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A Land Value Tax for Wales? Valuation methodologies

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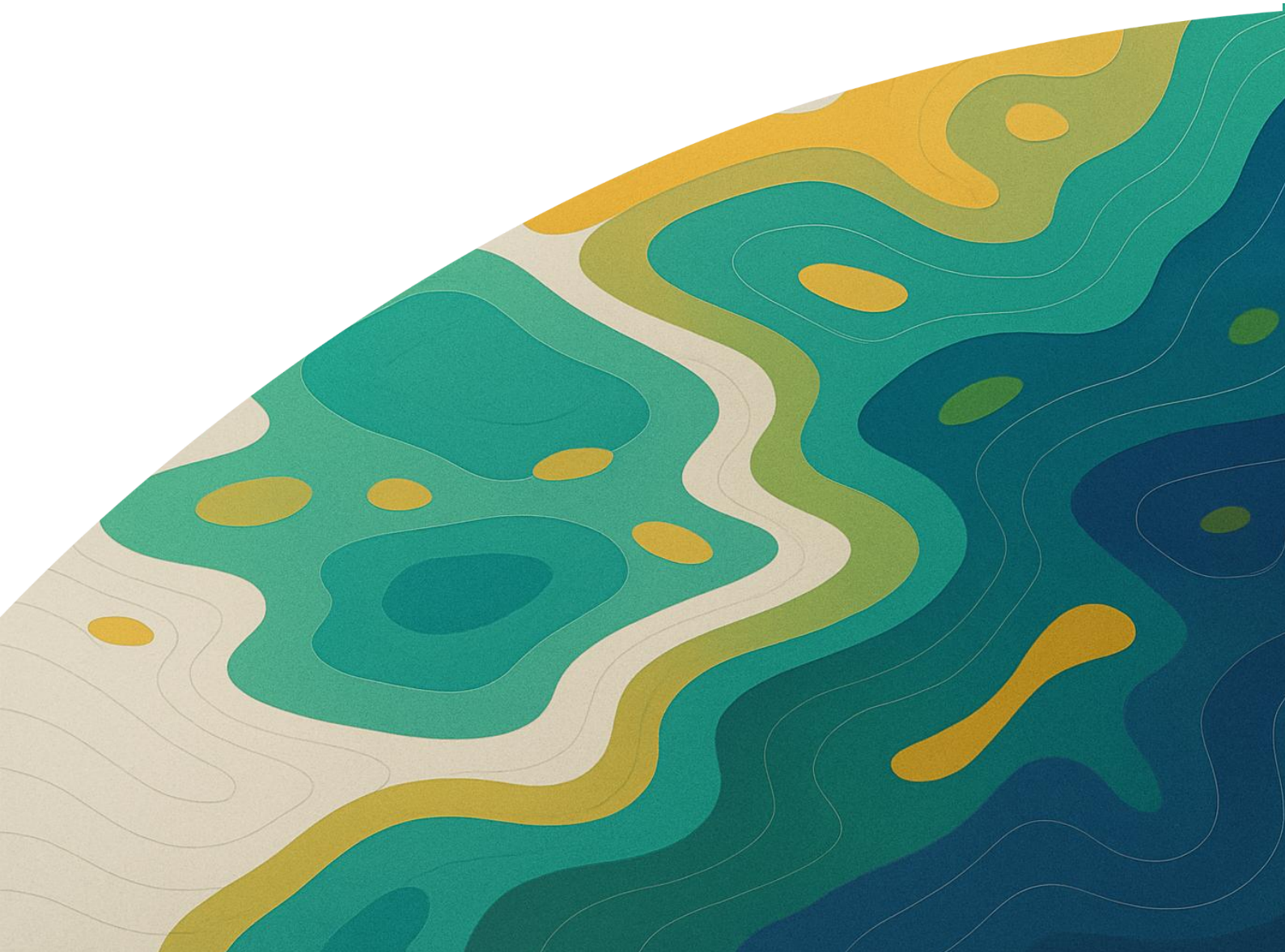

Abstract

Valuing land is crucial for implementing a Land Value Tax (LVT) in practice. Yet, because land and buildings are usually sold together, methods are needed to estimate the *unimproved* land value. Multiple potential methods exist in both research and international taxation practice, which vary in their assumptions and complexity. No single optimal method exists. Instead, whether a method is feasible depends on the context it is applied to, the data and capacities available, and whether the results are sufficiently fit for purpose. This report considers potential pathways for land valuation in the Welsh context. It draws from both a review of empirical research on LVT, which illustrates how researchers construct land value, and a review of international property taxes with a land component, which shows the choices behind the range of approaches in practice. By synthesising these reviews, the report identifies five methodology groups for testing in Wales: 1) market-based statistical methods, 2) algorithmic and machine learning approaches, 3) formula-based approaches, 4) conventional valuation approaches, and 5) innovative or experimental methods. Testing how these methodologies perform when applied to diverse areas of Wales is essential for understanding their robustness and feasibility at scale. The report concludes with questions for policy to guide comparison across methods, emphasising the need for approaches that are credible, transparent, and aligned with wider Welsh policy objectives.

