

June 2021
TTRP 21-08

Treasury Technical Research Paper Series

The economic costs of transfer duty: a literature review

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Acknowledgement of country

NSW Treasury acknowledges that Aboriginal and Torres Strait Islander peoples are the First Peoples and Traditional Custodians of Australia and thank them for their custodianship of Country – land, seas and skies. We acknowledge the diversity of First Nations cultures, histories and peoples, recognise their enduring connection to our State, and we pay our deepest respects to Elders past, present and emerging.

The views expressed in this paper are those of the authors, and should not be attributed to the NSW Government, NSW Treasury, or KPMG Australia. The authors thank Madeleine Tan for research assistance and George Verikios for helpful comments.

Executive Summary

The 2020-21 NSW Budget announced that the NSW Government is considering replacing transfer duties and the existing NSW land tax with an alternative, broad-based property tax based on unimproved land values. This literature review examines empirical evidence on two aspects of this potential reform, with the goal of informing public debate about the merits of the proposal. Specifically, the paper examines the effect of transfer duty on the volume of housing transactions, and the welfare costs of transfer duty as compared with a broad-based land tax.

An efficient tax system will raise a given amount of revenue in a manner that minimises unintended distortions in behaviour. Some taxes are more distortionary than others, meaning that they are relatively inefficient vehicles for raising revenue. Few taxes are less efficient than transfer duties. As set out in the Henry Tax Review (2010), land taxes can be one of the most efficient taxes available to government for raising revenue. Replacing transfer duties with a broad-based land tax would allow Governments to preserve the revenue needed to fund important public services, while at the same time delivering improved economic welfare.

Transfer duties discourage property transactions by raising the costs of transacting. Generally, a property transaction will increase economic welfare because property ownership is transferred to the person or entity that values the property highest. When property buyers and sellers are discouraged from transacting the allocation of properties across users will be sub-optimal. In addition to discouraging property transactions, transfer duty discourages capital investment in property, further distorting the allocation of resources in the economy.

Our interpretation of the empirical evidence, based on Australian and international studies, is that a 100 basis point decrease in the rate of transfer duty would increase property transactions by about 10 per cent. Most of the studies we reviewed that focused on the impact of transfer duties on transaction volumes were conducted in the context of a narrow focus on changes in transfer duty rates.

Two recent studies of property tax reforms in the ACT examine a slightly different tax change – a reduction in transfer duty accompanied by a broadly revenue-neutral increase in land tax. The effect of transfer duty reductions on transaction volumes appears similar to that found in other empirical studies. This effect does not appear to be significantly altered by the associated increase in land tax.

Considering the combined evidence of all the studies enables us to estimate the likely effect of abolishing transfer duty in NSW. We deduce that a reasonable expectation is that transaction volumes would increase by between 40 and 70 per cent, with 50 per cent being the most likely outcome.

To quantify the allocative efficiency of a tax, economists measure the loss of economic welfare that the tax induces per dollar of revenue that it raises. The marginal excess burden (MEB) of a tax is the loss of economic welfare due to a small increase in that tax, expressed in cents per dollar of additional revenue raised. Similarly, the average excess burden (AEB) of a tax is the loss of economic welfare due to the introduction of the entire tax, again expressed as cents per dollar of revenue raised. The MEB is typically used to consider the implications of a small increase/decrease in a tax while the AEB metric is useful for considering the implications of abolishing a tax.

We review a range of studies that have estimated MEBs and/or AEBs for transfer duties and for various types of land taxes. Note that in addition to discouraging property transactions transfer duties also increase the cost of investment in property development, which reduces such investment and, by extension, the supply of property services. The studies that we review capture these two sources of distortion in varying degrees.

A reasonable interpretation of the empirical evidence relating to the efficiency of transfer duties is that the MEBs of residential and non-residential property are in the vicinity of \$0.90 and \$1.00 respectively, per dollar of revenue raised, and that the corresponding AEBs are in the vicinity of \$0.50 and \$0.60 per dollar of revenue raised.

A reasonable interpretation of the evidence relating to the efficiency of land taxes is that a flat rate levied on the unimproved value of all landholdings is likely to be welfare enhancing. The evidence also suggests that even in the forms currently implemented in NSW, land taxes and municipal rates are significantly more efficient ways for governments to raise revenues than are transfer duties. This suggests that a switch in the tax mix that reduces reliance on transfer duties and replaces the revenues with a broad-based land tax would significantly enhance the economic welfare of NSW residents.

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1. Introduction

Taxes are designed to raise revenues to fund government spending (e.g., on infrastructure, public services, welfare etc) and/or to specifically influence behaviour (e.g., discourage cigarette smoking). In a modern economy transfer duties have no special role other than to raise revenue. Like all taxes transfer duties will influence behaviour and distort the allocation of resources. However, unlike taxes that specifically target behaviour, such as tobacco taxes, the distortionary impact of transfer duties on resource allocation is negative for the economy.

In NSW transfer duty is generally payable on the purchase or acquisition of interest in a property. In this context property includes residential dwellings, including investment properties and holiday homes, commercial or industrial properties and businesses that include land. In this paper we will distinguish duty paid on residential property transfers from duty paid on non-residential property assets.

The duty, which is levied on the value of the property being transferred, is progressive with the marginal rate of duty progressively increasing across six value brackets ranging from 1.25% for the lowest bracket (property valued at \$14,000 or less) to 5.5% for the top bracket (greater than \$1,033,000). A premium rate applies to residential properties valued over \$3,101,000 with duty charged at 7% on every dollar of value above this threshold. The premium rate is pro-rated in the case of residential properties that are also used for business purposes and capped in the case of large properties (greater than 2 hectares).

Transfer duty can be conceptualised as a tax on two types of economic activity: first, transaction (or turnover) of existing property assets; and second, investment in property assets (i.e., development of new and existing properties).

1.1. Transaction of property assets

Properties are long-lived assets and over time owners may re-assess the value of the services generated by their property as circumstances change. The optimal location and physical structures required by a business is likely to change over its life-cycle. Changes in technology, preferences and markets will also change the optimal use of land and structures over time. Similar arguments can be made for households. The optimal location and dwelling structure for a household may change over the course of a family life-cycle. Changes in preferences (tastes) may also influence the optimal location and dwelling structure. In addition, the optimal location for a household is likely to be influenced by the availability of employment opportunities.

The market for buying and selling existing property assets is highly developed and serves the purpose of facilitating the transfer of properties to their highest value use. Transfer duties are a tax on property transactions, which introduces inertia into the property market by increasing the costs of relocating for businesses and households. Since households and businesses can avoid this tax by not transacting property, they are discouraged from engaging in transactions that re-allocate property assets from low value to high value use.

The effect of transfer duties on transaction volumes can be measured empirically, by looking at cases where transfer tax rates have been changed, or by looking at variation in transfer tax rates between jurisdictions. Evidence of this effect is examined in section 2 of the paper.

1.2. Investment in property assets

Transfer duties also affect the incentives to invest in property assets, because the duties are levied on the market value of land being transacted. Capital improvements account for roughly half of the market value of NSW property, so that roughly half of the resulting revenue constitutes a tax on capital rather than on land.

The unimproved component of land (in loose terms the land in its natural state) is immobile. The improved value of land captures the value of transformations of unimproved land, such as connection to services and the construction of buildings and other structures. For convenience we will refer to these transformations as developments. The developments generate services that have a market value. The market value of a property with developments will comprise the valuation that the market makes for the services that the property will yield, including the services generated by the unimproved component of the land and the services generated by the developments.

While the value of unimproved land may be impacted by a tax, the services generated by the unimproved component of the property are not impacted. In contrast, the amount and nature of developments can be impacted by a tax because developments are the consequence of investment decisions made by individuals or businesses. Capital is highly mobile and investors seek to maximise after-tax returns on their portfolios. This means that investment in property development will be sensitive to expected post-tax rates of return. In the short term transfer duties reduce the post-tax returns to property development. In the longer term, financial capital can more freely move between industries, regions and countries in search of the best (after tax) return. Thus, in the long run, the required post-tax rate of return on capital is effectively determined on global capital markets. The economic cost of taxing property development through transfer duties is that there will be less investment in property development than would be the case in the absence of transfer duties. This in turn means that transfer duties reduce the quantity (and/or quality) of property services produced and consumed.

For businesses, the higher cost of investing in property development shifts incentives away from using buildings and structures and towards using other factors of production. For households purchasing residential services (either through ownership or rent of residential buildings) the increased cost of investment will lower their consumption of residential services in favour of other forms of consumption.

Property taxes impact the returns on property relative to all other assets, which impacts investment decisions. Changes in investment returns impact how much households will consume and how much they will invest and the composition of assets in their investment portfolio. This means that property taxes can have significant flow-on impacts on other parts of the economy. For this reason, computable general equilibrium (CGE) models, which

examine how changes in one part of the economy flow through all other parts of the economy, are well-suited to analysing property taxes.

Section 3 of the paper summarises evidence regarding the allocative efficiency of property taxes, incorporating their effects on transactions and investment. The majority of the papers considered use CGE models to estimate the welfare cost of property taxes per dollar of revenue raised, facilitating comparison of transfer duties with various forms of land tax.

