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International Studies Program
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Rental Value versus Capital Value: Alternative Bases for the Property Tax[1]

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INTRODUCTION

With the fall of the Berlin wall, and the subsequent collapse of communism, an era of reforms was initiated in Central and Eastern Europe and Central Asia which has spread around the globe. A central element in this reform process has been an interest in decentralizing governmental decision making from the central government to autonomous local self-governments.

A critical element in such a decentralization strategy is the need for local governments to have their own source of revenue controlled by local officials. Specifically, to fully realize the efficiency benefits of fiscal decentralization, autonomous local governments require that they generate adequate own-source revenues to provide the level and quality of services demanded by residents and businesses. In short,

> "To make local autonomy meaningful, subnational governments need adequate locally controlled revenues." [Bird, Ebel and Wallich, p. 13]

Bahl reviews the potential strengths and weaknesses of various tax instruments from the perspective of local governments. He concludes that "The *property tax* is a most appropriate source of local government revenue, and it is a revenue source used by local governments in most countries in the world." [Bahl, 1999] Similarly, Litvack, Ahmad and Bird conclude that in designing a system of fiscal decentralization economic and administrative efficiency concerns suggest that local governments should tax immobile factors such as land and real estate. [p. 11]

Not surprisingly, then, the property tax is the single most important local own-source tax in developing countries. [Bahl and Linn, p. 79] Internationally, over 130 countries have some form of tax on property, albeit the relative importance varies substantially across countries. [Eckert, p. 6]

The issue then becomes how a country implements and administers a property tax. This is an important policy issue because the basis of the tax determines the distribution of the tax burden amongst all tax payers. There are basically two alternative approaches to assessing property for tax purposes – an area based assessment and a value based assessment. The focus of this chapter is on alternative approaches to determining value based assessments which include improved and unimproved capital value (CV) and annual rental value (ARV).[2]

ASPECTS OF THE PROPERTY TAX

As Youngman and Malme (2004) commented land and building taxes utilize a wide variety of tax bases, including capital value (improved and unimproved), annual rental value, original purchase price (acquisition value) as well as non-value measures such as area base, or flat fees. In many respects the choice of tax basis is a function of

[2] For a discussion of the strengths and weaknesses of an area-based property tax see Bell and Bowman (2008b). For information on countries using some form of area-based property taxes see Bell, Yuan and Connolly (2008).

several criteria including history, culture and administrative expediency (de Cesare, 2004).

The origins of many property tax systems can largely be traced back to the colonisation of particular countries. For example, many of the Commonwealth countries introduced property tax systems based upon the British annual rental value approach (Singapore. Malaysia, New Zealand, Bermuda, Trinidad, Barbados, St Lucia, St Kitts and Nevis, Pakistan, India and Nigeria). Clearly, as the rating system was part of the British administration it became a component that was rolled out in many countries. However, for other countries capital improved value was the original system put into place (Canada, United States, Brazil, Mexico, Japan, Sweden and Chile). Whilst the historical basis is important it is equally important to recognise that over time many countries have moved away from their original system, for example, New Zealand (annual rental value to capital unimproved), Jamaica (capital improved to capital unimproved), Barbados (annual rental value to capital improved) and more recently India (annual rental value to area-based).

The three value based approaches (capital improved, capital unimproved and annual rental value) are to some extent an over-simplification because there are several examples of where jurisdictions and countries utilize more than one basis at the same time (Bahl and Linn, 1992). Typically, you can find residential property taxed on one basis and commercial, industrial and agricultural property taxed on a different basis (McCluskey, 1991). In Great Britain and Northern Ireland, residential property is valued using capital improved value, whilst commercial and industrial properties are valued to annual rental value (McCluskey, 1991). In Western Australia, the majority of property is valued to annual rental value and other properties located within small rural townships are valued on capital unimproved (Franzsen, 2005).

Capital value

The notion of capital value can be considered from two perspectives that of ‘improved’ capital value, and that of ‘unimproved’ capital value. In simplest terms the former values both land and buildings or improvements to land whilst the latter only values the land ignoring any improvements.

Capital improved value

In this case the object of valuation is the total property encompassing both the land and the improvements that have been made to the land over time. Generally, this basis has the advantage of more closely approximating a tax on real property wealth and discouraging the speculative withholding of land from the market (Youngman and Malme, 2004). The value determined can be a composite or total value reflecting the value contributions of both land and improvements within the single assessed value. In addition, separate values can be provided for each element of land and improvements. This latter capability is of particular importance because it allows for the application of differential rates for land and buildings (a form of split rate) and hence can provide jurisdictions with an additional tool to influence land use decisions

and other allocative aspects. However, there are obviously costs associated with this approach in having to arrive at separate assessments of land and improvements.[3]

The application of capital improved value tends to be increasing in importance globally at the expense of the other approaches to assessment. This can be seen in New Zealand, South Africa and Victoria, Australia where jurisdictions are moving away from other basis to utilize capital improved systems (McCluskey and Franzsen, 2005). The use of capital value or capital improved value tends to be more widespread than that of annual rental value (see Appendix 1).

In legislative terms a typical definition of 'capital improved value' is:

…the sum which land, if it were held for an estate in fee simple unencumbered by any lease, mortgage or other charge, might be expected to realise at the time of valuation if offered for sale on any reasonable terms and conditions which a genuine seller might in ordinary circumstances be expected to require.[4]

Unimproved Capital Value

As Bahl and Linn (1992) state, unimproved capital value is a special case of capital value property taxation. The term 'unimproved capital value' tends to have been supplanted by either land value or site value which has a subtly different meaning to that of unimproved value. As Hargreaves (1991) remarked, the basic premise of site value taxation is that the land should be taxed and improvements should be untaxed. Within the valuation context this requires, at its most basic level that the land should be valued ignoring any improvements that may have been made to the land.

The question of what constitutes 'improvements' has to a large extent been resolved in those countries and jurisdictions that apply land value taxation by legislating what are considered to be improvements. This was seen as an important step since the original concept of unimproved land, was largely based on the physical state of the land as it existed prior to any human development. The 'virgin' or 'prairie' state of the land posed many problems in determining what the actual state of the land was many decades or even hundreds of years ago. In the early 20th century Australia, New Zealand and South Africa adopted this original standard which tended to work reasonably well given the largely undeveloped state of those countries. The unimproved value was relatively easily established as there were sufficient undeveloped land sales upon which to determine assessed values (Horsley, 1999).

Mills refers to such notion of value as the value of "raw land." He argues that costs incurred for non-structural investments to land – including clearing, levelling, drainage, surveying and plotting, utilities, etc. – should not be included in land values [Mills 1998, p. 39]. The implication is that we should think of land being valued as if it were in some natural, or 'virgin', state.

[3] For a discussion of various approaches to valuing land separately from improvements see Bell and Bowman (2006b and 2008b)

[4] Valuation of Land Act, 1960, Victoria, Australia

Bell and Bowman [2006b] argue that such an approach to land valuation would be inconsistent with the general rational for moving to a land value, or two-tier, tax. Specifically, one of the arguments in favour of a land tax is that it will capture for public benefit the increase in land value that results not from any action of the landowner, but from the actions of government (e.g., building transportation systems, installing sewers and water systems) and from society in general (increased economic activity, population growth, etc.). [Bell and Bowman, 2006b] For example, Lindholm argues that social justice would be served if a land value tax were in place that "took into account society's right to benefit from the exploitation of its natural resources and from land-value increases arising from society's general expansion in numbers and productivity" [Lindholm 1969, p. ix].