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Executive Summary

This report examines how unimproved land value could be estimated in Wales to inform consideration of a Land Value Tax (LVT). It was completed during a UKRI Policy Fellowship and is a companion to a longer working paper, *Claims and contexts*, which examined the theoretical foundations of LVT and assessed the empirical evidence. That paper concluded that the theoretical benefits attributed to LVT are highly contingent in practice. How unimproved land is valued emerged as a key practical factor.

Unimproved land value refers to the value of the land itself, excluding buildings, structures, and other improvements. Essentially, it reflects the value that would remain even if nothing had been built on the site. In theory, unimproved land value reflects the advantages a location offers (such as proximity to jobs, services, infrastructure, and amenities), as well as wider socio-economic conditions.

In practice, however, **unimproved land value is rarely observed directly** because there is little land in the UK that is truly 'unimproved' and land and buildings are commonly sold together at a single price. Estimating value therefore **requires some form of analytical separation or administrative rule**. In addition, both markets and data vary across residential, commercial, and agricultural markets and between rural and urban areas. Different valuation methods can therefore produce different answers for the same site, and the 'true' land value can never be known with certainty. This report draws from two desk reviews undertaken during the Fellowship:

- A review of empirical research on LVT, which considered how researchers construct land values when official estimates are unavailable. This review was reported in detail in the *Claims and contexts* paper.
- Desk research scoping international property taxes with a land component in jurisdictions relevant to Wales, which identified how land is valued in practice.

Both reviews demonstrate that there is **no single optimal valuation method for Wales to adopt**. Instead, approaches differ according to their purpose, the data available, administrative feasibility, and policy goals. An approach that performs well for one purpose or context may not necessarily work in and for Wales. Testing different approaches in a Welsh context is therefore essential.

The key contribution of this report is to identify **five groups of land valuation methodologies suitable for testing in Wales**. These groups were selected because they:

- Represent different ways of constructing land value
- Reflect varying trade-offs between approximating market value and achieving administrative feasibility
- Differ in data requirements
- Span a spectrum from low-cost rule-based systems to modelling using advanced data science techniques
- Allow for structured comparison under real-world conditions in Wales.

The five methodology groups are:

1. **Market-based statistical methods** that estimate land value from transaction data. These align closely with a market value logic, but depend on rich, high-quality datasets and may struggle in thin markets.
2. **Algorithmic and machine-learning approaches** that use large, linked datasets and advanced data science techniques to predict land values at scale. These can capture complex interactions between the factors that contribute to value but are data intensive and may raise transparency issues.
3. **Formula-based approaches** that use explicit rule-based systems (such as a value per square metre) to construct administrative values. These are simple, transparent, and stable, but less sensitive to nuanced differences or market change.
4. **Conventional valuation approaches** that utilise professional practice and standards. These are well-established but require adaptation because the UK valuation profession does not regularly separate the value of land from improvements.
5. **Innovative and experimental approaches** not otherwise described, such as self-assessment, participatory valuation, or multi-criteria decision tools. These may provide alternative pathways but are less tested at scale.

Choosing between these approaches is not a purely technical matter. For Wales, the overarching policy question is not *whether* land value can be estimated, but *which* approach (or combination of approaches) would be sufficiently robust, transparent, feasible, scalable, and aligned with Welsh policy objectives in practice.

Glossary

This is a list of some of the key terms that are used in the text. Terms that appear in this glossary are **marked in green** within the text.

Artificial intelligence (AI)	Computer systems designed to perform tasks that normally require human intelligence, such as recognising patterns, learning from data, and making predictions.
Automated valuation models	Computer systems that estimate property or land values using statistical or algorithmic techniques applied to large datasets. AVMs enable valuations to be produced more quickly at scale.
Cadastre	An official register of land parcels that records boundaries, ownership, and sometimes land use or value. Contemporary cadastral systems use digital platforms and may be publicly accessible.
Differential rent	An economic concept describing how land of higher quality or better location generates higher returns than land with less relative advantage.
Granular data	Highly detailed data that captures variation at a fine scale, such as individual properties or small geographic areas.
Hedonic value	The portion of a property's price that reflects desirable characteristics, such as attractive location, size, or proximity to services. Hedonic analysis examines how these attributes contribute to observed market prices.
Highest and best use (HABU)	The most valuable legally permissible and feasible use for a given parcel of land. Valuing land on a HABU basis assumes it will be used in a way that generates the greatest economic return.