1.3. Economic framework for a comparison between studies

Economists distinguish between income and substitution effects arising from tax changes. A tax increase leaves households with less income, so they typically consume a little less of all goods – this is the income effect. A tax increase also alters relative prices between goods, typically lowering consumption of the taxed good relative to the consumption of other goods – this is the substitution effect.

The two broad groups of studies examined in this review differ in how they capture the income and substitution effects. The empirical studies of the effect of transfer taxes on transaction volumes typically do not make the distinction, reporting the combined income and substitution effects together.

In contrast, the CGE studies of marginal excess burden concentrate on the substitution effects. In general equilibrium models, tax revenue is typically returned ‘lump-sum’ to taxpayers, modelling the fact that government revenue is spent on government services. This modelling practice means that the income effect of a tax change is removed, and only the substitution effect remains.

The intersection between these groups of studies is presented by tax reforms that are underway in the Australian Capital Territory (ACT) and which are now proposed for NSW. In principle, a broad-based land tax is non-distortionary and can be thought of as a lump-sum tax. So the ACT’s imposition of a broad-based land tax as a revenue-neutral replacement for transfer duty provides empirical evidence that isolates the substitution effect arising from the abolition of transfer duty. Box 1.1 provides more detail on these distinctions.

Section 4 of the paper summarises the review’s findings.

Box 1.1 Economic framework for assessing tax reform

The figure below provides a stylised framework for interpreting the empirical studies that measure the distortionary impacts of transfer duty. The top panel summarises the behaviour of utility maximising households. Households take all prices as given and choose a mix of property transfers and a bundle of all other goods and services (hereafter OG&S) that maximise their utility subject to the budget constraint.

In the absence of a tax on property transfers, households choose to consume a combination of property transfers and OG&S labelled A , obtaining utility U_0 . The initial budget is represented by M_0 . The initial budget constraint shows combinations of OG&S and property transfers that households can afford. The maximum quantity of OG&S households can purchase is $\frac{M_0}{P_0^o}$, where P_0^o is the initial price of OG&S. Analogously, the maximum quantity of property transfers households can purchase is $\frac{M_0}{P_0^p}$, where P_0^p is the initial pre-tax price of property transfers. The slope of the line representing the budget constraint is the price ratio $\frac{P_0^p}{P_0^o}$.

If a duty is levied on property transfers, households choose a new consumption bundle, B , obtaining utility U_1 , which is lower than the utility attained prior to the introduction of the tax. The duty increases the price of transfers to P_T^p , so with the original budget the maximum quantity of property transfers households can now purchase is $\frac{M_0}{P_T^p}$ and the slope of the budget constraint increases to $\frac{P_T^p}{P_0^o}$.

Relative to point A the optimal mix at point B contains fewer property transfers and more OG&S. The move from point A to point B incorporates a substitution effect, where households changes their consumption mix in favour of OG&S because the price of property transfers has increased relative to the price of OG&S, and an income effect where households consumes less of both OG&S and property transfers because the tax reduces disposable income.

To decompose the income effect and substitution effects, we can identify the amount of income, M_1 , that delivers the post-tax level of utility, U_1 , when relative prices are held at their pre-tax level of $\frac{P_0^p}{P_0^o}$. The optimal combination of OG&S and property transfers that maximises household utility now is represented by the point labelled C . Note that at this point the household consumes less of both OG&S and property transfers than is the case at point A . The movement from A to C is caused by the income effect and the shift from C to B is the pure substitution effect. The income effect and the substitution effects both reduce property transfers, while for OG&S the income effect is negative but, in this example, is more than offset by a positive substitution effect.

The implication of households' optimising behaviour can be mapped to a demand curve, making it easier to analyse the distortionary impact of the tax. In the lower panel we map the combinations of price and quantity consumed of property transfers identified in the top panel.

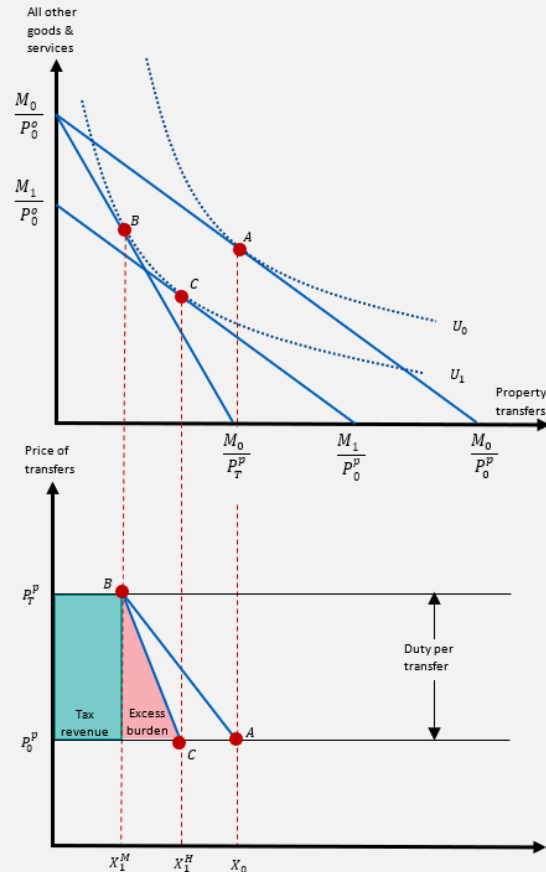
Point A shows the quantity of property transfers demanded at price P_0^P is X_0 in the pre-tax equilibrium. Point B shows the quantity of property transfers demanded at price P_T^P is X_1^M when duty is imposed.

The line segment AB is a component of the usual (Marshallian) demand curve for property transfers while the line segment AC is the compensated (Hicksian) demand curve. The amount of revenue collected from the duty is given by the area shaded green – this is a transfer from households to the government. The deadweight loss (or excess burden) associated with the tax is given by the area of the triangle shaded red. This represents the economic cost to society associated with the distortion in behaviour introduced by the tax that leads to lower than optimal consumption of property transfers.

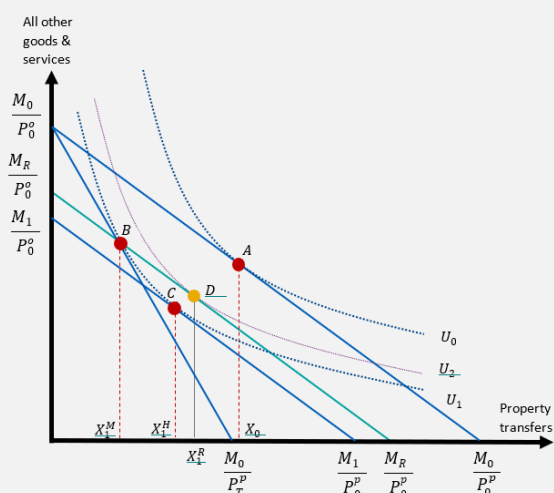
The studies that we review relating to the impact of transfer duties on transaction volumes generally provide evidence about the slope of the (Marshallian) demand curve in the vicinity of the price and quantify observations in the historical data set they are analysing (e.g., the line segment AB). Ideally, for the purpose of understanding the distortionary impact of transfer duties it would be better to use evidence related to the compensated demand curve, which corrects for the non-distortionary income effect.

The studies of the ACT property tax reforms that we review include a natural correction for the income effect because the dataset they analyse includes increases in land taxes designed to replace revenues lost from reductions in transfer duties. The increases in land taxes in the ACT have been done in a way that is largely non-distortionary and so can be conceptualised as a pure income effect. This is shown in the diagram below.

The studies that we review that are focused on measuring the efficiency of transfer duties and land taxes are largely based on Computable General Equilibrium modelling where, by design, the income effect is removed. These studies focus on measuring the size of the triangle shaded red in the diagram above, in an economy-wide context where the interactions of the property market with other markets in the economy is captured. From an economic welfare perspective these interactions may be important where there are significant distortions in other parts of the economy.



Transfer duty abolished and replaced with a broad-based land tax



The ACT property reforms, and those proposed for NSW, involve replacing transfer duties with broad-based land taxes such that the present value of the tax take is expected to be unchanged. The supply of land is essentially fixed so imposing a tax on land does not distort its use – it simply results in a transfer from landholders to the government. In this sense we can think of the land tax as a negative income effect.

The adjacent figure examines the case where transfer duty is replaced by a revenue-neutral land tax.

Point *B* is the starting point, with transfer duty in place, a budget of M_0 and relative prices $\frac{P_T^p}{P_0^c}$. Abolishing transfer duty restores the price of transfers to P_0^p . Because the land tax generates the same present value of revenue as transfer duty, Point *B* is also affordable with a budget of M_R and relative prices $\frac{P_0^p}{P_0^c}$. That is, replacing transfer duty with a revenue-neutral land tax creates a new budget constraint, M_R , that passes through point *B*.

With the new budget constraint M_R and relative prices $\frac{P_0^p}{P_0^c}$, households choose to consume at point *D*. This choice provides a welfare improvement, increasing utility from U_1 to U_2 .

The proposed reform shifts households from point *B* to point *D*. The ‘Slutsky decomposition’ separates this shift into a substitution effect (*B* to *C*) and an income effect (*C* to *D*).