In other words, the logical base of a land value tax is not the value of land in some natural state, but rather the current value of land. Oldman and Teachout proposed such a definition for the base of a land value tax more than 25 years ago:

> The tax base is "land value." Land value is defined to mean the value of the land in its current state on valuation day, but not to exceed "site value." Land value is defined as fair market value in the usual sense and will ordinarily be closely coordinated with cash sales prices. Site value is defined with respect to standards set for the condition of land, which signify that it is ready for currently expected highest and best use. In a typical urban area the legal definition of site value as a ceiling on land value would be the market value a parcel would have if it were level, drained, and capable of supporting the types of construction indicated by its general category of highest and best use. Specifically excluded from the definition of site value is the value of existing building improvements and any other interests in property, such as subsurface mineral rights, that do not relate to the use of the site in a "land use" sense [Oldman and Teachout 1978, p. 183].

A typical legal definition of land/site value would be:

'Land value', in relation to any land, means the sum that the owner's estate or interest in the land, if unencumbered by any mortgage or other charge, might be expected to realise at the time of valuation if;

(a) Offered for sale on such reasonable terms and conditions as a bona fide seller might be expected to impose; and
(b) No improvements had been made on the land.[5]

Annual Rental Value

Annual rental value based property tax systems tend to be originally based on the British rating system and are most commonly found in the former British colonies. Annual rental value is the valuation standard used in the United Kingdom and several other commonwealth countries such as Bermuda, India, Ireland, New Zealand,

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Nigeria, Singapore, Trinidad some Australian states (Tasmania, Victoria and Western Australia) as well as in France (McCluskey and Williams, 1999) (see Appendix 1).

The concept of annual rental value can normally be considered from two standpoints depending upon the terms of the contract of tenancy between the landlord and the tenant in respect of repairs and other annual outgoings. In essence, the two most common basis represented are Net Annual Rental Value (where the tenant is responsible for repairs and other outgoings) and Gross Rental Value (where the landlord retains responsibility for repairs).

Net Annual Rental Value is the primary basis for the property tax for commercial and industrial properties in Northern Ireland and Great Britain. The typical definition is:

> …the net annual value of a property shall be the rent for which, one year with another, the property might, in its actual state, be reasonably expected to let from year to year, the probable average cost of repairs, insurance and other expenses (if any) necessary to maintain the property in its actual state, and all rates, taxes and other charges being paid by the tenant.[6]

Alternatively, the state of Western Australia utilises a gross rental value basis where the landlord is responsible for outgoings. The primary definition of Gross Rental Value;

> … is that gross annual rental that the land might reasonably be expected to realise if let on a tenancy from year to year upon condition that the landlord is liable for all rates, taxes and other charges thereon and the insurance and other outgoings necessary to maintain the value of the land.[7]

In Tasmania the basis of the property tax is known as ‘assessed annual value’ which in respect of land means;

> … the gross annual income, excepting any amount to be applied for goods and services tax and reimbursement of council rates and land tax applicable to the land, which at the time of valuation a person owning the land and its appurtenances in fee simple free from encumbrances and able freely to dispose of it might reasonably expect to obtain by letting it to a tenant without fine on reasonable terms and conditions.[8]

In some jurisdictions the annual rental value is normally prescribed as a minimum percentage of the capital value of the property. One such case is in New Zealand where the ‘Annual value’, in relation to any rateable property, means the greater of:

(a) The rent at which the property would let from year to year, reduced by;
(i) Twenty per cent in the case of houses, buildings, and other perishable property; and
(ii) Ten percent in the case of land and other hereditaments:

[6] The Northern Ireland Rates Order 1977
[7] (Valuation of Land Act 1978)
[8] (Valuation of Land Act 2001)

but shall not be less than;

(b) Five percent of the capital value of the fee simple of the property.[9]

PROPERTY TAX PRACTICES AROUND THE GLOBE

The table in the Appendix includes information about how the property tax is administered in 121 countries. There are a number of variations and many countries use more than one approach to valuation of property for tax purposes. Table 1 summarizes the information from the Appendix.

The data in Table 1 document the fact that capital value is clearly the most popular form of property taxation across the globe. Fifty-two countries have some form of capital improved value as the base of their property tax and 16 countries have some form of unimproved capital value as the base of their property tax. Eight countries tax land and improvements separately, while 4 countries tax improvements only. The next most popular approach is the area-based approach used in some form in 42 countries. Finally, 37 countries rely on annual rental value to determine the base of their property tax, while 6 countries apply a flat rate tax to property.

Some regional variations emerge from the data in Table 1 as well. For example,

- virtually all countries in Central, South and North America (17 out of 19) rely on capital improved value as the base for their property tax;
- six out of 7 countries in Oceania have some form of unimproved capital value (or land value) property tax and 4 use some form of annual rental value;
- eight out of 13 countries in the Caribbean rely on annual rental value as the base of their property tax;
- eleven out of 24 countries in Asia use annual rental value while an equal number rely on some sort of area based tax;
- nine countries in Western Europe have some form of improved capital value as the base of their property tax while 6 use some form of annual rental value;
- 15 out of 20 countries in Eastern Europe rely on area-based property taxes; and
- there is no real trend in Africa where out of the 25 countries described 8 countries use some form of improved capital value, 7 use some form of annual rental value, and 11 use some form of area based property tax.

[9] Local Government Rating Act 2002

Table 1
Property Tax Base

Region	Number of Countries	Land Value	Capital Improved Value	Land and Improvements (Separately)	Improvements Only	Annual Rental Value	Area	Flat Rate
Africa	25	1	8	3	4	7	11	6
Caribbean	13	4	4	2	0	8	5	0
Asia	24	2	6	2	0	11	11	0
Oceania	7	6	2	0	0	4	0	0
Western Europe	13	0	9	0	0	6	0	0
Eastern Europe	20	1	6	0	0	0	15	0
Central and South America	16	2	14	1	0	1	0	0
North America	3	0	3	0	0	0	0	0
TOTALS	121	16	52	8	4	37	42	6

SELECTING A TAX BASE

The choice of which tax base to use can depend upon a number of factors such as legislation, land tenure systems and property market data, taxpayer perceptions, and economic issues.

Legislation

Often the choice of which basis to use is prescribed in the legislation. In reality, there is no choice for either the level of government that benefits from the tax revenue or the taxpayers to opt for an alternative basis (Great Britain and Northern Ireland, Jamaica, South Africa, and Singapore). Of course this does not mean that the basis is set in stone and cannot ever be changed. Whilst this is possible, jurisdictions and countries that have successfully done this would attest to the difficulties in the process. Shifting to a new system of property taxation creates administrative and data issues as well as the possibility of shifting the distribution of property tax liabilities from some land uses and owners to others. Great Britain, Northern Ireland, South Africa certain states in India have recently gone through the process of implementing a new basis for the property tax.

In some cases the legislation can provide taxing jurisdictions the option of choosing the basis of their property tax from several alternatives. Normally, jurisdictions can choose between annual rental value, capital improved and capital unimproved approaches. For example, this is the choice accorded to territorial authorities in New Zealand where some 50 (68%) local authorities use capital unimproved, 23 (30%) capital improved and 1 (2%) annual rental value (McCluskey and Franzsen, 2001; McCluskey et al, 2006). It is the responsibility of each authority to decide on the

appropriate basis of the property tax and then to consult with ratepayers particularly if a change is being considered.

