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Land Value Taxation and the Valuation of Land in Australia

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Abstract. *Land value tax is an important source of revenue for government internationally and particularly in industrialised OECD countries in which this tax operates on a number of different bases of value. Over the past 30 years a number of trends in tax policy have impacted revenue from this tax and how the tax is assessed. This paper examines land value taxation and specifically the valuation of land processes used to determine the base of this tax in Australia.*

The paper examines the challenges of valuing land in highly urbanised locations where land rarely transacts in isolation of improvements. It further examines the practices and processes used in the valuation of land specifically for taxation purposes. Simulations have been developed to examine how land value is determined from improved property transactions and to identify the issues which confront and impact the valuation process and the integrity of this tax.

The paper makes its contribution by examining how valuers determine the value of land in highly urbanised locations in the absence of vacant land sales. This contributes to defining how this process may be improved through increased transparency in the valuation process. This is done while maintaining the efficiency of land as a neutral base for the assessment of land tax as opposed to moving to alternate bases of value.

Keywords*: Land value, highest and best use, recurrent land taxation, transparency.*

Introduction

Australia is ranked 9th highest of the 34 OECD nations in revenue raised from recurrent land taxation (OECD 2010). The tax revenue collected from this source is low in contrast to other industrialised OECD countries including New Zealand, United States, Canada and United Kingdom as highlighted in Table 1. Bird and Slack (2004), defines the fiscal benchmark for measuring the tax effort of a country as being the ratio of tax revenue collected as a percentage of GDP. In reforming land tax revenue and policy in Australia, Australia's Future Tax System

Review AFTS (2009) specifically identified that further revenue should be raised from recurrent land tax and more specifically, from a tax on land in improving the tax effort of the lower tiers of government which lags many of the industrialised countries. AFTS (2009), further emphasised the importance of reducing inefficient taxes on land and property such as conveyance stamp duty and progressively replacing this revenue with land tax.

Table 1: *Recurrent property tax as a percentage of total tax and of GDP.*

	Percentage of total tax			**Percentage of GDP**			
	1965	**2010**	**% change**	**1965**	**2010**	**% change**	**Rank in OECD countries**
Denmark	4.9	2.9	–41%	1.5	1.4	–6.2%	10
Australia	6.8	5.5	–18.5%	1.4	1.42	1.1%	9
Iceland	1.7	5.2	212%	0.4	1.9	320%	8
New Zealand	8.3	6.6	–20.9%	2.0	2.1	4.4%	7
Japan	5.2	7.7	49.3	0.9	2.1	131.6%	6
Israel	–	7.2	…	–	2.3	…	5
France	1.9	5.7	200%	0.7	2.5	268%	4
United States	13.7	12.2	–11%	3.4	3.0	–10.4%	3
Canada	11.9	10.1	–15.5%	3.0	3.1	2.1%	2
United Kingdom	11.2	9.8	–13%	3.4	3.4	–0.4%	1
Unweighted average							
OECD – Total	**3.8**	**3.25**	**–15.4%**	**0.95**	**1.05**	**9.9%**	**Ranking**

Source: OECD Tax Statistics Table 4100 as at 2010.

As one of the few countries which maintains an annual tax on land in contrast to other bases of value, it is highlighted that one of main challenges confronting taxation and valuation administrators, is the valuation of land in highly urbanised locations. This challenge has increased over the past 20 years in the capital cities of Australia, as land becomes fully developed, and less land transacts in isolation of improvements, allowing the underlying value of land to be valued by reference to vacant land sales (Ombudsman 2005). Figure 1 sets out the evolution of the valuation problem in Sydney since land tax was reintroduced by the state governments of Australia after WWII.

As shown in Figure 1, the difference in the determination of land value between 1955 and 1975 using the bottom up analysis by reference to vacant land sales, and the period of 1996 to the present, using the top down analysis using improved sales epitomizes the problem. At the time of reintroduction of state land tax in NSW in the 1950s, vacant land sales were abundant during the 1960s and 70s. The following twenty years marked a period of rapid growth in the urbanization of Sydney (Daly 1982:153). During the period mid-1990s to the present, vacant land sales have become the exception, resulting in greater reliance on improved sales in the determination of land value, which has raised concerns over transparency of the valuation process (NSW Ombudsman 2005 and Walton 1999).