Most empirical measures of the effect of removing transfer duty indicate the size of a movement from *B* to *A*. Replacing transfer duty with a broad-based land tax is likely to result in a movement from *B* to *D*. The difference in transaction volumes between points *A* and *D* is a pure income effect.

While not completely conclusive, the evidence we review from the ACT suggests that the income effect on demand for property transfers is small. We can conclude that the empirical studies provide a reasonable indication of how the proposed NSW reform would increase transaction volumes.

2. Turnover

Transfer duties make the cost of transacting property higher, which discourages property transactions. Generally, a property transaction will generate an increase in economic welfare because property ownership is transferred to the person or entity that values the property highest. When property buyers and sellers are discouraged from transacting the allocation of existing properties across users will be sub-optimal. For example, the owner of a four bedroom house may no longer have the need for a house of that size but the net benefits of a round trip involving selling their existing house and purchasing a more appropriate residence must cover the expected cost of transfer duty on the transactions as well as any other costs of moving (e.g., conveyancing, removalists, disruption etc.). Abelson (2016) provides some guidance on the potential magnitude of this effect by estimating a utilisation rate and comparing it across different types of dwelling in Greater Sydney. The utilisation rate was specified to be the ratio of “spare” bedrooms to the total number of bedrooms, where “spare” bedrooms were measured as the number of bedrooms in excess of persons in a dwelling. He found that the utilisation rate was lowest for private rental dwellings at 16.4 per cent and highest for owner-occupied dwellings at 25.6 per cent.

While the conceptual argument is clear, economists have found it difficult to estimate the economic cost of the misallocation of the existing stock of properties across users. Indeed this misallocation cost was not captured in the economic modelling on transfer duties reported in the Henry Tax Review (2009) and this was explicitly acknowledged as a limitation that under-estimated the welfare costs of transfer duties. The empirical work has focused on measuring the impact that transfer duties have on the volume of transactions. This facilitates estimates of the welfare loss associated with the misallocation of the existing stock of properties.

A reduction in the volume of property transactions affects the volume of activity in other parts of the economy, in addition to reducing the efficiency with which the existing stock of properties is used. A reduction in property transactions will have a negative impact on businesses providing real estate and conveyancing services. Similarly, fewer property transactions may have a negative impact on businesses that make and deliver goods and services that are used to set up a new home or business. This may include the manufacture and retail of furniture, white goods, fixtures and fittings, commercial plant and equipment and building services related to renovations and re-refurbishments.

In the remainder of this section we focus on the empirical literature relating to the residential dwelling sector and summarise the evidence relating to the impact of transaction taxes on the volume of property turnover. The review is organised in two parts. The first part, reported in section 2.1, covers studies that focus on dwelling transactions and the second part, reported in section 2.2, covers studies that focus on household mobility. While dwelling transactions and household mobility are intricately linked we consider the two strands of literature separately to deduce any additional insights by identifying areas of commonality and areas of divergence. The empirical evidence relating to dwelling transactions in section 2.1 is further broken down into two parts: the first deals with studies that analyse housing

transaction volumes in the context of changes in property tax rates, including those generated by progressive tax rate notches; and the second deals with studies that analyse housing transaction volumes in the context of duty holidays and permanent reductions in capital gains taxes.

2.1 Impact of taxes on transactions

Housing turnover is defined as the number of transactions where the ownership of a residential property is transferred (e.g., Leal et al (2017)). The housing turnover rate expresses housing turnover as a share of the stock of residential properties. These definitions of turnover do not distinguish between new and existing residential properties. It may be the case that the degree of misallocation of new residential properties across users is lower than is the case for older properties that were developed in economic and social environments that differ significantly from the present. We note that the transactions of new properties are likely to be stable relative to transactions of existing properties. Thus, studies that capture the relationship between transfer duties and changes in turnover rates provide evidence that is directly relevant to estimates of the misallocation of the existing stock of residential property across users.

Evidence from studies of the impact of transfer taxes on transaction volumes

We have identified 15 empirical studies of the effect of transfer taxes on transaction volumes from various jurisdictions around the world, 11 involving permanent tax changes and 4 studies of temporary changes. There is considerable agreement between these studies, with a typical finding that a 100 basis point increase in transfer duty will reduce transaction volumes by about 10 per cent, although some studies report larger effects on volumes, and a couple suggest results close to zero or even negative.

Two recent Australian studies have examined the effects of reforms in the Australian Capital Territory (ACT), which has been gradually lowering transfer duty and increasing land tax and local rates since 2012.

- COPS (2020) compared transaction volumes in the ACT with transaction volumes in neighbouring parts of NSW, finding that a 10% reduction in stamp duty is associated with a 6% – 7% increase in the number of property transactions.
- TTPI and NATSEM (2020) compared transaction volumes in the ACT with other Australian State capital cities, finding the reform has decreased volumes by 6-7% for houses and 23% – 24% for units.

Of these two studies, the COPS (2020) results appear reasonable, while we have significant reservations about the TTPI and NATSEM results. The COPS (2020) results agree with theoretical predictions. Moreover, the data used provide a clear natural experiment, contrasting sales in the Canberra region that are subject to ACT taxes with sales in the Canberra region that are subject to unchanged NSW taxes.

In contrast, the TTPI and NATSEM (2020) data provide a comparison with distant and unrelated capital city markets. These cities have their own supply and demand dynamics, and over a period of less than a decade there could be many reasons why transaction volumes may appear to grow more slowly in the ACT than in other cities. The authors themselves state:

“...the difference-in-difference approach to estimate the effect of the reform was problematic. The difficulty in finding a convincing control group appears to be a substantial one. The estimates seem to be driven more by the control group choice than by the territory’s tax reform. We thus strongly encourage readers to interpret and apply these results cautiously.” p. 34-35

A third Australian study, Davidoff and Leigh (2013), uses variations in average duty rates between Australian States during 1995-2003, to finding that a 1 per cent increase in stamp duty lowers turnover by 0.3 per cent in the first year, and by 0.6 per cent if sustained over a 3-year period. This is very similar to the results from COPS (2020). The Davidoff and Leigh (2013) study is widely cited in the international literature. It carries particular weight as it is the only study to date of Australian transfer duty data that has been published in a high quality peer-reviewed economics journal.³

Table 2.1 summarises findings from eleven Australian and international studies relating to the impact of permanent changes in transfer taxes on the volume of residential property transactions. The entries shaded blue are directly comparable because the results can be interpreted as the response of transactions to a 100 basis point change in the rate of transfer duty (i.e., the percentage reduction in transaction volumes arising from a 1 percentage point increase in duty). For these studies the key findings are:

- there is a high degree of concordance in the results, which range from around 1 per cent to 18 per cent change in volumes, with a central tendency around 8 to 9 per cent;
- the lowest estimate in this group of 0.7 per cent relates to the impact of a tax on residential transactions of US\$1 million or more in New York and New Jersey; and
- the highest estimate was for Australia at 18 per cent.

³ Results from another recent Australian study by Steinhauser et al (2019) are not included in table 2.1 because they are not directly comparable. Steinhauser et al (2019) estimate the elasticity of the value of all property transactions with respect to a change in the transfer duty rate. Thus, the elasticities they report capture both a transaction volume and price impact. Depending on the data used Steinhauser et al (2019) estimate that a 10 per cent increase in the transfer duty rate reduces the value of sold properties by between 0 and 4 per cent. As reported in table 2.1 Davidoff and Leigh (2013) estimate that a 10 per cent increase in the rate of transfer duty reduces transaction volumes by about 3 per cent in the first year and in a separate model estimate the response of house prices to be about 3 per cent in the first year. Insofar as these price and volume elasticities can be added to infer an elasticity for the value of sold properties of 6 per cent, there is a degree of conformity with the Steinhauser et al (2019) estimates.

With regard to the international evidence we found only one study with a contrary finding. Slemrod et al (2017) found no evidence of a volume effect on transactions from an increase in transaction taxes in the Washington DC housing market during the period 1999 – 2010.

Table 2.1 Studies of impacts of permanent transaction tax changes⁴ on transaction volumes

Author(s)	Data used	Size of impact	Description / Discussion
CoPS (2020)	ACT administrative data, 2008-09-2016-17 and bordering NSW suburbs from NSW Valuer-General	A 100 basis point reduction in the duty rate increases property transactions by about 12%.	A combination of CGE and econometric modelling was used to assess the economic efficiency gains from the ACT's 20-year tax reform plan that began in 2012, including an aim to eliminate stamp duty on property transfers among others. Revenue raised from increases in general rates on properties instead.
Davidoff and Leigh (2013)	Postcode-level average Australian house prices, 1993-2005 (ACT/NSW/QLD/WA), 1995-2005 (VIC), 1998-2005 (NT), 2003-2005 (TAS).	A 100 basis point increase in the duty rate decreases sales by about 8% in the short run and 18% in the longer run.	Analyses the impacts from bracket creep between 1995-2005 (average stamp duty goes from 2.4% to 3.3%). Uses an instrumental model with postcode fixed effects and year fixed effects. The number of sales is the measure of turnover in both the one-year and three-year analysis. A 1 per cent increase in stamp duty lowers turnover by 0.3 per cent in the first year, and by 0.6 per cent if sustained over a 3-year period.
TTPI and NATSEM (2020)	CoreLogic monthly suburb level data, 2009-2019	Number of house sales have fallen by 6-7% and unit sales by 23-24% from the new tax system in the ACT.	Assesses the impact and outcomes from the ACT 20-year tax reform, similar to CoPS (2020). Runs a difference-in-difference estimation using capital cities in other states and NT as a control group. Uses a "reform dummy" as regressor.
Fritzsche and Vandrei (2019)	Single family homes for almost all German states, Jan 2005 -Dec 2014	A 100 basis point increase in the transfer tax yields approximately 7% fewer transactions.	German real estate transfer tax (RETT) is a flat tax rather than a progressive tax as in other parts of the world. RETT was previously set at the federal level but moved to states' control in 2006. Analysis exploits the rate variation across states. Finds that the anticipation effect was sizeable: 41% more transactions for

⁴ Note that statutory changes in transfer duty rates are not necessary for there to be permanent changes in the effective rate of transfer duty. Bracket creep in progressive duty schedules will result in the effective rate of duty rising.