Land Tenure Systems and Market Data

The choice of tax base should ideally be linked to the land tenure system and the most common form of land holding. As the property tax is more commonly ad valorem based, i.e. based on some value standard, then it is important that there is an active and relatively mature property market within which property is transacted. As market evidence in the form of sales or lettings is central to the valuation/appraisal process it is crucial that sufficient open market transactions are available. Whilst it should not be considered as a rule of thumb, there should be a strong correlation between the form of transaction evidence and the basis of the property tax. In other words, if the majority of property is held leasehold with an active rental market then the focus should be on annual rental value; however, if the property market is dominated by high levels of owner occupation and sales are predominant then capital improved value should be the basis.[10]

Transaction data is extremely important as it is this data that is used to establish assessed values for all properties that have not been subject to a transaction. In addition, in order to have a fair and transparent assessment process objections and appeals need to be argued upon comparable evidence. Whilst sufficient data will always be an issue, it is nonetheless imperative that the system be linked to that aspect of the property market that affords the greatest transaction evidence whether it be annual rental value or capital value. One of the main reasons for the change in the basis of the residential property tax in Northern Ireland from annual rental value to capital improved value was the lack of rental transactions and the plethora of capital sales (McCluskey et al, 2006).

Taxpayer Perceptions

Under any tax system, taxpayer understanding is central to having an acceptable system. The basis of the tax and the transparency of its assessment needs to be easily understood. A good example of the lack of taxpayer comprehension was the use of the hypothetical gross annual rental value system that was used in England for residential property. This hypothetical gross value was based on very few actual rents that made it difficult to explain to taxpayers, simply because they did not relate the value of their house to an abstract hypothetical rental value.

Economic Issues

Generally, a desirable local revenue source would generate a revenue stream that is relatively productive and stable over time, is relatively neutral with regard to its impact on private economic decisions, is simple to determine, and is equitable. There are trade-offs across these criteria, depending on how the property tax is administered.

[10] See Bell and Bowman [2006a] for a discussion of implementing a property tax where there is no well functioning real estate market.

In theory a discounted stream of net rent payments is equivalent to the capital value of a property. Therefore, in an ideal world, one would expect both the ARV and CV to increase at the same rate since the capital value is related to the annual stream of rental income. As a result, one would expect that these alternative approaches to valuation would score equally well on the various criteria used to evaluate alternative revenue sources.

However, this theoretical equivalency assumes that ARV is based on some notion of rental value. For example, Brown makes the distinction between taking the rent actually received versus taxing its "rental value" which is based on the rent which the property would yield if used to the highest and best use. A similar distinction is drawn in India where valuations based on the annual rental value of property became less and less equitable as the definition of rental value moved from the notion of rent a hypothetical tenant might be reasonably expected to pay (potential rent) evolved into the notion of prevailing actual market rent which became distorted by rent controls and other market interventions. [Rao, pp. 244-48]

In reality there are differences between the two approaches to valuation that result, in part, from a wide divergence between assessed annual rental values and actual net market rents. In addition to infrequent assessments, this divergence results from

- legally allowable reductions in annual rental value;
- rent controls; and
- assessment difficulties, particularly for non-residential properties. [Bahl and Linn, p. 84-5]

It should be recognised that where the current use of the property is also the most economically profitable use, then the rental value and capital value will have a perfect relationship in terms of the value of the property. Annual rental value systems are not markedly different from capital value approaches in the sense that capital value is the sum of the discounted values of future annual rental values. Differences between the two bases occur when the current use is not regarded by the market to be its most valuable use. In other words, there is a more profitable use that the property could be put to which is reflected in the capital value. In reality, the two systems would seldom produce an equivalent distribution of property tax burdens, because capital values incorporate market participant's perceptions about increases and decreases in the future demand for properties. In this context valuers use such expressions as 'hope value', 'potential value' and 'unrealised development value'.

Revenue Productivity

Revenue productivity has three important dimensions. First, local governments would like a revenue source that is relatively stable over the course of the business cycle. Second, local governments want access to revenues that are predictable. Third, local governments need a revenue source that will produce sufficient revenues to meet their expenditure needs.

A stable tax generates revenues that change relatively more slowly than income does. Real estate markets reflect long-term asset values, which tend to respond more slowly to annual changes in the level of economic activity than economic flows such as

business turnover or wages. Therefore, the property tax is regarded as a relatively stable revenue source, especially when compared to other potential local tax sources such as wage or turnover taxes.

Predictability of revenues is an important feature for local revenues because it facilitates accurate and timely revenue forecasting, which is necessary for certainty in budget planning. Finally, revenue adequacy is a concern regarding the extent to which local own-source revenues generate funds sufficient to finance local goods and services.

In terms of revenue productivity and elasticity, there should be little room to choose between the annual rental value or capital value basis of the local property tax. [Bahl and Linn, p. 98] However, given the tendency for ARV systems to rely on current use as the basis for determining rents, it is likely that a property tax based on the capital value will reflect changes in the economy more than does one based on annual rental value.

Neutrality

Neutrality in taxation requires that taxes have limited unintended influences on private economic decisions. Taxes that are difficult to avoid have less of an impact on private economic decisions. For example, in the United States, the property tax typically is assessed against real property, both land and improvements. Land is in fixed supply, and landowners who are using their land in the best way possible cannot change their behavior to avoid paying the tax. Thus, a tax on land is generally thought not to cause any distortions in economic behavior. Alternatively, in the short run, improvements may be relatively immobile, and there is little that owners can do to avoid the tax. Over the long run, however, resources needed for maintenance of existing structures and construction of new structures may be diverted from high-tax to low-tax jurisdictions.

Under an Annual Rental Value system of property taxation, there is a difference between a tax on rent actually received and a tax on the rental value of a property which reflects the rent such a property would yield if used to the highest and best use. [Brown, p. 164] Typically under an ARV system, taxable value is based on the present-use value of a property rather than on the property's potential development value –highest and best use. The most obvious example of this would be vacant land in urban areas which may not be taxed at all under some rental value systems because its current use value is zero, although its value based on an expected stream of benefits from development may be very substantial. [Bahl and Linn, p. 186]

In these circumstances, a Capital Value system of property taxation would place a higher tax on vacant and underutilized land than an ARV system. As a result, a tax on the saleable value of a property would tend to discourage speculation and promote development compared to an ARV system. [Brown, p. 168] Because of this, Bahl and Linn suggest that a CV system may promote efficiency in the sense of advancing the timing of development. [p. 186] Alternatively, others have claimed that the American system of taking capital value has the *disadvantage* of stimulating a 'feverish haste' in getting sites into use; whereas the English system of ARV brings land into the market in a more slow and orderly fashion. [Taussig and Litt, p. 548]

In a similar fashion, one of the perceived advantages of unimproved capital value relates to the potential for improving the efficiency of land use as it necessitates the valuation of land to its highest and best use. It thereby encourages the owners of land to develop the land to maximise its potential (Olima, 1999). Clearly, where there are large undeveloped tracts of land there is an incentive to bring this land into productive use and a disincentive to hold it for speculative purposes.

Simplicity

Both taxpayers and governments must commit economic resources to administer a tax. The more complicated the tax is to implement, the more resources may be consumed to make a tax work.

Bahl and Linn argue that one of the potential advantages of the Annual Rental Value system of property taxation in urban areas of developing countries is the possibility of mass assessment if the local land tenure system is characterized by many properties being rented and they are generally homogeneous. However, under an ARV system of taxation, there are difficulties in imputing rent to owner-occupied residential properties and non-residential properties which are typically less likely to be rented.