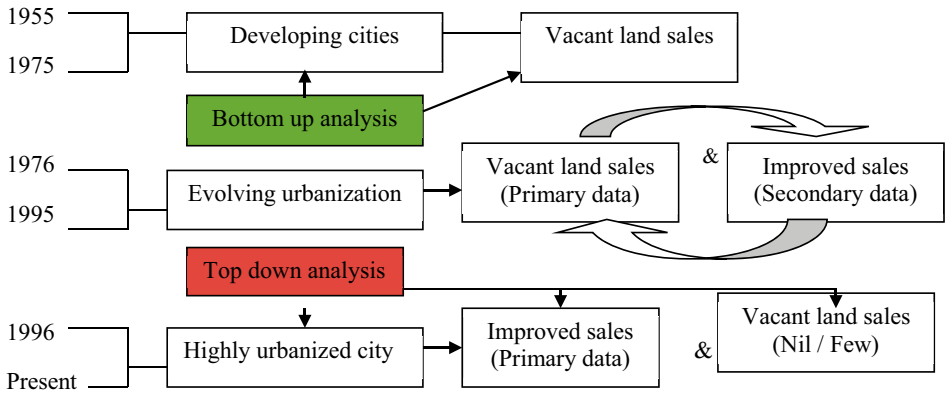

Figure 1: *Evolutionary deduction of land value in the Sydney Basin.*

The primary objectives of this paper is to examine the practices of valuers undertaking the valuation of land for land tax purposes in the absence of vacant land sales. While the literature on valuation defines the limitations of the various methods of valuation, a gap exists in knowledge of how valuers actually apply the valuation methods in the absence of vacant land sales. The aim of this paper is to understanding of how valuers actually value land in highly urbanised locations, which contributes to improving the principle of transparency in the valuation process.

Literature review

The literature review is an examination of the base on which this tax is assessed, the evolving problem with its measurement, the valuation practices used and the overarching importance of the principles of good tax design, which dictate the integrity of the valuation process. While the focus is on Australia, international practices and sources are reviewed from the Nordic and Baltic region where land is still remains the base of this tax. The three themes examined in the literature review are the bases on which land tax may be assessed, the definitions of value and methods of valuing land.

The distinction must first be made in the use of the term 'land tax' in Australia which is often used to define transaction taxes on the purchase of property as well as recurrent land tax which is imposed on the holding of property. Transaction taxes, also known as conveyance stamp duty is a mobility tax and is generally applied at the point of purchasing property in which the tax is commonly determined on a percentage of the purchase price (IPART 2008). In contrast, recurrent land taxation is a tax imposed annually on property of which there are a number of bases used to assess this tax. RICS (2007) highlight that the two broad bases on which land tax is assessed internationally are area and value.

The bases on which land tax may be assessed vary internationally, this section of the literature examines these bases, with most emphasis place on land

value being the subject of this paper. Typically, area-based taxation applies in countries where property markets are evolving or information systems are not well-developed to support a value based system (RICS 2007). Under an area based system, 'a charge is levied per square meter of land area, per square meter of building or sometimes a combination of the two (Bird and Slack 2004). In contrast to area, value based land taxes are divided into three broad categories. The first is capital improved value (CIV) which comprises the value of land and buildings, the second, being annual rental income or annual rental value (ARV) which is determined on the rental return of the property and the third being land value (LV) or site value (SV), which are the same and exclude improvements on the land such as buildings but include land improvements such as clearing, excavation and retention of the land. (McCluskey, Bell & Lim 2010)

While the word value appears in each of these bases, it is not necessarily market value as defined in valuation standards or guidelines. None of the bases of value in Australia include the word market value as the base on which the tax is assessed is the taxable value of either land in the case of land value and taxable value in the case of improved value. This is because value is not determined on what is actually on the land but what should be on the land and this factor become the proxy for value, not the market value of the property under its current use where this does not reflect the land maximal productivity. Timofeev (cited in McCluskey Bell & Lim 2010:158) highlights that the valuation practices aligned with each of the bases of value vary from country to country and is largely determined by the statutory definition assigned to the basis of value itself.

Australia like a number of OECD countries raise tax based on land value which is one of the least commonly used bases of value and as highlighted by Walton (1999), as presenting a number of challenges in the valuation process. The most recent international survey of the land tax undertaken between 2007 and 2010 lists the bases of the land tax across 122 countries which are summarized by region. The most common base on which land tax is assessed is capital improved value (CIV), followed by Area, Annual rental value, while in contrast, land value (LV) is ranked fourth being one of the least commonly used basis of value (McCluskey *et al*, 2010). Despite this fact, few of the countries that use CIV have transitioned from other bases of value, with CIV being the original base of land tax in those countries. A review of the countries which tax land follows.