Author(s)	Data used	Size of impact	Description / Discussion
			the month just before and 42% fewer transactions just after. Finds lock-in effect.
Maattanen and Tervio (2018)	Helsinki, Finland 2004 data	A 100 basis point increase in transfer tax reduces volumes by 10.5%	Calibrated the model (with heterogeneous household income and housing quality) to generate a counterfactual of a swap from a transaction tax to a revenue equivalent ad valorem property tax. A 2-percentage point increase in transfer tax reduces volumes by 21%.
Borbely (2018)	Scottish residential transactions, April 2012 - December 2015	A 100 basis point increase in effective SDLT tax rates leads to a 5.6% reduction in transaction activity (on average).	Analysis of the UK's Stamp Duty Land Tax (SDLT) and new Scottish Land and Buildings Transfer Tax (LBTT), exploiting the tax notches. Finds substantial re-timing effects. A unit increase in effective tax rates leads to a 5.6% reduction in transaction activity (on average).
Petkova and Weichenrieder (2017)	Houses (single family homes), apartments (investors) and vacant lots in Germany, 2003-2014	Increasing RETT by 1% is associated with a decline in transactions by 0.23% for single-family houses but not for apartments. Largest impact on vacant lots –tax elasticity close to -1 (i.e., a 1% increase in the RETT results in a 1% decrease in tax revenue from vacant lots).	Analyses the RETT, similar to Fritzsche and Vandrei (2019). This study considers different types of residential property segments and differences in their ownership type. Assumes houses are mainly owner-occupied while apartments are investor owned. Difference between market segments attributed to decreased fungibility of the asset (apartment) when transfer tax rises. Concludes that a tax elasticity of -1 on vacant lots indicates that it is at the peak of the Laffer curve.
Berard and Trannoy (2017)	Housing markets in select French departments, Jan 2012 - Oct 2015	A 100 basis point increase in RETT decreased volumes by 6.6% in the 10-month period that followed	Anticipation effect on volume of transactions estimated at 28% for the month preceding the RETT increase. A 0.7 percentage point increase in RETT decreased volumes by 4.6% in the 10-month period that followed.
Kopczuk and Munroe (2015)	New York and New Jersey residential properties, 1996-2011	A 100 basis point tax introduced eliminated 0.7% of transactions	A mansion tax was introduced in New York and New Jersey in 1989 and 2004, respectively. This is on top of the usual real estate transfer taxes, creating tax rate notches or discontinuities that are explored in the analysis. The volume of missing transactions above the notch exceeds those

Author(s)	Data used	Size of impact	Description / Discussion
			<p>bunching below the threshold (beyond the usual extensive-margin response), indicating incentives for buyers and sellers not to transact. The effect is described as “market unravelling” and is attributed to bargaining of buyers and sellers.</p> <p>A one-percentage point land transfer tax introduced eliminated 2,800 transactions out of 380,000 over the period (0.7% of transactions)</p>
Dachis, Duranton and Turner (2012)	Single family home sales in Toronto, Jan 2006-Aug 2008	A 100 basis point increase/introduction of the municipal LTT decreases the number of transactions by 13.6%	<p>A municipal Land Transfer Tax (LTT) was introduced in Toronto in 2008. This study uses a difference-in-difference approach to tease out its impacts on prices and volumes of transactions. Uses the number of transactions to measure mobility. Finds that Toronto residents are less mobile relative to their nearby suburban neighbours after the imposition of the LTT than before based on the number of transactions by distance to border.</p> <p>Introduction of a 1.1% tax caused a 15% decline in the number of sales.</p>
Slemrod, Weber and Shan (2017)	Residential housing in Washington DC, 1999 to 2010	Find no impact	<p>Exploited the tax rate notches to examine the presence of the lock-in effect.</p> <p>Two tax notches assessed. First goes from 2.2% to 3.0% for all properties up to \$250,000 as at 1 Jan 2003 (notch removed in 2014). Second goes from 2.2% to 2.9% for all properties up to \$400,000 as at 1 Jan 2006.</p> <p>Finds no volume effect/lock-in effect.</p>

Evidence from studies of transfer tax holiday or capital gains tax changes

Indirect evidence relating to the sensitivity of property transaction volumes to changes in transfer duties can also be found in the empirical literature that focuses on the housing market impacts of stamp duty holidays or permanent reductions in capital gains tax. The results of a selection of such studies is summarised in Table 2.2.

The studies by Besley, Meads and Surico (2014) and Best and Kleven (2018) analysed the temporary stamp duty holiday introduced in the UK from September 2008 to December 2009 to stimulate the housing market, which had been negatively impacted by the global financial crisis. The stamp duty holiday applied to only one segment of the market (transactions in the range £125,000 to £175,000). Besley, Meads and Surico (2014) found that transaction

volumes increased by about 8 per cent but that this effect was rapidly reversed when the tax holiday finished, suggesting that the uplift in transaction volumes was largely due to bringing forward transactions that would have happened anyway. In contrast, Best and Kleven (2018) found that transaction volumes increased by about 20 per cent and that less than half of this uplift was reversed in the post-holiday period.

Capital gains taxes that are paid on sale of a property are similar to transaction taxes to the extent that they can be avoided by not transacting. Shan (2011) found that capital gains tax relief on property introduced in the US in 1997 significantly increased transactions in segments of the market (e.g., sales of houses with up to \$500,000 in capital gains increased by 19-24 per cent). Heuson and Painter (2014) analysing the same tax change found that increases in transaction volumes were large and widespread demographically and geographically. At a geographic level they found that the elasticity of housing turnover with respect to price increased by between 28 per cent (South) and 110 per cent (Midwest)

Table 2.2 Studies of impact of temporary transaction tax changes on transaction volumes

Author(s)	Data used	Size of impact	Description / Discussion
Besley, Meads and Surico (2014)	UK mortgage transactions, Mar 2008 - Jun 2010	The UK stamp duty holiday is estimated to have increased transaction volumes by approximately 8%.	<p>An analysis of the stamp duty holiday in UK from 3 Sept 2008 to 31 Dec 2009 where the lower threshold was raised from £125,000 to £175,000, which effectively eliminated the 1% duty rate on transactions in this range. The average tax saving for transactions in this range was about £1500.</p> <p>The effect was reversed rapidly at the end of the stamp duty holiday, suggesting that it was mainly a re-timing of transactions.</p>
Best and Kleven (2018)	All property transactions in UK, Nov 2004 - Jan 2012	A temporary elimination of 1% of a transaction tax increased housing market activity by 20%.	<p>An analysis of the stamp duty holiday in UK in 2008-09, as in Besley, Meads and Surico (2014).</p> <p>The authors explain that the impact is a combination of a timing effect (intertemporal substitution where sales that would have occurred in the future were brought forward) and an extensive margin effect. Less than half of the stimulus effect was reversed when the tax was re-introduced suggests that the response was largely due to the extensive margin response rather than a re-timing of sales.</p>

Author(s)	Data used	Size of impact	Description / Discussion
Shan (2011)	Single-family house transactions in 16 affluent towns within the Boston metropolitan area, 1982–2008	Based on legislative changes in 2001 and 2003, a \$10,000 increase in capital gains taxes reduced sales by 6-13% relative to the semi-annual home sales rate. Sales of houses with up to \$500,000 in capital gains increased by 19-24% but did not have an effect on the sale of houses with more than \$500,000 in capital gains.	Analysed the Taxpayer Relief Act of 1997 (TRA97). Provided capital gains tax relief to those under 55 to equalise tax treatment with those over 55. The short-term effect is much larger than the long-term effect suggesting that owners took advantage of the exclusions immediately. Concludes results are evidence of “lock-in” pre-TRA97.
Heuson and Painter (2014)	Biannual American Household Survey (AHS) data by US regions, 1987-2007	House price elasticity of turnover increased by 28% in the South, 49% in the West, 95% in the Midwest and 110% in the Northeast.	Analysed the Taxpayer Relief Act of 1997, similar to Shan (2011).

2.2 Impact of transfer taxes on labour mobility

The studies by Slemrod et al (2017), Fritzsche and Vandrei (2019) and Dachis et al (2012) summarised in Table 2.1 above interpreted a decrease in transaction volumes due to transfer taxes as a “lock-in” effect or a reduction in household mobility. These studies form the intersection between the literature focused on transaction volumes in Table 2.1 and the studies summarised in Table 2.3 below that focus on the impact of transfer taxes on household mobility. The studies summarised in Table 2.3 estimate household mobility directly using household survey and micro data with a view to measuring the extent of misallocation of the housing stock.

