the Medium Term

	Lower estimate	Base case	Upper estimate
% change in rents	0.2	0.7	2.2
% change in house prices	-1.9	-0.2	0.0
% change in quantity of rental units	-4.5	-1.6	-0.9
% change in quantity of total housing	-0.4	-0.1	0.0
Resulting owner-occupancy rate (relative to base of 70%)	70.2	70.4	71.2