There are three bases on which recurrent taxes are applied in Denmark, the first is land tax which was introduced in 1926. This tax is assessed on land value, of which reforms were made to this tax in 1981 and again in 1992 when a tax freeze was introduced in 2002. (Muller 2005) A service tax is the second recurrent tax imposed in Denmark which is applied mainly in urban areas and was introduced in 1961. This tax is assessed on the capital value of the buildings only, it does not include or apply to the land component. In the case of private businesses this tax is imposed by the municipalities. (Muller 2005)

The property value tax is the final recurrent tax imposed on property in Denmark and applies to all owner-occupied dwellings and summerhouses and is assessed on CIV. Lefmann & Larsen (2000) highlight that this tax replaced a

similar tax that operated for almost a century in Denmark, which was determined on the imputed rent from the house. The move from assessing the tax on imputed rent to capital improved value resulted from perceptions that an imputed rent tax constituted a form of income tax and was less saleable to the taxpayer.

In the Pacific region, New Zealand has a well-developed rating system in which local government has the option of adopting one of three bases of value for the rating of property. Four of the main cities of NZ (Auckland, Wellington, Christchurch and Hamilton) utilize a capital or annual value rating system. Up until 1985 land value was the preferred base on which to assess the property tax in New Zealand, however by 2006–2007 fiscal year, capital value had become the tax base for the majority of local authorities. Franzsen cited in (Dye & England 2009:37) define the rationale for the transition to CIV in the cities of New Zealand as the limited transactions of vacant land on which value all land for taxing purposes. Local Government Rates Inquiry Panel (2007) further highlight that land value is still used as the base of the tax in regional New Zealand.

The specific definition of value used in Australia to assess land tax are now considered, with an examination of how value for this purpose differs from the traditional definition of market value. Since the 1950s, a dual land tax system has operated across state and local government in Australia. Northern Territory imposes council rates but does not impose a Territory land tax as shown in Table 2. When land tax was introduced in Australia it was assessed on the unimproved capital value (UCV) of land, meaning the value of land in its en-globo or original untouched state. As more land became urbanized and was the subject of clearing, excavation, levelling and retention, UCV became less relevant and by 1990, five States had moved to either Land Value (LV) or Site Value (SV) as the base of state land tax. In 2010 Queensland was the last state to move from UCV to SV for the assessment of state land tax as per Table 2.

Table 2: *Bases and premise of value used to assess recurrent land taxes.*

Land Tax (Recurrent Tax)		
State	**State Gov't Land Tax**	**Local Gov't Council Rates**
New South Wales	Land Value	Land Value
Queensland	Site Value	Site Value
Victoria	Site Value	Improved Value
South Australia	Site Value	Improved Value *
Western Australia	Site/Unimproved Value	Gross Rental Value *
Tasmania	Land Value	Gross Rental Value *
Northern Territory	N/a^	Unimproved Capital Value
ACT	Unimproved Value^	Unimproved Value

Sources: State Valuation of Land legislation across Australia.
*Denotes the option of assessing council rates on more than one basis across different LGA's.

The definition of market value in Australia differs from the definition of land value under the tax statute. Land value is an artificial construct in highly urbanised locations of which part of the definition requires all land to be assumed to be in

its en-globo state with improvements to the land but excluding improvements on the land. It further requires that any impediments to the lands tittle are to be disregarded. Section 6A (1) and (2) of the Valuation of Land Status follows:

> *6A Land value*
>
> (1) The land value of land is the capital sum which the fee-simple of the land might be expected to realise if offered for sale on such reasonable terms and conditions as a bona-fide seller would require, assuming that the improvements, if any, thereon or appertaining thereto, other than land improvements, and made or acquired by the owner or the owner's predecessor in title had not been made.
>
> (2) Notwithstanding anything in subsection (1), in determining the land value of any land it shall be assumed that:
>
> (a) the land may be used, or may continue to be used, for any purpose for which it was being used, or for which it could be used, at the date to which the valuation relates, and
>
> (b) such improvements may be continued or made on the land as may be required in order to enable the land to continue to be so used,

The valuation process used to determine value under this definition is set out in the Valuation Procedures Manual (Land & Property Information 2009) and is not strictly market value as was discussed earlier in this literature review.

In contrast to land value, the International Valuation Standard Committee (2013) defines market value as follows:

> Market value is the estimated amount for which an asset or liability should exchange on the valuation date between a willing buyer and willing seller in an arms length transaction after proper marketing, and where the parties have acted prudently, knowledgeably and without compulsion.