All the studies summarised in Table 2.3 find that transfer taxes have a significant negative impact on household moves. Hilber and Lyytikainen (2017) found that for the UK 100 basis point increase in transfer duties decreased household mobility by 18.5 per cent. The Van Ommeren and Van Leuvensteijn (2005) study found that for the Netherlands a 100 basis point increase in property transaction costs decreased the mobility of households by about 8 per cent. Although this study did not distinguish transfer duties from other transactions costs the results should be applicable to transfer duties. Importantly, while the semi-elasticities estimated by Hilber and Lyytikainen (2017) and Van Ommeren and Van Leuvensteijn (2005)

relate the responsiveness of household mobility to a change in transfer taxes/costs they can equivalently be interpreted in terms of transactions.

Table 2.3 Studies of impact of transaction tax change on labour mobility

Author(s)	Data used	Size of impact	Description / Discussion
Nordvik (2001)	N/A	A transfer tax of 2.5% decreases the number of household moves over the life-cycle from 3 to 1.	Analyses the effect on mobility using a theoretical dynamic life-cycle model of housing demand.
Van Ommeren and Van Leuvensteijn (2005)	Income Panel Research (IPR) in Netherlands, 1990-1997	A 100 basis point increase in transaction costs decreases residential mobility by about 8% to 9% for moves to ownership and 8% to 13% for moves to renting.	Analyses transaction costs including transaction taxes e.g. capital gains taxes, transfer duty and sales taxes, but provides indirect evidence on mobility effects of transfer taxes. Residential mobility rate is defined as number of owner moves (to ownership or renting) as a proportion of owners. Rate is calculated based on sample of any household who moves into ownership between 1990-1996.
Hilber and Lyytikäinen (2017)	British Household Panel Survey (BHPS), 1996 to 2008	A 100 basis point increase in transfer duty decreases overall household mobility by 18.5%.	Exploit discontinuities in the UK transaction tax scheme. Study finds that short-distance and housing-related mobility is impacted by the transaction tax but long-distance and job-related moves were not. The authors conclude that transfer duty impacts do not affect labour market efficiency and are only contained to housing market. Increasing the tax rate from 1% to 3% reduces household mobility by 37%.
Eerola, Harjunen, Lyytikäinen and Saarimaa (2018)	Housing transactions and micro data for Finland, 2005-2016	A 0.5 percentage increase in the transfer tax rate decreases household mobility in co-ops by approximately 7%	Analyses the tax reform implemented in 2013 raising the effective transfer rate by 0.5 percentage points for housing co-operatives (co-ops) but not for single-family

Author(s)	Data used	Size of impact	Description / Discussion
			houses. The latter were used as a control group. Analysis accounts for spillovers between co-ops and single-family houses.
Cunningham and Engelhardt (2008)	1996 and 1998 Current Population Survey (CPS)	Homeowners affected by the TRA97 are 22-31% more likely to move than their counterparts over 55	Analyses the TRA97 impacts on mobility, similar to Shan (2011), Heuson and Painter (2014) and Biehl and Hoyt (2014). Uses a difference-in-difference approach comparing homeowners aged 52-54 against those aged 56-58 years of age.

2.3 Bottom line on transaction impacts

The international literature suggests that transfer taxes reduce transaction volumes significantly. Table 2.4 summarises the evidence in the literature relating to the impact of a 100 basis point increase in the transfer tax rate on transaction volumes. A reasonable interpretation would be that, on average, a 100 basis point increase in transfer duties reduces transaction volumes by about 10 per cent. Our interpretation is that this result would translate symmetrically for equivalent reductions in transfer duties.⁵ That is, a 100 basis point reduction in transfer duties would boost transaction volumes by just under 10 per cent.

Table 2.4 Summary of findings related to transaction response to 100 bp change in tax rate

Author(s)	Impact of a 100 bps increase on transactions	Base tax rate (changed to)
Dachis, Duranton and Turner (2012)	13.6%	0% (to 1.1%)
Hilber and Lyytikainen (2017)	18.5%	1% (to 3%)
Maattanen and Tervio (2018)	10.5%	2%
Davidoff and Leigh (2013)	8% (short run) 18% (long run)	2.4% (to 3.3%)

⁵ This conclusion is based on the use of log or semi-log model specifications to estimate the relevant elasticities over a range of base tax rates with changes in rates of 100 basis points or more considered.

Author(s)	Impact of a 100 bps increase on transactions	Base tax rate (changed to)
Fritzsche and Vandrei (2019)	7%	3.5% (to range of 3.5% - 6.5%)
Berard and Trannoy (2017)	6.6%	3.8% (to 4.5%)
CoPS (2020)	12% - 14%	4%-5% (to around 2% in steps)
Borbely (2018)	5.6%	Across a broad spectrum

In NSW the effective rate of transfer duty is around 4.0 per cent.⁶ For policy makers a pertinent question is: what would be the expected impact on transaction volumes if transfer duties were eliminated altogether? If we linearly extrapolated the Australian long run results from Davidoff and Leigh (2013) we might conclude that transaction volumes would increase by around 70 per cent (i.e., $-18\% \times 4.0 = 72\%$). While this shorthand approach gives us an approximation of how large the potential impact on transaction volumes might be if transfer duties were abolished we would have no sense of the size of the approximation errors.

An alternative estimate of the transaction response to abolishing transfer duties can be obtained by applying the same linear extrapolation method using the 10 per cent response of transaction volumes to a 100 basis point change in transfer taxes that we deduced from the broader literature. Using these assumptions we would estimate that transaction volumes would increase by about 40 per cent (i.e., $\sim -10\% \times 4.0 = 40\%$). The approximation errors associated with this lower estimate may be smaller than the estimate based on the Davidoff and Leigh (2013) results because we are averaging estimates that span a wide range of base tax rates.

The pattern in the results summarised in Table 2.4 suggest it may be possible to derive a more accurate estimate of how abolition of transfer duties might impact transaction volumes by stitching together a piece-wise approximation based on responses of transactions to 100 basis point changes in transfer duties at different levels of base rates. For example, Dachis, Duranton and Turner (2012) provide an estimate of the responsiveness of transactions when transfer duties go from zero to 1.1 per cent. At the other end of the spectrum Fritzsche and Vandrei (2019) and Berard and Trannoy (2017) provide estimates of the responsiveness of transactions when transfer duties are in the range of 3 to 4 per cent. The other studies listed in table 2.4 provide estimates of the responsiveness of transactions when base transfer duty rates are in the range of 1 to 3.5 per cent, with the CoPS (2020) study providing a comparable estimate for duty rates in the 4 to 5 per cent range.

Table 2.5 provides estimates of the cumulative response of transaction volumes to the reduction of transfer duties from 4.0 per cent to zero based on evidence relating to the

⁶ Residential transfer duty as a share of consideration paid for all residential transactions, including first home buyer transactions, averaged 3.99% in the five years to 2019-20.

transaction response within ranges for the rate of duty. The cumulative effect is the product of four duty rate reductions of one percentage point each, resulting in compounding increases in transaction volumes. The table suggests that abolishing transfer duty in NSW could increase transaction volumes by between 48.2 per cent and 53.5 per cent.

Table 2.5 Cumulative transaction response to abolition of transfer duty

Duty rate	Incremental duty rate reduction	Increase in transaction volumes	
		Lower ^a	Higher ^b
4.0% - 3.0%	100bp	7.8%	8.3%
3.0% - 2.0%	100bp	8.0%	11.4%
2.0% - 1.0%	100bp	12.1%	12.1%
1.0% - 0.0%	100bp	13.6%	13.6%
Cumulative impact		48.2%	53.5%

Notes:

- a. For the 0.0 – 1.0 per cent range we use the estimate provided by Dachis, Duranton and Turner (2012). For the 1.0 – 2.0 per cent ranges we use the average of the estimates provided by Hilber and Lyytikainen (2017) and Borbely (2018). For the 2.0 – 3.0 per cent range we use the average of the responses estimated by Maattanen and Tervio (2018), Borbely (2018) and by Davidoff and Leigh (2013) for the short run. For the 3.0 – 4.0 per cent range we use the average of the estimates in Fritzsche and Vandrei (2019), Berard and Trannoy (2017) and the lower value in CoPS (2020).
- b. In the 2.0 – 3.0 per cent range we use the average of the responses estimated by Maattanen and Tervio (2018) and by Davidoff and Leigh (2013) for the long run. For the 3.0 – 4.0 per cent range response we use the average of the estimates in Fritzsche and Vandrei (2019), Berard and Trannoy (2017) and the estimate at the upper end of the range in CoPS (2020).

Our conclusion is that a reasonable expectation of how transaction volumes will respond to a reduction in the rate of transfer duty from 4.0 per cent to zero can be formulated as follows:

- a 40 per cent increase in transaction volumes would constitute a lower bound;
- a 70 per cent increase in transaction volumes would constitute an upper bound; and
- a 50 per cent increase in transaction volumes would be the most likely outcome.