In developing countries the administration of a rental based valuation system is often left to the local authority while the capital value based system is more likely to involve the central government because it is more complicated and has greater information requirements. Under these circumstances, movement toward a capital value based system may strengthen the property tax system, but at the expense of reduced local discretion. [Bahl and Linn, p. 98]

The basis of the property tax must be capable of efficient and cost effective administration. As it is based on values, those values need to be based on openly negotiated market evidence. In addition, as property markets move in cycles it is important that the administration is sufficiently geared up to undertake regular reassessments or revaluations of the property tax base.

Capital improved value approaches tend to have greater value volatility than annual rental value approaches. Therefore, there is a greater need for capital based systems to undertake more frequent revaluations. As a result, on the negative side, the estimation of capital values normally requires access to significant amounts of transaction data and attribute information. This can make the system expensive to both maintain and to provide for regular revaluations. The application of computer assisted mass appraisal and automated valuation methods are widely used as a means to achieve cost efficiencies (McCluskey and Adair, 1997).

Finally, valuation under the CV system is more complicated since the process is often formula-based with greater information requirements. Capital value systems are more costly to administer. [Bahl and Linn, p. 95] The clear advantage of an ARV system of

property taxation is that it is less costly to administer because fewer qualified valuers are required.[11] [Bahl and Linn, p. 98]

Equity

In public finance there are two perspectives on equity. These are the ability-to-pay and the benefits-received principles of taxation. The ability-to-pay principle of taxation stipulates that the burden of financing general community services should be distributed across property owners in relation to the value of their property, which is a measure of ability-to-pay, with greater shares being allocated to those with greater ability to pay (vertical equity). Also, similar properties should be treated equally (horizontal equity). A property tax based on market values, in principle, scores well on both vertical and horizontal equity grounds.

A CV system of valuation is generally considered to be a tax on wealth, while an ARV system of valuation is generally seen as a tax on yearly income from properties. [Bahl and Linn, p. 83]

One of the advantages of a capital improved approach is its reliance on the principle of highest and best use which is designed to estimate that value of the property that maximises its market value in terms of profitability and feasibility (McCluskey, 1999).

In addition, as communities through the performance of their normal functions create land value, a land value tax is a means for the community to capture these increases in values. In this respect it is the owners of land that would have to bear the tax which should increase its progressivity (Woolf, 1986).

One of the disadvantages of a property tax system based on unimproved capital value relates to the fact that sales of vacant inner city sites tend to be relatively rare. In view of this, sales of improved sites can be analysed to estimate that portion of the total value that would accrue to the land component (Bell, 2003; Fibbens, 1995; Blackwell, 1994). This secondary evidence whilst useful is fraught with difficulty as there is more reliance on the subjective assumptions and adjustments being made by the assessor. Extrapolation of meagre sales evidence over a jurisdiction can create problems with uniformity of assessed values and interesting challenges by taxpayers to those values.

The challenges of valuing land for tax purposes may not be the disadvantage that it once was, however. In the United States, 29 states are legally required to value land and improvements separately for tax purposes. Bell and Bowman [2006b and 2008b] conducted a series of case studies to see how some of these states actually valued land for tax purposes. They document a number of different approaches but they conclude

[11] Some argue, however, that in the United Kingdom the failure to maintain up-to-date property valuations for the annual rental value system of property taxation, plus the tendency in that system not to tax unimproved land, led to the Thatcher government's abortive attempt to introduce an extremely regressive poll tax in lieu of property taxes.

> "we are more sanguine about the ability to value land reasonably accurately for land value taxation, even where there are not many sales of vacant land." [Bell and Bowman, 2006b]

Alternatively, rental transactions are normally negotiated on the assumption that the value is based on the existing use or current use of the property rather than on the basis of some future or potential higher value use. This approach introduces an element of certainty into the valuation process, in that it is the value to the existing owner or occupier of their use that is being assessed.

The alternative to using market value is to apply a value based on the current use of the property. This has the advantage of being much more objective and based on the pertinent fact, of what the property is actually being used for at the valuation date. Current use would eliminate the potential intensification component from highest and best use. It is argued that current use is proactively environmentally friendly recognising the importance of conservation and sustainable land use. Current use is congruent with the approach that land should not be exploited beyond its sustainable capacity. It has the advantage that it is based on what the valuer/appraiser can see and is therefore more objective.

If we accept that most, or the majority of property owners and investors wish to maximise their asset value, it is reasonable to expect that most properties will be used at highest and best use i.e. the current use value will equal market value (based on highest and best use).

Annual rental value systems tend to have a somewhat unique disadvantage and that is related to the effect of rent control, particularly within the residential sector. The origins of controlling residential rents are largely based on socio-economic arguments designed to protect the poorer in society by giving them access to affordable housing. Subsidised rents however, cannot be used for the estimation of annual rental value assessments, since they are not open market based rents. Where such subsidisation is widespread, as it is in large parts of India, Pakistan this does create a problem of having sufficient market transactions upon which to build a proper valuation roll (Rao, 2008).

A further problem associated with this approach relates to the difficulties in determining the annual rental value of unique properties, which by their nature are not normally let on the open market and in reality would only have one occupier. Typical examples would be properties associated with the petrochemical industry, electricity generation and distribution and other public utility properties.

EMPIRICAL ANALYSIS

This section of the paper will attempt to address the fundamental question as to whether there are any significant differences between annual rental value (ARV) and capital value (CV). The basis of the property tax is the primary mechanism to distribute the property tax burden across all taxable properties on an estimate of their 'value'. The manner in which this empirical research is undertaken is to analyse the

distribution of the property tax liabilities across properties under both systems by investigating the respective tax bill distributions.

Data

The data is drawn from the Northern Ireland jurisdiction which has, somewhat uniquely and recently changed its basis of the property tax from annual rental value to capital value. Since 1836, the property tax has been levied on an estimate of the net annual rental value of rateable property. However, an outcome of the reform of the property tax was to abandon annual rental value (ARV) in favour of capital value (CV) for residential property (commercial property remains taxed on rental value). Analysis is performed on two separate data sets; Data set 1 utilised the universe of residential properties in all of Northern Ireland that have both an ARV and CV assessments, however the valuation date for each is different (for ARV it is 1976 and for CV it is 2005). Data set 2 utilises data for residential properties for three council areas in Northern Ireland (Belfast, Larne and Lisburn) with ARV and CV values calculated for the same year, 2005.

Data set 1

Data was supplied by the Valuation and Lands Agency (now part of Land and Property Services) and after initial cleaning a usable data set of 691,948 properties was available for analysis. Table 1 shows the number of dwellings within each of the main residential property types (APT = apartment; DET = detached; SDT = semi-detached; and TER = terrace).

Table 1
Number of dwellings across main property types

	No of Prop	Percent
APT	64,353	9.3
DET	246,350	35.6
SDT	170,453	24.6
TER	210,792	30.5
Total	**691,948**	**100**

Within the data set each dwelling has an estimate of annual rental value and capital value. Table 2 illustrates the key statistics for both ARV and CV. Possibly one of the important initial differences is the standard deviation; 71,079 for CV and 94 for ARV illustrating the much wider spread of capital values across the properties. The coefficient of Variation (COV) indicates less variability in the ARV distribution. ARVs for residential property tend to have a natural upper limit, whereby rentals would increase beyond a certain point, i.e. the law of diminishing returns would apply. The skewness and kurtosis indicate that neither ‘value’ distributions are normal, though for ARV the distribution is tending to normal, moreso than that of CV.