The valuation process used to determine value under this definition is set out in the International Valuation Standard Committee Guidelines (2013).

While elements of similarity exist between each of these definitions, land value assumes no improvements exist and hence is a neutral base on which to assess the tax. As improvements are removed from the tax base, in contrast to capital improved value or assessed annual value where existing improvements may not be highest and best use, land value in highly urbanised locations is an artificial construct. Its objective is to neutralise the impact of improvements of varying size, age and condition on the land which may distort the value and tax base.

The factors which distinguish land value from market value are driven by the overarching principles of 'Good Tax Design' (IPART 2008). In contrast to be value being exactly correct, the priorities require value to be determined simply, transparently, equitably, efficiently and to deliver robust tax revenue to government. These principles are now distinguished further in scoring land value as a base on which this tax is assessed.

As discussed in the introduction, the emerging challenge with the use of land value in the assessment of land tax, is the lack of vacant land sales on which to assess the tax, an issue which resulted in New Zealand moving to CIV to assess the tax in its four main cities McCluskey & Franzsen (2005). IPART (2008) have identified similar issues in Australia on state land tax, which impact the principles

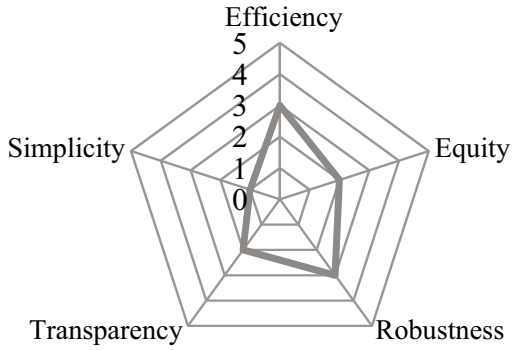

Figure 2: *Land tax & taxation principles.*
Source: IPART NSW 2008.

of simplicity and transparency as shown in Figure 2. The low score assigned for these principles primarily result from the land value used and more specifically, the valuation process used to determine value. Equity scores low as this tax as it does not apply to the principle place of residence or low valued investment property. The literature now examines the various methods of valuation and Computer Assisted Mass Appraisal (CAMA) tool used to value land.

A number of methods of valuation may be used to value land, this section of the literature examines the various methods and highlights that strengths and limitations of each and why direct comparison is the foundation all methods used. The primary methods of valuation used in the valuation of land for taxation purposes are direct comparison, cost approach and income methods (Australian Property Institute 2007). Direct comparison is the most fundamental method of valuation in which one land parcel (the sale land) is able to be directly compared with another (the land being valued). Direct comparison is the foundation of all other valuation methods. 'The principle of comparison underpins all valuation methods but it is also a valuation method in its own right.'(Wyatt 2007:111). In the case of income and replacement cost methods, the variables adopted in their application are extracted from the transactions of other property. Ohe extraction process impacts the simplicity and transparency of the valuation process as the assumptions adopted are not always apparent (Rost and Collins 1993:86).

The direct comparison method is supported over other methods due to its simplicity in which it is asserted that 'actual sales are a far more reliable index of market value than are any available forms of evidence, such as estimates based on a capitalization of prospective earnings.' (Bonbright 1938:136). In the absence of vacant land sales more complex methods of valuation are needed to either separate the improvements from land, or to first calculate the improved value, after which the added value of the improvements are separated from the sale price to determine the land value. The extent of the use of this method of valuation hinges on comparability between the subject and comparable property having as few points of difference or need for adjustment (Rost & Collins 1996).

The income method of valuation is used to assess the improved value of property based on its income or income earning potential in cases where the property is vacant or owner occupied. Alternatively, it is used as a primary method of assessing the value of improved property in locations where the property taxed is determined on the rental income or assessed annual value derived from the property. The analysis of property transactions using the capitalization method will depend on which outgoings are deducted from the gross rent and which allowances such as leasing up and vacancy are adopted in determining the net rent (Bardouil & Malaquin cited in Adair 1996). Apparent in the valuation process both nationally and internationally, is the inconsistency in which valuers apply the capitalization method of valuation. It is stated, "There is no standard practice and it is for valuers to use and justify their approach with each valuation" (Ibid: 115).