In considering the property tax reforms being contemplated in NSW, a proviso should be attached to these estimates. Most of the evidence relates to economic environments where transfer duties were explicitly changed by deliberate government policy or by the consequences of the progressive structures built into duty schedules (e.g., bracket creep or discontinuities at thresholds). Thus, while the estimates of the responsiveness of transaction volumes to changes in transfer duty rates reported in the econometric studies reviewed above are highly informative they need to be interpreted carefully in the context of reforms considered for NSW. These econometric estimates capture the joint impact of a substitution effect and an income effect on transaction volumes – see Box 1.1.

As will be discussed in the next section a broad-based land tax is non-distortionary under the reasonable assumption that the supply of land is fixed. Under these conditions a land tax induces a pure income effect. The future tax liabilities are capitalised into the value of the land. The difference between the pre and post-tax value of the land is equal to the present value of the transfer from the landowners to the government.

In the NSW reform proposal, transfer duty would be gradually replaced by a new land tax generating replacement revenue. While the reform transition approach differs, evidence from the ACT is particularly pertinent in assessing the effects of such a reform. The studies by COPS (2020) and TTPI and NATSEM (2020) of the ACT property tax reforms are important in this respect because they analyse data that contains the impacts of both elements of the reforms contemplated by NSW – that is a simultaneous decrease in transfer duty and increase in land tax.

In principle, the responsiveness of transaction volumes to changes in transfer duty rates reported in most of the econometric studies reviewed is likely to be greater than will be the case in NSW if reductions in transfer duties are coupled with increases in land taxes. The increase in land taxes is designed to be non-distortionary and to offset the income effect associated with the decrease in transfer duties. Given the similarities between the property tax reforms under consideration in NSW and those actually implemented in the ACT the evidence regarding transaction responses in the CoPS (2020) study have particular import. The CoPS (2020) study estimates that a 100 basis point reduction in the transfer duty rate increases transaction volumes by between 12 and 14 per cent in an environment where a broad-based land tax rates are being increased to offset the loss of duty revenues. If we think of the increase in land taxes as a pure income effect then we can deduce from the similarity of the CoPS (2020) estimates with those in the other studies that the income effect associated with a change in the transfer duty rate is relatively small. Additional indirect support for this conclusion can also be obtained from those studies that considered variables in their models that potentially capture income effects. For example, Hilber and Lytikainen (2017) tested the sensitivity of their results to the inclusion of a range of variables, including household income, and found these did not have a significant impact on their results. Similarly, Petkova and Weichenrieder (2017) included GDP and debt levels (to capture potential impacts of future tax increases) but found these were not significant.

Overall, we interpret the CoPS (2020) study as direct evidence that the introduction of a revenue-replacement broad-based land tax is unlikely to make a significant difference to the uplift in transactions arising from abolition of transfer duty. The similarity of the CoPS (2020) estimates with those in the broader literature, where just transfer duties were considered or where variables related to income effects were considered, lends further support to our central estimate that abolition of NSW transfer duty is expected to result in a 50 per cent uplift in transaction volumes in the long-run.

3. Excess Burden

An efficient tax system will raise a given amount of revenue in a manner that minimises unintended distortions in behaviour and, consequently, on the allocation of resources. Some taxes are more distortionary than others, meaning that they are relatively inefficient vehicles for raising revenue. Economists quantify the efficiency of a particular tax by measuring the loss of economic welfare that it induces per dollar of revenue that it raises. Specifically, the *marginal excess burden* (MEB) of a tax is the loss of economic welfare due to a small increase in that tax, expressed in cents per dollar of additional revenue raised. Similarly, the *average excess burden* (AEB) of a tax is the loss of economic welfare due to the introduction of the entire tax, again expressed as cents per dollar of revenue raised. The MEB is typically used to consider the implications of a small increase/decrease in a tax while the AEB metric is useful for considering the implications of abolishing a tax.

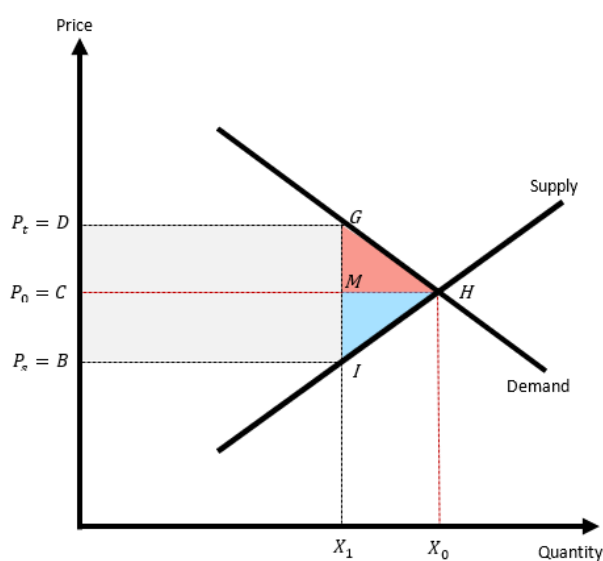
Welfare measures such as the MEB and AEB are helpful in guiding policy with regard to raising a given amount of revenue in the most efficient manner. However, these metrics do not capture potential transition costs or distributional consequences associated with changes in the tax mix, which are important considerations for policy makers.

3.1 Basic concepts

Figure 3.1 provides a stylised example of how a tax, such as transfer duty, can distort a market. In the absence of a tax the equilibration of demand and supply in that market occurs at price P_0 and quantity X_0 . The imposition of a tax at the rate t_1 results in a contraction of the quantity transacted to X_1 , an increase in the price paid by consumers to P_t and a decrease in the price received by suppliers to P_s . The tax revenue collected by the government can be deduced as the difference between the price that consumers pay for the product and the price received by suppliers multiplied by the rate of tax. In

Figure 3.1 this is represented by the rectangle $DGIB$. The welfare loss for the economy is represented by the triangles shaded blue and red. The red triangle, GHM , represents the welfare loss attributed to the consumer and the blue triangle, MHI , represents the welfare loss attributed to producers.

Figure 3.1 Stylised Model of a Tax Distortion



The burden or incidence of the tax measures how much of the tax revenue collected is paid by the consumer and how much is paid by the producer. The incidence of the tax on consumers is measured as the difference between the pre-tax and post-tax price paid by consumers multiplied by the rate of tax. This is represented by the rectangle DGMC and the remainder of the tax revenue collected (given by rectangle CMIB) represents the incidence of the tax on the producer. In the hypothetical market depicted in Figure 3.1 the burden of the tax is fairly evenly distributed across consumers and producers. This is not always the case and depends on the relative steepness of the demand and supply curves which reflect the sensitivities of consumers and producers to price (i.e., the price elasticity of demand and supply). We will return to this issue later when discussing the potential impact that removing transfer duties might have on transactions.

As discussed above the AEB of a tax is the loss of economic welfare due to the introduction of the entire tax expressed as a proportion of total revenue raised by that tax. In Figure 3.1 we can estimate the AEB of the hypothetical tax by dividing the welfare loss for consumers and producers (represented by the blue and red triangles) by the tax revenue raised (represented by the rectangle shaded grey). That is:

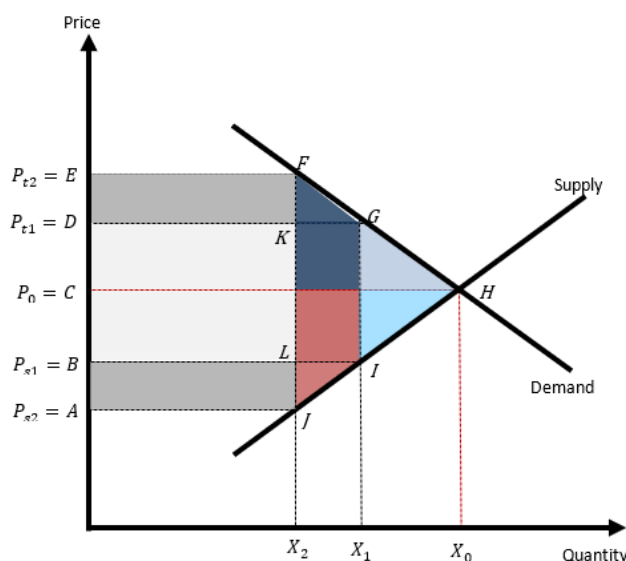
$$\text{Average Excess Burden} = \frac{GHI}{DGIB}$$

To illustrate the MEB of a tax we need to augment the model in

Figure 3.1 to show the impact of increase the rate of tax by a small amount from t_1 to t_2 . This is done in Figure 3.2. The MEB of a tax is the incremental welfare loss emanating from a small (marginal) increase in that tax divided by the consequent change in government revenue. In Figure 3.2 the incremental welfare losses emanating from an increase in the tax rate from t_1 to t_2 are identified by the areas shaded dark blue and dark red (i.e., the area $FGIJ$). The incremental impact of the tax increase on government revenues is given by the difference between the areas $EFJA$ and $DGIB$. The MEB can be calculated as follows:

$$\text{Marginal Excess Burden} = \frac{FGIJ}{EFJA - DGIB}$$

Figure 3.2 Stylised Model of a Tax Distortion – Impact of a Rate Increase



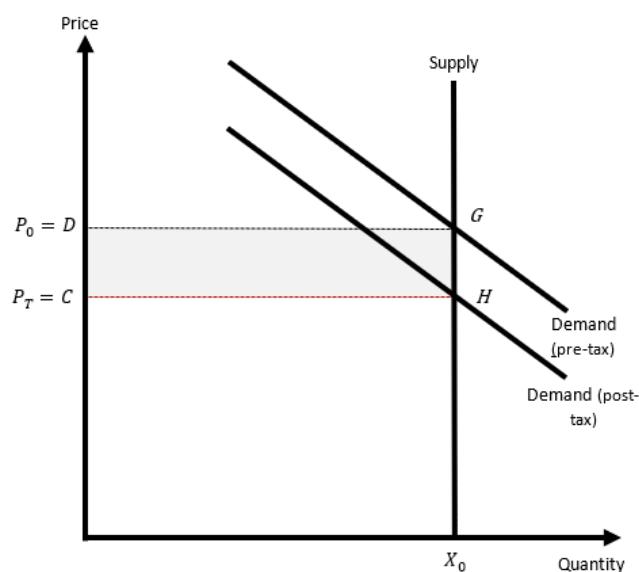
The stylised model represented in

Figure 3.1 and Figure 3.2 makes clear that the excess burden of a tax is critically dependent on the sensitivities of demand and supply to price changes (i.e., the elasticities of demand and supply). We can use this stylised model to identify conditions under which a tax will not distort the efficient allocation of resources.