Table 2
Descriptive Statistics: CV and ARV

	CV	ARV
Mean	113,917	185
Median	95,000	160
Mode	100,000	140
Std. Deviation	71,079	94
Skewness	3.898	1.600
Kurtosis	39.451	5.899
COV	0.62	0.51
Minimum	10,000	20
Maximum	2,500,000	2,500

The one potential problem with this data set is that the rental values were estimated as of 1976 and the capital values as of 2005. One of the main reasons for changing the basis of the property tax was the absence of open market rental transactions in contrast to the abundance of capital value sales. As Table 3 shows there is quite a strong correlation between the ARV and CV (R^2 = 69%) indicating a relationship between the corresponding assessed values.

Table 3
Linear Regression Model – ALL Property Type

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.8285	0.6864	0.6864	39,803.19
a	Predictors: (Constant), ARV			

As previously mentioned the basis of the property tax is to distribute the tax burden across individual properties. Because rental value and capital value are on different scales it is difficult to measure equity or fairness of the tax distribution purely based on estimated values. Rental values tend to be compressed within a limited range; the ratio of minimum to maximum values is 125 whereas for CV it is 2,500. What this means is that the tax burden under a CV system spreads the tax across a much wider range of values. But given the tendency of fewer properties with high value the real effect of this is not significant.

Table 4 indicates the broad descriptive statistics for each class of property by CV and ARV.

Table 4
Descriptive Statistics by Property Type

	APT		**DET**		**SDT**		**TER**	
	CV	ARV	CV	ARV	CV	ARV	CV	ARV
Mean	68,640	125	163,319	257	105,499	178	76,809	126
Median	60,000	105	145,000	252	100,000	180	72,500	128
Mode	45,000	100	140,000	250	105,000	200	65,000	140
Std. Deviation	36,905	56	87,076	112	42,459	49	30,618	35
Skewness	2.284	1.844	3.882	0.823	4.597	0.939	3.602	1.217
Kurtosis	9.256	4.947	36.743	4.179	50.121	18.381	26.818	8.301
Minimum	11,000	20	10,000	20	13,600	20	10,000	20
Maximum	550,000	655	2,500,000	2,500	1,200,000	1980	800,000	932

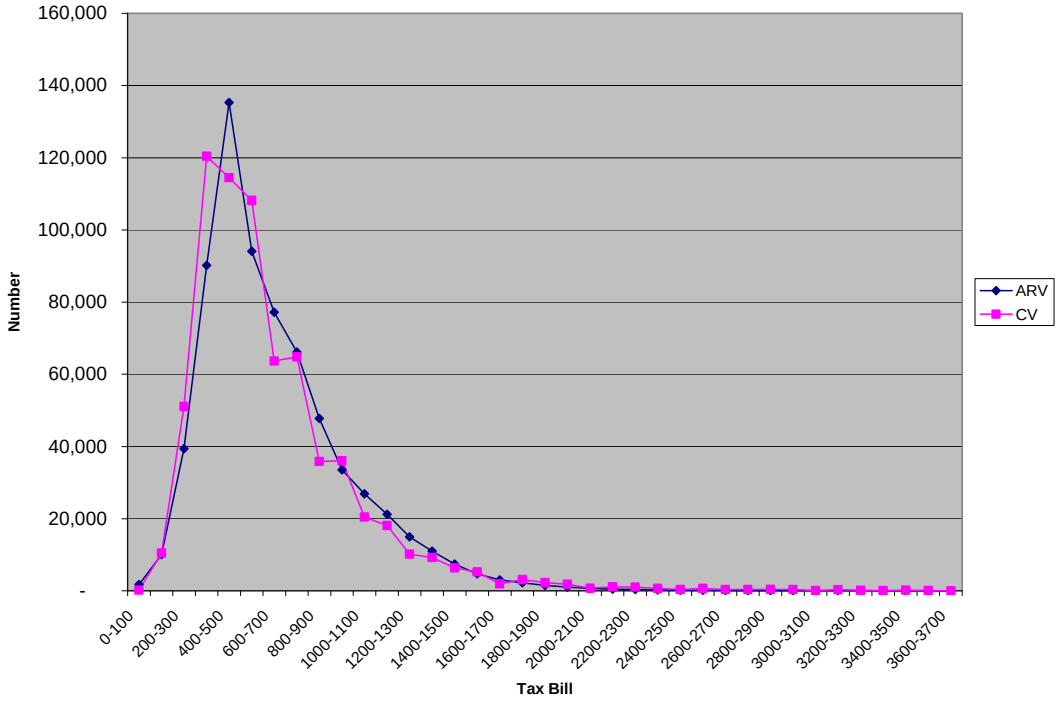
If there are significant differences between the bases then the distribution of the tax burden should highlight these. In order to analyse the tax burden a tax bill for each property needs to be calculated for both ARV and CV. A revenue neutral position is adopted to ensure consistency in terms of comparing the two distributions. Table 5 illustrates the statistics.

Table 5
Descriptive Statistics: Tax Bills for CV and ARV

	CV BILL	ARV BILL
Mean	649	654
Median	542	568
Mode	570	374
Std. Deviation	405	332
Skewness	3.898	1.610
Kurtosis	39.451	5.899
COV	0.62	0.51
Minimum	57	64
Maximum	14,250	8,654

Under the CV approach the bills are spread over a larger range in comparison to the ARV bills. In order to examine the distribution in more detail the amount of the bill is grouped into value bands. Figure 1 illustrates the tax distribution between ARV and CV.

Figure 1
Tax bill distribution for all properties



The distribution curves are both skewed to the left indicating that lower tax bills are levied against lower valued properties. The broad shape of the two distributions is relatively similar which would tend to support the view that both the ARV and CV distribute the tax burden in a similar manner.

Shifting from an ARV to a CV system of property taxation, however, will result in shifts in the distribution of property tax liabilities both between classes of residential property as well as across properties within each class of residential property. Table 6 reports the distribution of values across residential property classes under both the ARV and CV systems. Moving from the ARV to a CV system the relative share of value accounted for by detached houses increases from 49.4 percent to 51.0 percent. All other residential classes experience a reduction in their relative share.

Table 6
Value of dwellings across main property types

	Percent ARV	Percent CV
APT	6.3	5.6
DET	49.4	51.0
SDT	23.6	22.8
TER	20.8	20.5

Disaggregating the data, Tables 7 and 8 and Figures 2-5 provide an insight into the distribution of tax bills between ARV and CV within each of the four main property types.

Table 7
Descriptive Statistics: CV Bill by Property Type

	APT	DET	SDT	TER
Mean	391	931	601	438
Median	342	827	570	413
Mode	257	798	599	371
Std. Deviation	210	496	242	175
Skewness	2.284	3.882	4.597	3.602
Kurtosis	9.256	36.743	50.121	26.818
Minimum	63	57	78	57
Maximum	3,135	14,250	6,840	4,560

Table 8
Descriptive Statistics: ARV Bill by Property Type

	APT	DET	SDT	TER
Mean	448	900	629	450
Median	375	882	637	453
Mode	374	831	672	422
Std. Deviation	206	395	176	123
Skewness	1.852	0.833	0.910	1.296
Kurtosis	4.813	4.083	13.398	8.856
Minimum	64	64	64	64
Maximum	2,447	8,654	6,296	3,482