The summation method, and conversely referred to as the residual or abstraction method is cited as being the most common method used to value land in urbanized locations in the absence of vacant land sales (Bell, Bowman, and German cited in Dye and England Eds. 2009). This approach is best used in determining differences in land values across locations where improvements are relatively homogeneous. In addition to being used as a land residual technique, it may also be used as a building residual technique (Australian Property Institute 2007:474–5). The use of this method and its interchange between land and buildings as the residual component and is an internationally recognized method of valuation (Hudson 2001). In the case of rating and taxing valuations, these techniques may be used to assess the added value of improvements, also known as a paired sales analysis (Dept of Land NSW 2009:11). In addition to the use of this method in Australia and the United States, it is specifically recognized for rating and taxing valuations of land in countries which retain land as the basis of a recurrent tax and specifically used where vacant land sales are rarely transact (Falk-Rasmussen and Muller 2010).

The cost method is an important option recognized in rating and taxing valuation purposes internationally (French & Gabrielli 2007). In addition to its use in NSW, this method, also referred to as the contractors' method, is recognized in international valuation practice (Falk-Rasmussen & Muller 2010). This method best applies to cases where the improvements on land are either new, or near new and reflect highest and best use in which there is no or nominal account for depreciation. Where new, or near new improvements have transacted, the analysis of these transactions may be considered by partitioning the value of their component parts. This is referred to a 'land share of value', or 'contribution value' (Dye & England 2009).

In using the cost method of valuation two crucial questions are asked of the valuer in the sales analysis process. These are 1) Are existing improvements the highest and best use of the land and do they add value to land, 2) If they do add value, what the added value of these improvements.

Computer assisted mass appraisal (CAMA) often referred to as a method of valuation, is a tool used within the valuation process. Its mention is warranted in

placing it within the context of this research and highlighting its limitations in the valuation of land in highly urbanized locations. Poorly or incorrectly analyzed sales has the potential to contaminate the valuation of land, with particular reference to partitioning land value from the added value of improvements in the analysis of improved sales. This is exemplified in the following examination of the mass appraisal process:

> The MVP statistic measures the accuracy of values relative to sale price. However, it uses the adjusted analysed land value as an input into its calculation. Would it be fair to say that a non-conforming MVP could be as much a statement about the inaccuracy of the adjustment made to the analysed land value as to the accuracy of the assigned value of the property? In which the answer provided was; Well, I think the short answer is yes. (NSW Ombudsman 2005:66)

It is asserted however, that where the sales analysis process can provide a simple and transparent method of partitioning land from improvements, the potential for the use of CAMA is significant. What ultimately plagues CAMA is the contrasting process of valuations produced using mass appraisal with the objection and appeal process conducted on a property-by-property basis. This has been clearly identified in a number of jurisdictions in which the difference between mass valuation production and appeals on a single property value basis has presented challenges for the management of mass valuation systems and results (Tomson 2005:48).

A further limitation of the CAMA relates to the definition of value and how responses to values produced by CAMA are dealt with in the objection and appeals process. At the time land value taxation was introduced in Estonia in 1993, a high level of resistance to the tax has been observed with 10 per cent of taxpayers against paying this tax (Ibid). The impact of producing values using CAMA has resulted in high levels of objection, which resulted in no further updates in values since the last valuation in 2001 (Ibid). Increases in revenue from land tax in Estonia have been carried out by moving the rate in the dollar applied to the land values determined in 2001.

> The inability for the taxpayer to see how their land value was determined and the inability of the taxing and valuing authority to show how land value was determined on a property by property basis, adversely impacted on the use of CAMA in Estonia (Tomson 2010 pers comm.)

In Pennsylvania where CAMA was used to manufacture values for the property tax, it was found that the mass appraisal system itself was not a problem. The problem was the perceived method in which the land value component was derived by its subtraction from the improved value, which ultimately resulted from the split in analysis between land and improvements (Hughes 2006). The CAMA simply replicated the result based on the information and inputs into the computer. The CAMA system used by the valuation assessors was unable to provide the requisite detail of accountability to both the taxpayer and commissioning authority to satisfy the principle transparency.

While the literature has identified the various methods of valuation and the limitations of each, what remains unanswered if how valuers actually apply these methods when valuing land and in particular in the absence of vacant land sales. Where direct comparison is not the primary method of valuation, it is not

apparent how valuers in Australia value land using the cost or residual method in the analysis of improved sales. This is examined in the following sections of this paper.

Research Method

This study is part of a larger study into the valuation of land used to assess land tax in Australia. The broader study comprised simulations, surveys followed by a short debriefing of the survey participants and finally focus groups were used to discuss the results. The component of the study addressed in this paper is the outcome of the simulations undertaken by the valuers. The simulations were undertaken during 2010 and 2011 involving 25 property valuers. Access to the valuers was organised through the Australian Property Institute, which maintained separation between the researcher and valuers.