Figure 3.3 depicts a situation where supply is fixed and does not respond to price. In this case the tax does not change the amount supplied – it simply results in the transfer of resources from suppliers to the government equivalent to the area CDGH (or the difference between the pre- and post-tax price multiplied by the fixed quantity supplied). The AEB and MEB is zero.

This is an important insight because it offers policy makers that need to raise revenue guidance on how to do so efficiently.

Figure 3.3 Stylised Model of a Non-distorting Tax



As will be discussed in more detail in the next section economists have estimated the welfare costs of various taxes levied by governments to identify opportunities for changing the tax mix in a way that reduces the welfare cost of raising a given amount of tax revenue. In this context transfer duties have generally been found to be one of the costliest ways to raise revenue. The challenge has been to identify an alternative tax that can raise comparable revenues at demonstrably lower cost. Land tax of some form has been a strong candidate for replacing transfer duties.

Land supply is very inelastic so it fits the characteristics outlined in the context of

Figure 3.1, suggesting it is a relatively efficient way to raise revenue relative to transfer duties. Moreover, the value of the potential tax base associated with land is sufficiently large that low rates of land tax can generate revenues commensurate with those collected through transfer duties.

The model represented in

Figure 3.1 – Figure 3.2 is highly stylised. For example, it abstracts from potentially important impacts arising from the interaction of the market depicted with the rest of the economy. Formally, it is a partial equilibrium model that focuses on one market rather than a more complex general equilibrium model, which is designed to capture the impacts of a change in a tax rate across the whole economy, not just the market(s) directly impacted.⁷ A general

⁷ In presenting this stylised model we have abstracted from potentially important technical details, particularly regarding the nature of the demand curve depicted. Hines (1998) provides a good summary of these issues, including the relationship between measures of the welfare effects of taxes and different measures of demand.

equilibrium model can shed light on the distributional consequences of tax changes and, insofar as there are distortions in other markets, capture the indirect efficiency costs of a tax.

The stylised model is comparative static and it does not provide any guidance on how the market will evolve from one equilibrium to another where the tax has been changed. Since demand and supply conditions can vary over time a single snapshot of a market/economy may provide an incomplete picture of the potential impacts of a tax change. Permanent changes in tax policy should be assessed in a long run context, abstracting from transitory cyclical factors. However, analysis of the cost of adjusting to a new tax policy must inevitably consider short term cyclical factors. This can help policy-makers develop an implementation plan that includes mechanisms to ameliorate adjustment costs. In the context of property tax reform designed to reduce the reliance on transfer duty this may include providing a property buyer with the option of paying transfer duty or an annual services levy based on some valuation of the property. Alternative transition arrangements might include phasing in policy changes, incorporating grandfathering provisions and structuring compensation arrangements.

The stylised model provides us with a useful framework for considering the removal of transfer duties and replacing them with alternative taxes that are less distortionary. While recognising the limitations of the stylised model some analysts (e.g., Freebairn, 2002 and Deloitte Access Economics, 2015) use variants of it to estimate the excess burden of transfer duties. The main limitations of the simplified model relate to the elasticities and determinants (positions) of the demand and supply curves. General Equilibrium models seek to overcome some of these limitations to generate more reliable estimates of excess burdens.

3.2 General equilibrium analysis of property taxes

The quantitative impacts of transfer duties and land taxes on economic welfare, and on the economy more generally, have been extensively analysed for Australia using Computable General Equilibrium (CGE) modelling techniques.⁸ The advantages of quantifying the welfare impacts of taxes in a general equilibrium framework are well established (see, for example, Ballard, Shoven and Whalley 1985). In CGE models the economy is conceptualised as a system of interrelated markets with the behaviour of economic agents in these markets based on well-established micro-economic foundations and with supply and budget constraints that are explicit. CGE models are practical applications of general equilibrium theory that facilitate computations that estimate how different the size and structure of the economy will be from some initial state following a change in an exogenous

⁸ There are two reasons why Australia has such a large pool of empirical evidence from GCE modelling relating to the impact of transfer duties. The first is that Australian applied economists have strong tradition in CGE modelling due in no small part to the work pioneered by Alan Powell, Peter Dixon and colleagues at the IMPACT Project and then carried on in various institutes/centres at the University of Melbourne, Monash University and Victoria University. The second reason is that transfer duties are relatively large components of government revenues, particularly for State governments, and concern about their efficiency and equity has been a recurring theme on policy reform agendas.

variable (such as the rate of transfer duty or land tax). The initial state of the economy is usually represented by a data set made up of historical input-output data and other pieces of historical data or some transformation of that data set to reflect the analyst's best estimate of how the structure and size of the economy will evolve in the future in the absence of the shock of interest.

3.3 Welfare costs of transfer duties

As discussed in the previous section transfer duties distort decisions relating to property development and to transaction of property. These distortions result in under-investment in property development and in a misallocation of the stock of properties across users/uses. The excess burdens of transfer taxes emanate from these two categories of distortions.

Table 3.1 summarises the results of CGE studies of transfer duties that report estimates of the marginal excess burden (MEB) of transfer duties. Where estimates of average excess burdens (AEB) are provided we report these as well. Similarly, where provided we report the excess burdens of residential and non-residential transactions separately. The estimates of excess burden provided by these studies are consistently high, even for the studies that capture only distortions related to property development decisions (i.e., KPMG 2010 & 2016). For residential properties these studies suggest an MEB greater than \$0.80 and an AEB in the vicinity of \$0.50. For non-residential properties the results are more disparate. Nassios et al (2019) and KPMG (2011a) estimate the MEB for non-residential property to be \$0.63 and \$0.74 respectively, which in both cases are lower than the MEB estimates for residential property. In these two studies the AEB estimates for non-residential property are higher than for residential property. Murphy (2016) estimates the MEB for non-residential property to be \$1.96, which is significantly higher than the estimates in the other studies. This study differs from others because it capture oligopolistic behaviour in key industries. This feature adds \$0.12 and \$0.35 to the MEBs for residential and non-residential properties respectively.

Table 3.1 CGE estimates of excess burdens for transfer duties

		MEB	AEB
Nassios et al (2020)^c	– residential	0.60	
	– non-residential	0.76	
Nassios et al (2019)^c	– residential	1.07	0.42
	– non-residential	0.63	0.47
Murphy (2016)	– residential	0.87	
	– non-residential	1.96	
KPMG (2016)^{a,b}		0.41	
Cao et al (2015)^b		0.72	
Independent Economics (2014)^b		0.71	

KPMG (2011a)	– residential	0.85	0.60
	– non-residential	0.74	0.70
KPMG (2011b)^{b,c}		0.80	0.62
KPMG (2010)^{a,b}		0.34	0.31

Notes:

- a. These studies model only the distortionary impact of transfer duties on property development decisions and do not capture distortions related to transaction of properties.
- b. These studies do not distinguish the impact of transfer duties on residential and non-residential properties.
- c. These excess burden estimates are specifically for NSW. In KPMG (2011b) the analogous excess burden estimates for Australia as a whole are very similar to those for NSW.

A reasonable interpretation of this evidence is that the MEBs of residential and non-residential property are in the vicinity of \$0.90 and \$1.00 respectively and that the corresponding AEBs are in the vicinity of \$0.50 and \$0.60.

Other CGE studies have analysed the impact reforming property taxes but do not report estimates of MEB or AEB. KPMG (2016) analyses a range of reform options for NSW involving the elimination of transfer duties and replacement of revenues with various land tax options (both on a unilateral basis and a co-ordinated national basis). Deloitte Access Economics (2015) considers the replacement of transfer duties with GST at the national level. Both studies reported significant economic benefits in from the property reforms considered, measured in terms of conventional macroeconomic aggregates such as consumption per capita and aggregate employment.