Hope value	An element of value based on expectations that land may gain planning permission or have improved development potential in future.
Improvements	Buildings, structures, or works carried out on land to enhance its use or productivity. Improvements are distinct from the underlying land and are created through investment and labour.
Location value	Also known as site value. The component of land value arising from its relative proximity to amenities, infrastructure, employment, etc.
Machine learning	A subset of AI in which computer systems learn patterns from data to make predictions or classifications without being explicitly programmed with fixed rules. It may be supervised by human expertise or unsupervised.
Market value	The price a property would receive in an open market transaction. It reflects current market conditions and expectations. Because market value is not revealed until a transaction takes place, market valuations are estimates.
Mass appraisal	The process of valuing many properties at once using standardised methods and data. It is commonly used for property taxation to ensure consistency and efficiency.
Parcel level	Refers to analysis or valuation conducted for individual land parcels. Parcel level valuation is necessary to assign tax liability to specific owners.
Residual (method)	A valuation approach that estimates land value by subtracting the cost of improvements from the total property value. The remaining ‘residual’ amount is treated as the land component.
Sales comparison	A valuation method that compares a property to similar properties that have recently sold, adjusting for differences such as size. It relies on observable market transactions.
Unimproved land value	The value of land excluding buildings or other improvements.

Unearned gains / increment	Stems from the view that increases in land value that arise from external factors such as public investment or collective development rather than the landowner's individual actions are unearned. This concept is central to arguments for value capture.
Use value	The value of land based on how it is (or could be) used. Different uses (such as residential, commercial, or agricultural) can significantly affect land value.
Value capture	Policy mechanisms designed to recover some of the increase in land value generated by public action, such as infrastructure investment or planning decisions.

1. Introduction

Land Value Tax (LVT) is frequently proposed as a more efficient and equitable reform to conventional property taxation – including Council Tax and Non-Domestic Rates (NDR) in Wales. Unlike these conventional property taxes, which are levied on buildings and improvements, LVT is charged on the *unimproved* value of land. The underlying rationale is that land value largely reflects external factors like location and amenities, public investment, and wider social and economic conditions rather than individual effort.

In Wales, recent interest in LVT arises from a programme of Welsh Government work on **local government finance reform**, initiated in 2017.[1] This programme responded to concerns about the fairness and resilience of Council Tax and NDR, particularly given outdated valuation bases, uneven spatial impacts, and local authority finances. A 2021 synthesis of lessons learned from the Welsh Government's reform programme concluded that, while LVT remained a credible long-term option, further work was required on **data infrastructure, governance, and delivery pathways** before policy decisions could be taken.[2]

This report was prepared as part of a UKRI Policy Fellowship on Welsh local government finance reform. It is a companion to a longer working paper, *A Land Value Tax for Wales? Claims and contexts*, which examined the theoretical foundations of LVT and assessed the empirical evidence for commonly cited equity and efficiency claims. That review concluded that benefits attributed to LVT are **plausible in theory but highly contingent in practice**, depending on tax design, valuation systems, planning frameworks, and local market conditions. This present report focuses on **valuation**.

Valuing land – particularly land that is built upon – has been identified as a significant practical challenge for LVT implementation.[3] A key theme emerging from the companion evidence review was that **valuation is not a neutral technical exercise**. How an LVT performs in practice directly depends on how unimproved land value is estimated. Wales does not currently have a valuation system designed to isolate unimproved land value at the parcel level across the country. Hence, if Wales were to implement an LVT, the central question would not simply be whether taxing land

[1] Welsh Government (2017). Reforming local government finance: 2017 update. https://www.gov.wales/reforming-local-government-finance-annual-updates.
[2] Welsh Government (2021). Reforming local government finance in Wales: Summary of findings. https://www.gov.wales/reforming-local-government-finance-wales-summary-findings.
[3] E.g. Dunne, T. (2005). Land value taxation: Persuasive theory but practically difficult. Hughes, C. et al. (2020). Implementing a land value tax: Considerations on moving from theory to practice.

value is desirable in principle, but **how taxable value could be estimated credibly, consistently, and at scale across diverse Welsh geographies**.