Figure 2

Tax bill distribution - Apartments

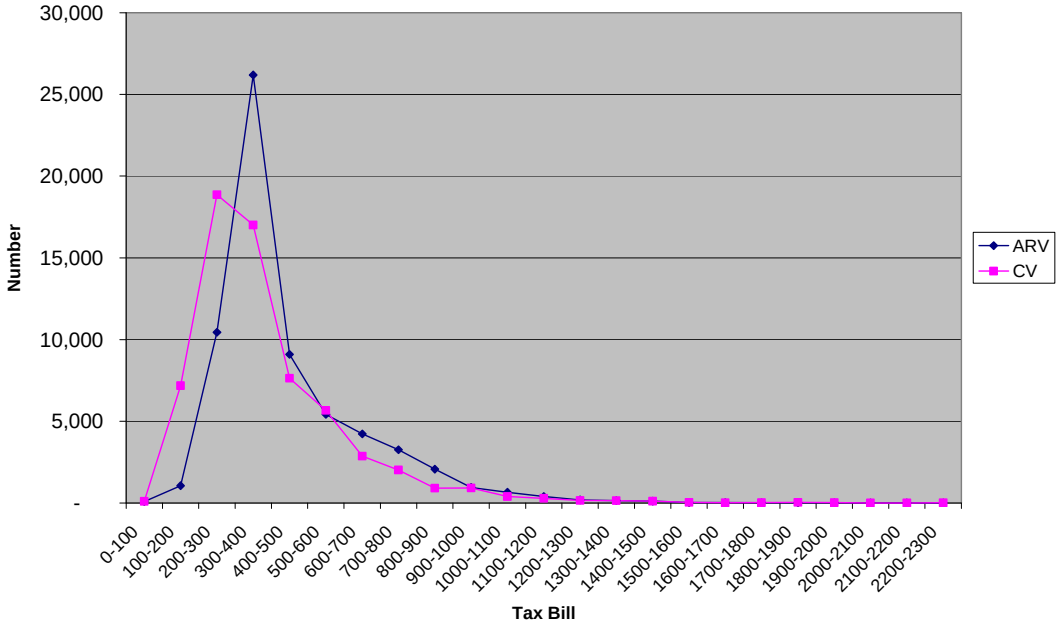


Figure 3
Tax bill distribution - Detached

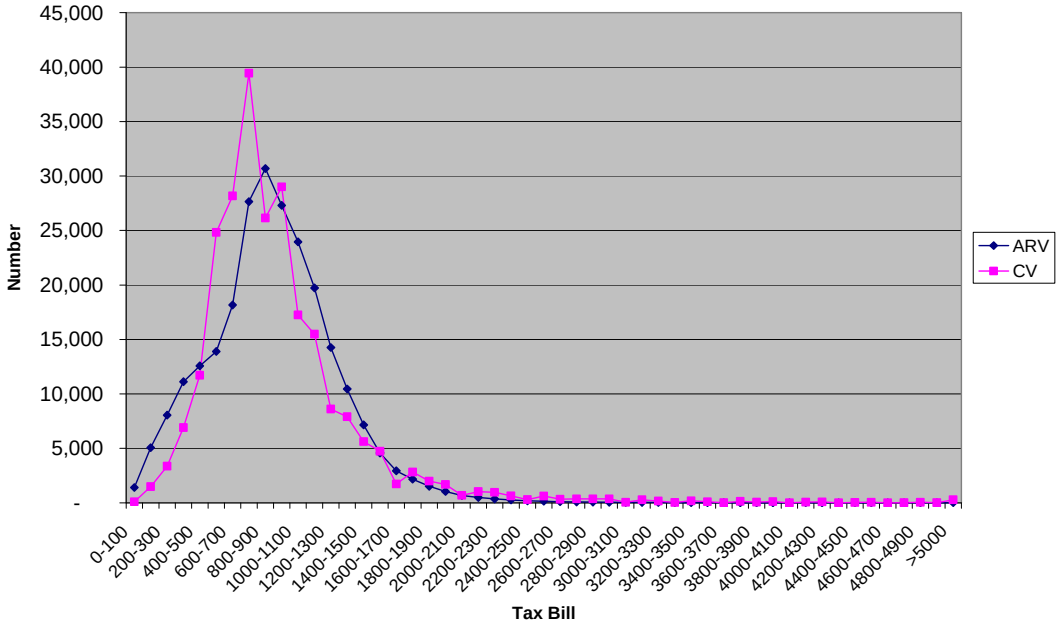


Figure 4
Tax bill distribution – Semi-Detached

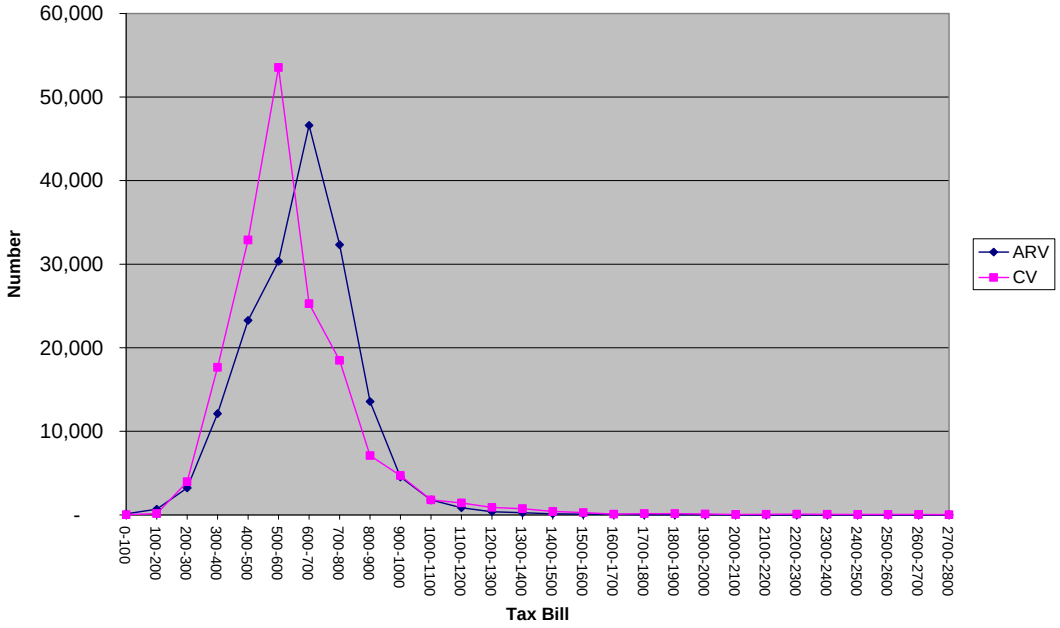
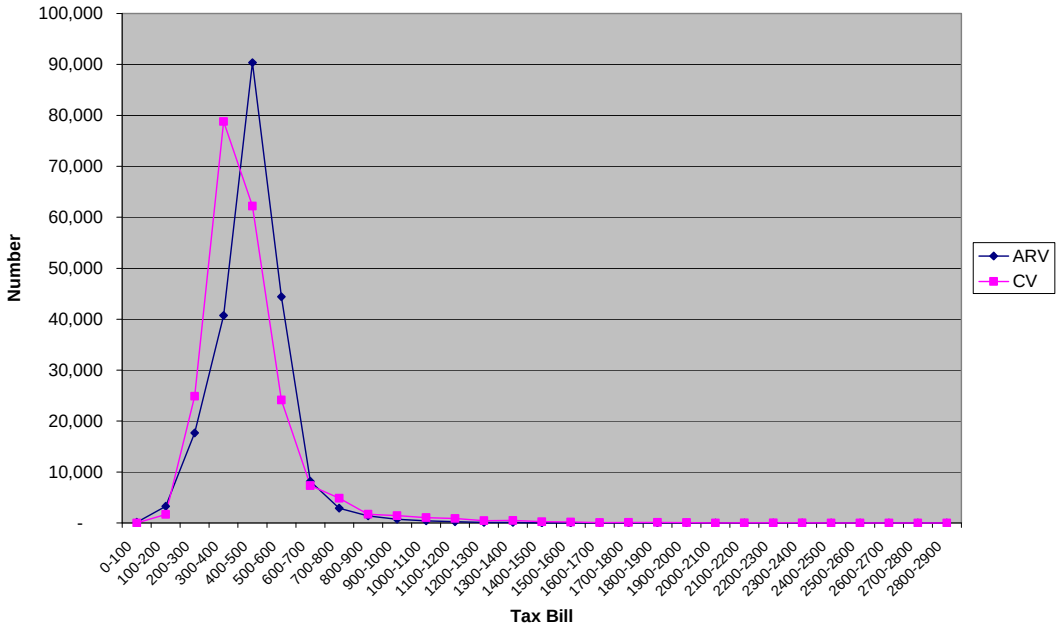