A notable feature of the Deloitte Access Economics (2015) study is that they estimated the AEB of the transaction distortion component of transfer duties using a partial equilibrium model (along the lines of the simplified model described above) and then used this estimate as a shock in their CGE computations. This approach recognised that in its standard configuration the CGE model used by Deloitte Access Economics (DAE) captured the distortionary impacts of transfer duties on investment in property development but not on property transactions. DAE base their computations on the key finding of Davidoff and Leigh (2013) that a 1 per cent increase in transfer duty paid reduces property turnover by 0.6 per cent. DAE assume that this result can be linearly extrapolated so that a 100 per cent decrease in transfer duty increases property turnover by 60 per cent in the long run. The AEB is then estimated to be \$0.30, with acknowledgement of the limitations of the approach. As a check on the plausibility of this estimate DAE compare the AEBs estimated by KPMG (2010) and KPMG (2011b) for transfer duties. KPMG (2011b) estimated the AEB for transfer duties to be \$0.62 while the KPMG (2010) study reported an AEB of \$0.31. A key difference between these two KPMG studies is that the later study modelled the distortionary impact of transfer duties on investment in property development and on property transactions while the earlier study did not model the distortions to transactions. As observed by DAE the difference between the AEBs in the KPMG studies of \$0.31 can be attributed to the

distortions related to property transactions and this number was similar to their own estimates of \$0.30 for that specific distortion.

The consistency of the KPMG and DAE results, which are obtained from different modelling approaches, provides additional reassurance that the evidence that transfer duties are economically costly is robust.

3.4 Welfare costs of land taxes

Economic theory tells us that a flat tax on the unimproved value of all land will be highly efficient because it will not alter decisions about the use of land. In Australia state governments tax some land holdings and local governments raise revenue by levying municipal rates on landholdings. In NSW land tax is levied on the unimproved value of aggregate holdings of taxable land by an entity according to a progressive rate schedule. Aggregate landholdings below a general threshold are not taxed while the value of aggregate landholdings above a premium threshold are taxed at a higher rate than the value of the same holdings between the two thresholds. The thresholds are updated annually to counteract bracket creep. A range of land holdings are exempt from land tax with the most prominent being land used as a principal place of residence and land used for primary production. Land tax surcharges for apply for certain landholders. The exemptions and progressive structure of land taxes in NSW introduce inefficiencies in the land tax system as they are likely to distort decisions regarding land use. Municipal rates in NSW are likely to be more efficient than land taxes because they are levied without tax-free thresholds, and across a broader range of landholdings. The efficiency of municipal rates will be compromised to the extent that there are exemptions and/or uneven rates levied across land uses.

Table 3.2 summarises excess burden estimates reported in CGE studies of land taxes and municipal rates. A key feature of these results is that they generally find low excess burdens for land taxes and municipal rates. Indeed three studies report negative MEBs for these types of taxes ranging between -\$0.08 and -\$0.10. These results suggest that economic welfare can be improved by increasing land taxes at the margin. Nassios et al (2019) report an AEB of -\$0.11 for municipal rates in NSW suggesting that significant welfare gains can be obtained by increasing municipal rates beyond the margin. In these three studies foreign holdings of land account for this result – taxing foreign land holdings results in a transfer of wealth from foreigners to the government.

Table 3.2 CGE estimates of excess burdens for land taxes

		MEB	AEB
Nassios et al (2020)^a	– land overall	0.35	
	– municipal rates	-0.17	
		0.08	0.04
		0.17	0.10

		MEB	AEB
Nassios et al (2019)^a	– land overall	-0.09	-0.11
	– residential land		
	– municipal rates		
Murphy (2016)	– land	0.48	
	– municipal rates	0.23	
KPMG (2016)	– land taxes & municipal rates	0	
Cao et al (2015)^b		-0.10	
Independent Economics (2014)^b		-0.08	
KPMG (2011a)^b		0.09	
KPMG (2011b)^a	– land	0.09	0.06
	– municipal rates	0.03	0.02
KPMG (2010)	– land	0.08	0.06
	– municipal rates	0.02	0.01

Notes:

- a. These excess burden estimates are specifically for NSW. In KPMG (2011b) the analogous excess burden estimates for Australia as a whole are very similar to those for NSW.
- b. These studies report excess burdens for land taxes only.

The studies listed in Table 3.2 differ in the extent to which they capture the distortions associated with existing land tax and municipal rate structures. Cao et al (2015) do not attempt to analyse the efficiency of the existing land tax structure. Instead they model a hypothetical flat tax on the unimproved value of all land. We consider the MEB reported by Cao et al (2015) to be indicative of what can be achieved with a broad-based land tax structure where 10 per cent of the land is held by foreign entities.⁹ The study by Murphy (2016) paid particular attention to including industry detail that could better capture the economic distortions associated with the currently implemented land tax and municipal rate structures. The results of this study show that the efficiency of land taxes can be significantly compromised by exemptions and different rates across land uses.

A reasonable interpretation of the evidence relating to the efficiency of land taxes is that a flat rate levied on the unimproved value of all landholdings is likely to be welfare enhancing. The evidence also suggests that even in the forms currently implemented in NSW, land taxes and municipal rates are significantly more efficient ways for governments to raise revenues than are transfer duties. This suggests that a switch in the tax mix that reduces reliance on transfer duties and replaces revenues from that source with land taxes will

⁹ Sensitivity results reported in Cao et al (2015) show that the MEB for land taxes goes to zero when there is no foreign ownership and to -\$0.20 when foreign ownership is increased from 10 to 20 per cent.

enhance the economic welfare of NSW residents. The welfare boost from this change in tax mix will be greatest if the land tax structure introduced is uniform and broad-based.

3.5 Partial equilibrium analysis of transfer duties

Büttner (2017) examines a particularly rich data set for analysing the impact of transfer taxes. Constitutional reform in 2006 allowed German states to set a component of real estate transfer taxes, and this triggered significant increases and variations in transfer taxes across the states. Using a partial equilibrium model Büttner (2017) estimates an MEB of 0.67 – that is, for each additional Euro of revenues raised there was an increase in the deadweight loss of transfer taxes of 67 cents. This result is consistent with the CGE estimates summarised in table 2.1.

A partial equilibrium approach is used by Hilber & Lyytikäinen (2017) to estimate the welfare costs of transfer duties in the UK context. Based on their preferred model specification Hilber & Lyytikäinen (2017) estimate a MEB of 84 per cent. Dachis et al (2012) also provide welfare estimates from a partial equilibrium model used to analyse the impact of transfer taxes in Toronto. However, the welfare estimates provided by Dachis et al (2012) are not directly comparable to standard MEB and AEB measures. Hilber & Lyytikäinen (2017) modify the welfare estimate in Dachis et al (2012) to be more comparable with their own estimates for the UK. The modifications made by Hilber & Lyytikäinen (2017) to the Dachis et al (2012) results yields a measure of welfare that appears similar to a MEB with a value of 29 per cent. This is low relative to the 84 per cent estimate for the UK and Hilber & Lyytikäinen (2017) suggest several explanations for this difference, including the fact that the Dachis et al (2012) study does not cover all transactions (includes single-family houses only), the elasticity of transactions with respect to a change in the tax rate is smaller and the change in the tax rate is across a smaller range (i.e., the welfare loss increases at an accelerating rate as the tax rate increases).

Concluding remarks

In this report we have reviewed empirical evidence relevant to property tax reforms under consideration in NSW. The proposed reforms centre around reducing reliance on transfer duties and replacing the consequent revenue shortfall with broad-based land taxes. Transfer duties distort behaviour by significantly increasing the cost of transacting which discourages property transactions. Property transactions increase in economic welfare by transferring property ownership to a person or entity that values the property highest. Transfer duties also increase the cost of investment in property development, which reduces such investment and, by extension, constrain the supply of property services below the optimal level. The key questions for policy makers and evidence responding to these questions can be summarised as follows:

1. How sensitive are transaction volumes to decreases in transfer duties?

Our interpretation of the empirical evidence suggests that a reasonable expectation of what would happen to transaction volumes if NSW transfer duties were abolished and replaced

with land taxes is that they would increase in the long run by between 40 and 70 per cent with 50 per cent being the most likely outcome.

2. How much additional economic welfare is generated by the increase in transaction volumes and property development resulting from a decrease in transfer duties?

Transfer duties rank as the least efficient, or close to least, of all taxes. A reasonable interpretation of the empirical evidence relating to the efficiency of transfer duties is that the MEBs of residential and non-residential property are in the vicinity of \$0.90 and \$1.00 respectively, and that the corresponding AEBs are in the vicinity of \$0.50 and \$0.60. With NSW transfer duty in 2020-21 expected to generate around \$8 billion in revenue, the improved welfare from abolishing transfer duty would be equivalent to an increase in incomes for NSW residents totalling \$4.0 to \$4.8 billion.

3. What is the economic welfare cost of raising sufficient revenues from land taxes to replace transfer duty revenues foregone?

The evidence suggests that even in the forms currently implemented in NSW, land taxes and municipal rates are significantly more efficient ways for governments to raise revenues than are transfer duties. A reasonable interpretation of the evidence suggests that a flat rate levied on the unimproved value of all landholdings is likely to have minimal welfare costs and may in fact be welfare enhancing.

Overall, the weight of evidence suggests that a switch in the tax mix that reduces reliance on transfer duties and replaces revenues from that source with land taxes will enhance the economic welfare of NSW residents.

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First published June 2021

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