Two simulations have been developed and used to measure change as a pre-test/post-test or before and after study design. 'A before-and-after design can be described as two sets of cross-sectional observations on the same population to find out the change in the phenomenon or variable(s) between two points in time' (Kumar 1996).In the social sciences simulations in the form of hypothetical scenarios are used to monitor and test outcomes of a particular situation. This method transports the key aspects of a situation to an experiment setting (Jones 1996). Cavana, Delahaye & Sekaran (2001) states that 'the simulation lies somewhere between a lab and field experiment, insofar as the environment is artificially created but not very different from 'reality".

While having limitations, Yin (2003) defines the strengths of simulations as to deliberately divorce a phenomenon from its context so attention can focus on a few variables. In this study the objective is to monitor how valuers use the cost method of valuation in accounting for the added value of improvements to determine the underlying value of land. It is recognised in this research approach, that valuers are not able to seek additional information or make any further inquiries that may ordinarily be made in undertaking this task in the field. While this factor is recognised, the valuers who participated did not raise this a concern that would impact the valuation outcome.

Valuation simulations comprising two types of properties: a main street retail strip with shops and one level of offices above and a residential street with single dwelling houses were developed. The properties in each simulation were located on land zoned for their existing use. To assess requirements for consistent valuations across valuers of the retail and residential land, the simulations comprised both an initial and a revised task for each of the sample of valuers who completed each simulation. Detail of simulation participation is set out in Table 3.[1]

[1] Table 3 sets out the response rates for both simulations. Note that the completed simulations of 23 do not correspond with the number of valuer participants for either the retail or *residential* simulations. In total 25 valuers participated in the simulations of which 23 of the valuers completed both the retail and residential simulations. Included within the 23 are two valuers who completed the retail simulation only and two valuers who completed only the residential simulation.

Table 3: *Simulation and response rate.*

Response Type	Retail	Residential
Gross simulations issued	40	40
Completed/returned simulations	23	23
Non-returned	14	13
Returned & incomplete	3	4
Net responses	23	23
Response rate completed & returned	**57.5%**	**57.5%**

In the initial simulations for both the retail and residential land, there were no vacant land sales and three improved sales, each with improvements at varying degrees of dilapidation. In the case of retail properties (Table 5), valuers were informed of the sale price and sale date, land area and dimensions, permitted use, gross building area, net lease area, lease details, age/last upgrade of improvements and cost $/m^2$ for new improvements. All premises are highest and best use, but each with improvements of varying degrees of dilapidation, one sale with improvements that were structurally and cosmetically refurbished within the past seven years; a second sale which had improvements similarly refurbished approximately 15 years ago; and the third sale was dilapidated, requiring total refurbishment and upgrade. For residential land (Table 4), all houses, land and garages were of similar size, construction and age. Information was also provided to valuers on the sales price, sale date, the cost $/m^2$ new for improvements and the age of improvements but in the initial simulation, the age of improvements on only one house was specified.

In the initial residential and retail simulation, valuers were asked to value the land of the three sales as they ordinarily would in the course of their profession. Once the initial simulations were completed, valuers were required to re-answer their initial simulation but now incorporating three additional sources of information. Firstly, an additional sale, a fully refurbished property (structurally and cosmetically) which sold within 3 months of the date of valuation. Secondly, information was provided on the area average of how the added value of improvements degrades with time and thirdly, on the area average ratio of land value to the added value of improvements. The objective of this revised simulation was to provide insight into how the sale of a recently improved property combined with information on the level and degradation of improvements could inform valuers when valuing land in the absence of vacant land sales.

Insights into four key questions were sought from the study of the valuation process:

Question 1 Which improved sales do valuers use to value land in the absence of vacant land sales?

Question 2 Does a codified / structured process for analyzing improved sales result in a more consistent land value?

Question 3 Does the analysis of improved property sales which are highest and best use result in a more consistent land value and efficient basis of value for the assessment of value for land tax purposes?

Question 4 What criteria do valuers use to determine the highest and best use of (improved) land in highly urbanized locations?

In answering Question 2, the standard deviations for each property in the initial and revised simulations are measured against the Australian benchmark for rating and taxing valuations which is ±15 percent (Ombudsman 2005). These results have been set out and highlighted in blue and green in Tables 4 & 5 highlighted in green and blue.