Figure 5
Tax bill distribution – Terrace

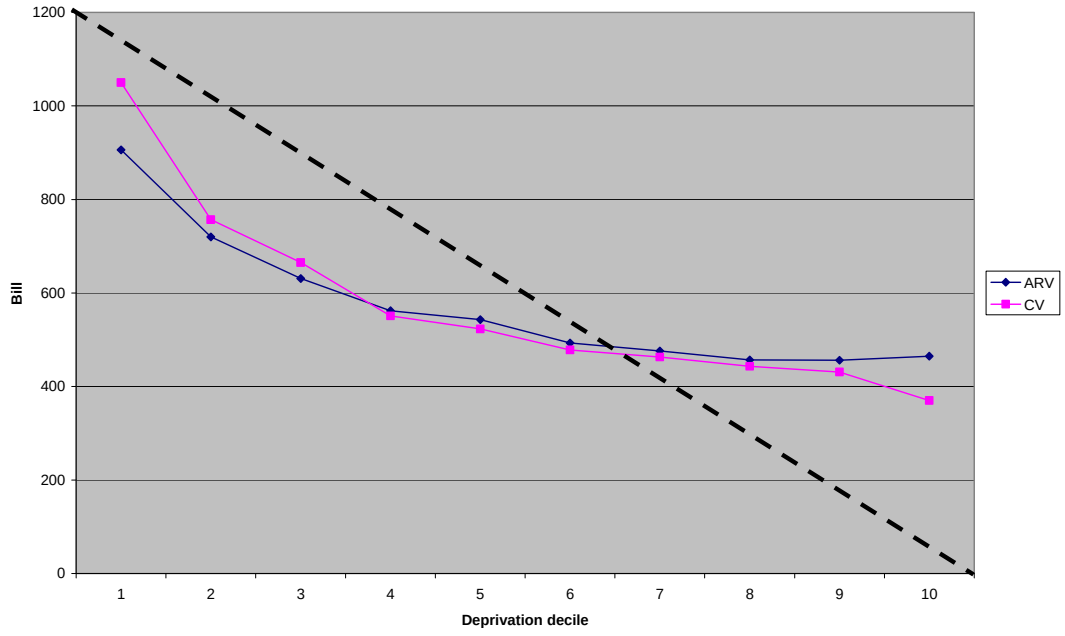


Equity considerations

Research undertaken by NISRA (2006) on the comparison of ARV and CV on targeting social need (TSN) and broad equity considerations concluded that the move to a capital value based system would result in a shift in the burden of rate liability towards the areas of lower deprivation. This work developed a measure of multiple deprivations (NIMDM, 2005) which brought together 43 different indicators, which cover specific aspects of deprivation such as income, employment, health, education, proximity of services, living environment and crime. The multiple deprivation scores were grouped into deciles of deprivation, the least deprived being (1) and the most deprived (10).

Figure 6 illustrates the impact of the two bases on deprivation deciles. A diagonal dotted line cutting the maximum points on the scale of both axis indicates a line of 'perfect' TSN impact (this line would denote zero rates paid by the lowest valued property and the highest maximum rate liability to the highest valued property). The line is essentially theoretical given the nature of property tax being based on the opposing principles of the tax as a payment for services as well as a wealth tax based on ability to pay (NISRA, 2006). In practice a contribution from all properties is required to align with the principle of 'a payment for services' – with due regard given to the counter-acting principle of 'ability to pay'. The line serves as a useful illustration of the two valuation bases degree of variation from this 'prefect' TSN impact.

Figure 6
Tax bill by deprivation decile



Source: NISRA, 2006

As Figure 6 illustrates the CV basis results in a more positive outcome in terms of the TSN.

Data set 2

Given the time difference between the date of the assessed values in data set 1 it was decided to create a data set of ARVs and CVs that were of approximately the same transaction date. In this respect some 446 dwellings that were rented in the open market in 2005 were obtained. The 2005 assessed CV was then matched to this data set. Tables 9 and 10 show the spread of properties by type and a range of descriptive statistics.

Table 9
Number of dwellings across main property types

	No of Prop	Percent
APT	161	36.1
DET	27	6.1
SDT	56	12.6
TER	202	45.3
Total	**446**	**100**

Table 10
Descriptive Statistics: CV and ARV

	CV	ARV
Mean	110,992	6,996
Median	100,000	6,300
Mode	120,000	5,940
Std. Deviation	42,058	2,391
COV	0.38	0.34
Skewness	0.673	0.949
Kurtosis	- 0.118	0.261
Minimum	29,000	2,400
Maximum	270,000	14,400

Table 11 provides the descriptive statistics in terms of ARV, CV and property type.

Table 11
Descriptive Statistics: ARV and CV by Property Type

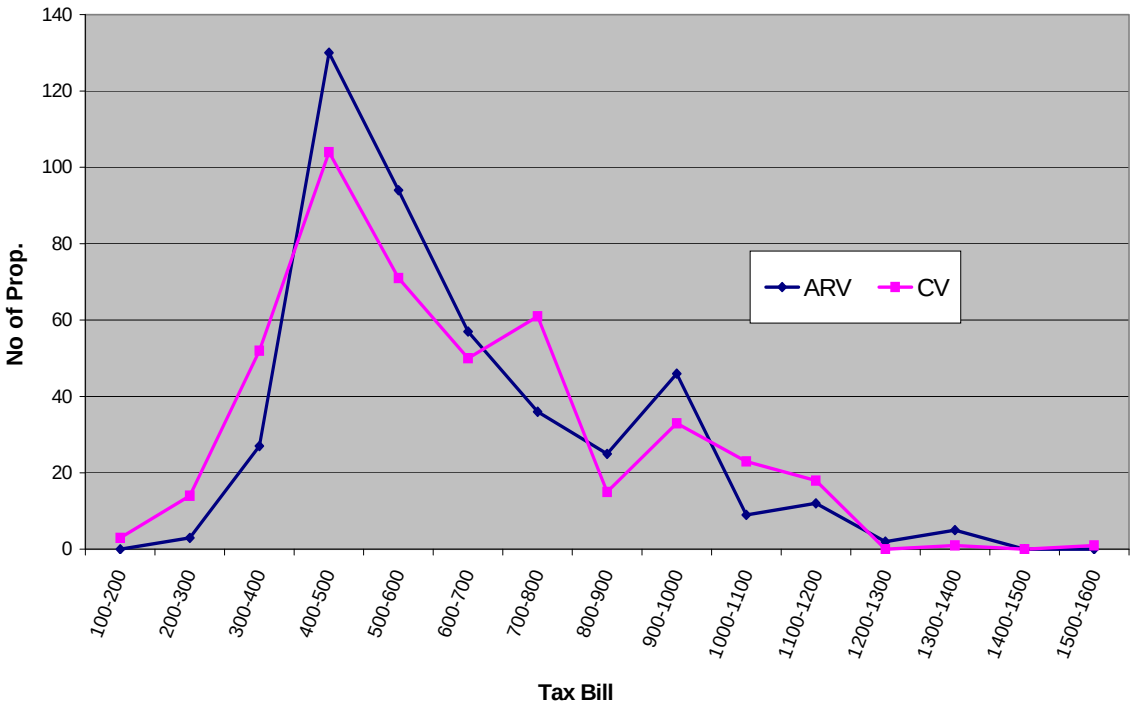
	APT		DET		SDT		TER	
	CV	ARV	CV	ARV	CV	ARV	CV	ARV
Mean	104,711	7,278	151,630	7,158	102,116	5,974	113,027	7,032
Median	90,000	7,560	145,000	7,020	100,000	5,940	100,000	5,700
Mode	120,000	7,560	145,000	5,940	100,000	5,940	140,000	5,100
Std. Deviation	33,509	2,101	34,148	1,529	24,729	631	49,241	2,893
Skewness	0.940	0.078	0.055	0.796	1.006	0.680	0.489	1.009
Kurtosis	0.089	-1.151	0.073	-0.196	2.344	3.531	-0.606	-0.154
Minimum	45,000	3,840	80,000	5,100	55,000	4,200	29,000	2,400
Maximum	195,000	11,400	230,000	10,200	190,000	8,340	270,000	14,400