Results and Discussion

In answering Question 1, the simulation results showed that while valuers differed on which sale was most relevant in each simulation, the majority gravitated towards the sale with the oldest and most dilapidated improvements, which added the least value to the land in both simulations. In the residential simulation 65 per cent of valuers (Table 4) selected the most dilapidated building (at 20 Fiction Street) as the most relevant sale and in the retail simulation, 74 per cent of valuers again chose the most dilapidated improvements (20 Main Street) as the most relevant sale (Table 5). This demonstrated that valuers preferences were to adjust back to land value, sales with improvements which added little value to the land.

In relation to questions (2) and (3), the simulation results are affirmative to both questions. A review of the standard deviations of the three sales in the initial retail simulation shows that all three sales are within the acceptable margin of error of ±15 per cent (as shown in Table 5 highlighted in blue), a margin that is within rating and taxing valuation practice benchmark in Australia. A review of the standard deviations of the three sales in the initial residential simulation show that only one of the three sales (20 Fiction Street) resulted in a standard deviation being within the acceptable margin of error of ±15 per cent (as shown in Table 4 highlighted in blue).

In each of the revised simulations, valuers were given three further pieces of information, 1) one additional sale of which the improvements are 6 months old (11 Fiction Street and 22 Main Street), 2) a depreciation schedule and 3) an indicative ratio of land value to improved value of sales generally of which improvements were modern and highest and best use. The valuers were then instructed to undertake a revised simulation for each the residential and retail scenarios, to re-determine the land values of the three sales in the initial simulations plus the additional sales taking into account, the above additional information.

Hence the revised simulation constituted a codified structured valuation process comprised two important steps, firstly it directed valuers to determine the land value of the additional sale, of which the improvements were near new. Secondly, valuers were instructed to re-determine the land value of the three sales in the initial simulations. In undertaking this task they were asked to consider the additional information provided in points 2) and 3) above. The outcome of the revised simulations for retail land was a significant reduction in the standard deviation associated with retail valuation (Table 5), this highlighted a reduction in the standard deviations of valuers the more modern the improvement are on the land.

When valuers again adopted the codified / structured valuation approach in accounting for the added value of improvements, there was again a marked reduction in the standard deviation for the more recently improved land in the residential scenario, with one exception. In one case (20 Fiction Street), the standard deviation actually worsened (Table 4), but this was still within the acceptable margin of error of ±15 per cent. What the above analysis does indicate in relation to questions (3) is that where sales in which improvements are new and highest and best use are used by valuers and the added value of the improvements are accounted for by reference to their cost new, a more consistent land value is deduced from the valuation process as the need to account for depreciation is minimal.

In relation to the criteria used by valuers to determine the highest and best use (or question 4), a review of the responses of valuers as to which attributes they use when determining the highest and best use of land, are set out in Table 6. The two most important attributes ranked by valuers are demand for and the age of improvements. Valuers generally agreed that while new improvements could sometimes be overcapitalized, this would be in exceptional circumstances and this would usually be determined by an inspection of the improvements. The age of the improvements, including the date from last structural refurbishment, provided valuers with the opportunity to review the extent of depreciation.

The legal permissibility of the improvements ranked third in terms of importance, as improvements that were not permissible would likely have limited value if that element resulting from non-permissibility could not be rectified. This factor was also construed by valuers to include aspects of structural adequacy and safety aspects of use. Size of improvements ranked fourth in determining if the scale of improvements are maximally productive, however, it was also pointed out that property may be purpose built for an owner occupier to suit their own business needs.

Conclusion

There are two concluding points from this paper, the first results from valuation practice and the second from matters that might be considered in the broader application of land tax in Australia. The first point is to highlight the important role of the valuation process in ensuring concepts which are economically efficient in theory are also practical in their application. To this end, the simulations results made clear the importance of a structured process of selecting, analysing and determining value (the valuation process) results in a more consistent and efficient land value improving the integrity of the base and any resulting tax burden.

What the research and simulation results have further shown, which impacts the current process of valuing land for land tax purposes in Australia and potentially other jurisdiction which taxes land, is that land can continue as the basis on which a tax is assessed subject to a number of measures. It was demonstrated that valuers in Australia will vary in their opinion of how value is determined and the methods used to arrive at land value where the direct comparison method of valuation cannot be used in the absence of vacant land sales. This does not mean the basis

of value should necessarily be changed, but that a common approach must first be determined as to which method of valuation is most suited to the task and how that method of valuation chosen is actually applied by all valuers across and within the states of Australia.