Table 12 presents descriptive statistics for property tax bills under both the CV and ARV approach to valuation for a sample of properties in 2005. In terms of distributing the tax bill across all properties in the sample, Figure 7 illustrates the distributions for ARV and CV. As with data set 1 this data set under a CV approach spreads the tax burden more widely than that of ARV.

Table 12
Descriptive Statistics: Tax Bills for CV and ARV

	CV BILL	ARV BILL
Mean	633	632
Median	570	570
Mode	684	537
Std. Deviation	240	216
COV	0.38	0.34
Skewness	0.673	0.949
Kurtosis	-0.118	0.261
Minimum	165	217
Maximum	1,539	1,302

Figure 7
Tax bill distribution for all properties



CONCLUSIONS

This paper has attempted to measure the differences between property systems based on either capital value or annual rental value. The CV approach tends to spread the bill across a much greater range of properties, particularly high value end. Data set 1 compared ARVs at 1976 with CVs at 2005; the tax bill distribution indicated a relatively high level of correlation between the two. Data set 2 compared ARVs at 2005 with CVs at 2005 to see if the time disparity with data set 1 was significant. Again the results of the analysis would tend to support the view that both approaches distribute the bill in a broadly similar manner.

The broad conclusions of this research would indicate that whilst the tax bill distributions of ARV and CV are not identical they generally perform in a similar way.

One of the main limitations of this research is that the work is based on residential property where generally there are few issues surrounding the differences in value between existing use and highest and best use. Considering commercial property, the results might well be different.

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Country	Land value	*Capital Improved value*	Land and improvements (separately)	Improvements only	Annual Rental value	Area	Flat rate
AFRICA							
Botswana		X					
Burundi						X	
Cameroon						X	
Eritrea						X	X
Ethiopia						X	
The Gambia					X		
Ghana				X			
Guinea					X		
Kenya	X					X	
Lesotho		X				X	
Malawi		X					X
Mauritius		X			X		
Mozambique				X			
Morroco					X		
Namibia			X			X	
Nigeria		X			X	X	X
Rwanda						X	
Sierra Leone				X			
South Africa		X					
Swaziland			X				
Tanzania				X			X
Tunisia					X	X	X
Uganda					X		
Zambia		X					X
Zimbabwe		X	X			X	
Subtotal 25	**1**	**8**	**3**	**4**	**7**	**11**	**6**
CARIBBEAN							
Antigua & Barbuda					X		
Bahamas	X	X					
Barbados	X	X					
Bermuda					X		
Dominica						X	
Grenada			X				
Guyana		X			X		

Jamaica	**X**						
Montserrat	**X**		**X**		**X**		
St Kitts& Nevis					**X**	**X**	
St Lucia		**X**			**X**	**X**	
St Vincent & Grenadines					**X**	**X**	
Trinidad & Tobago					**X**	**X**	
Subtotal 13	**4**	**4**	**2**	**0**	**8**	**5**	**0**
ASIA							
Armenia						**X**	
Azerbaijan						**X**	
Bangladesh					**X**		
Brunei Darussalam					**X**	**X**	
China		**X**			**X**	**X**	
Georgia						**X**	
India					**X**	**X**	
Indonesia		**X**					
Israel						**X**	
Japan		**X**					
Kiribati					**X**		
Kyrgyz Republic						**X**	
Lao						**X**	
Malaysia		**X**			**X**		
Nepal					**X**		
Pakistan					**X**		
Philippines		**X**	**X**				
Singapore					**X**		
South Korea	**X**		**X**				
Sri Lanka					**X**		
Tajikistan						**X**	
Taiwan	**X**						
Thailand		**X**			**X**		
Uzbehistan						**X**	
Subtotal 24	**2**	**6**	**2**	**0**	**11**	**11**	**0**
OCEANIA							
Australia	**X**	**X**			**X**		

Fiji	**X**						
New Zealand	**X**	**X**			**X**		
Papua and New Guinea	**X**						
Solomon Is	**X**						
Tuvalu					**X**		
Vanuatu	**X**				**X**		
Subtotal 7	**6**	**2**	**0**	**0**	**4**	**0**	**0**
WESTERN EUROPE							
Austria		**X**					
Cyprus		**X**					
Denmark		**X**					
France					**X**		
Germany		**X**					
Ireland					**X**		
Italy					**X**		
Netherlands		**X**					
Portugal					**X**		
Spain		**X**					
Sweden		**X**					
Switzerland		**X**			**X**		
United Kingdom		**X**			**X**		
Subtotal 13	**0**	**9**	**0**	**0**	**6**	**0**	**0**
EASTERN EUROPE							
Albania						**X**	
Belarus						**X**	
Bosnia and Herzegovina						**X**	
Bulgaria						**X**	
Croatia						**X**	
Czech Republic						**X**	
Estonia	**X**	**X**					
Hungary						**X**	
Kosovo		**X**					
Latvia		**X**					
Lithuania		**X**				**X**	
Macadonia		**X**					
Moldova						**X**	

Poland						**X**	
Romania						**X**	
Russia		**X**					
Serbia and Montegro						**X**	
Slovak Republic						**X**	
Slovenia						**X**	
Ukraine						**X**	
Subtotal 20	**1**	**6**	**0**	**0**	**0**	**15**	**0**
CENTRAL AND SOUTH AMERICA							
Argentina		**X**					
Belize	**X**				**X**		
Bolivia		**X**					
Brazil		**X**					
Chile	**X**	**X**	**X**				
Columbia		**X**					
Costa Rica		**X**					
Ecuador		**X**					
Guatemala							
Honduras		**X**					
Nicaragua		**X**					
Paraguay		**X**					
Peru		**X**					
Republica Dominica		**X**					
Uruguay		**X**					
Venezuela		**X**					
Subtotal 16	**2**	**14**	**1**	**0**	**1**	**0**	**0**
NORTH AMERICA							
Canada		**X**					
Mexico		**X**					
United States		**X**					
Subtotal 3	**0**	**3**	**0**	**0**	**0**	**0**	**0**
Totals 121	**16**	**52**	**8**	**4**	**37**	**42**	**6**

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Note:

Nicaragua, Armenia, Belarus, Bulgaria, Georgia, Moldova, and Russia use a form of capital value based on some form of prescribed value such as cadastral or inventory value.