At a fundamental level it was demonstrated that diversity existed in the sales selected by valuers which impacted on the land value determined. In the initial simulations, diversity emerged among which improved sale was considered the most relevant in determining land value. When valuers were directed in the revised simulation as to which sale was to be considered most relevant, significant improvement in the standard deviation across the valuers was noted in the land values determined. The additional sale which was highest and best use, with improvements that were maximally productive removed the approach of valuers accounting for depreciation of improvements of varying age used in the initial simulation. The impact of accounting for depreciation of improvements was not readily observable as the factor which differentiated valuers results in the initial simulation. It can now be concluded that depreciation is a significant factor when accounting for the added value of improvements in the analysis of improved sales when valuing land in highly urbanised locations.

Where the direct comparison method of valuation by reference to vacant land sales cannot be employed, the impact on the lack of simplicity and transparency of the tax increases from a taxpayer perspective. In the absence of vacant land sales, the approach used to determine land value needs to be articulated to the taxpayer as constituting the initial step in assessing this tax. Valuing authorities must therefore provide a clear pathway for the taxpayer to understand the valuation process and principles used to value either land or the added value of improvements. Whether the taxpayer agrees with the process or principles which underpins their valuation, is not and should not be of primary concern to the valuer or valuing authority. What should be of concern, is the ability to understand how the value was determined.

While the option exists for the transition to an alternate bases of value in Australia, as adopted in the capital cities of New Zealand, the overriding principle for maintaining land as the base of the tax remains its neutrality. Thus the land value is not distorted by improvements of varying size, dilapidated condition and non-conforming uses. To this end land as the base of land tax may continue to be used in Australia, while mitigating issues of simplicity to some degree and transparency to a greater degree through a defined and articulate valuation process.

What this paper does highlight is that any move to increase the revenue contribution from land taxes must in the first instance be accompanied by a strengthening of the base of the tax. Only with an efficient and simple base which is able to be easily administered and clearly measured, can the debate about land tax reform move to issues such as how to share the revenue between tiers of government, how to defend the inclusion of a recurrent State land tax on the principle place of residence, or what other taxes should be reformed, and then how the revenue expended.

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Annexure: Result Summaries

Table 4: *Residential simulation result summary.*

	11 Fiction Street	10 Fiction Street		15 Fiction Street		20 Fiction Street	
Selected property attributes							
Sale Price	$970,000	$785,000		$650,000		$550,000	
Age/last upgrade of improvements	New	10 years		Not stated		Not stated	
Simulation results							
Initial (excluding 11 Fiction Street)							
Land Value Mean (Initial)		$465,676		$459,480		$486,241	
Land Value Mean STDEV		17.0%		16.4%		11.2%	
Revised (including all properties)							
Land Value Mean (Revised)	$477,326	$451,863		$448,122		$463,041	
Land Value Mean STDEV (% Change over initial simulation)	5.6% (n/a)	10.3% (–39%)		12.6% (–23%)		13.0% (16%)	
Land to Improved Value Ratio (Mean)	49.2%	57.6%		68.9%		84.2%	
Survey response from Initial Simulation of Most and Least relevant Sale		Number	%	Number	%	Number	%
Most relevant sale		5	21.7	3	13.0	15	65.2
Least relevant sale		12	52.2	5	21.7	6	26.1

Table 5: Retail simulation results summary.

	22 Main Street	15 Main Street		5 Bank Road		20 Main Street	
Selected property attributes							
Sale Price	$900,000	$860,000		$830,000		$640,000	
Age /last upgrade of improvements	1 month	7 years		15 years		50 years	
Simulation results							
Initial (excluding 22 Main Street)							
Land Value Mean (Initial)		$566,467		$583,889		$566,989	
Land Value Mean STDEV		10.2%		9.8%		8.2%	
Revised (including all properties)							
Land Value Mean (Revised)	$542,152	$549,890		$541,939		$531,439	
Land Value Mean STDEV (% change over Initial Simulation)	1.9% (n/a)	4.4% (–56%)		6.5% (–33%)		6.0% (–27%)	
Land to Sale Price Ratio (Mean)	60%	63.9%		65.3%		83%	
Survey response from Initial Simulation of Most and Least relevant Sale		Number	%	Number	%	Number	%
Most relevant sale		6	26.1%	0	0	17	73.9
Least relevant sale		7	30.4%	12	47.8	4	17.4

Table 6: *Survey responses on criteria for determining highest and best use of both residential and retail land.*

Factor	Ranking	Score
Demand for the improvements	1	64
Age of improvements	2	66
Permissibility of improvements	3	76
Actual size to permitted size of improvements	4	81
Design & aesthetics of improvements	5	85

N.B. Lowest score equals highest ranked preference