Reviews of academic literature and international property tax practice undertaken during the Fellowship (and drawn on later in this report) found that there is **no single optimal or agreed upon land valuation method** for Wales to adopt. Moreover, 'good practice' in one context may not necessarily work in and for Wales. A range of land valuation approaches are possible, which vary in their logic, data needs, granularity, transparency, cost, and sensitivity. From a policy perspective, design choices need to be made, and there will be inevitable trade-offs between an ideal valuation system on paper and a feasible system in practice. Clearly, potential methods need to be tested in the Welsh context before effective choices can be made.

This report identifies **five methodology groups** that are suitable for testing in Wales:

1. Market-based statistical methods,
2. Algorithmic and machine-learning approaches,
3. Formula-based approaches, using explicit and simplified rules,
4. Conventional valuation approaches, drawing on established professional practice and standards,
5. Innovative and experimental approaches not otherwise defined.

These groups are outlined in Section 5. Section 6 provides a range of policy-relevant questions to facilitate discussion of the methods and their results in a Welsh context.

The preceding sections provide a narrative for the selection of the five methodology groups. Section 2, immediately following this introduction, provides a **simplified overview of the concept of unimproved land value**. This is followed by a short discussion of the **key challenges in valuing land**, in Section 3.

Section 4 draws upon both a **literature review of land valuation methods** used in LVT research and a **desk review of property taxes** in other relevant jurisdictions that include a land component. Together, these reviews show a range of possible approaches to land valuation, ranging from complex and data-intensive statistical modelling to low-cost systems using simple rules. This section also highlights the important role of professional valuation expertise and notes the emerging potential of advanced data science techniques using AI and machine learning.

2. What is land value?

Land valuation rests on two foundational ideas: first, that land is an asset with an economic value distinct from the structures built upon it; and second, that this value is different across different parcels of land. These ideas are rooted in economic theory and remain central to understanding land valuation today. This section briefly introduces the conceptual foundations of land value and discusses what is meant by **unimproved land value**. Understanding these ideas provides the basis for engaging with valuation methodologies in later sections.

2.1. Land as an economic asset

Land has long been recognised as a source of wealth and power, but it was not always viewed as a tradable asset. In European feudal systems, land ownership conferred status and the right to extract rents, labour, and other dues from tenants. The transition towards treating land as an economic asset occurred from the late medieval period into the early modern era. The development of nation states and expansion of market relations played a key role. Across Europe, land gradually became a commodity that could be bought, sold, leased, and improved. In Britain, progressive enclosure from the sixteenth century onwards accelerated this process by turning common land into parcels of alienable property.

These material changes were accompanied by important conceptual shifts. Mercantilist thought (dominant from the sixteenth to eighteenth centuries) emphasised the accumulation of national wealth and power through trade surpluses. Land, from this perspective, was a strategic resource that shored up state power through agricultural output and taxation. Early political economists departed from this thinking and began to theorise land more explicitly as a distinct factor of production. The Physiocrats in eighteenth century France influentially argued that land was the fundamental source of economic surplus, because only agriculture could generate a net product.

In Britain, Adam Smith (1723-1790) formalised the classical economic view of land by distinguishing land from labour and capital. He hence understood rent as a specific form of income that accrued to land *ownership* rather than productive effort. Moreover, he recognised that land was naturally scarce – it could not be created, like capital, or reproduced, like labour.

2.2. Land value as differential

David Ricardo (1772-1823) built upon the understanding that land was inherently in **fixed supply**. His theory of **differential rent** conceptualised the value arising from differences between landholdings. In *On the Principles of Political Economy and Taxation* (1817), Ricardo observed that, since agricultural land varies in quality and location, the higher rents some landlords could charge their farmer tenants represented the **relative advantage of better land**. As population growth and rising demand for food pushed agricultural production onto more marginal land, Ricardo predicted that the owners of better land would consequently reap rising rental gains.

The understanding that different parcels of land will receive different rents or sale prices is foundational to land valuation today in two key ways. First, although Ricardo imagined that the main land use was agriculture, the industrial revolution led later thinkers to explicitly recognise that land can have multiple potential uses and that these also have a differential impact on value. The concept of **use value** describes the influence of how a parcel of land is (or could be) used on its value. Obviously, land has different actual uses, and it will also have different potential uses. Just as not every field can support a productive farm, not every site is suitable for housing or a shopping centre. The concept of **highest and best use (HABU)** attempts to discern the most effective and best value use an individual site could be put to.

Second, Ricardo's reasoning showed that landowners accrued rising rents not because of their own effort, but due to **social and economic dynamics often external to the land itself**. Today, land valuation remains attentive to the *external* drivers of land value, rather than simply assessing the quality of a particular parcel. These drivers can include heated (or slumped) property markets, for example. They can also reflect **locational value**, such as nearby infrastructures and amenities, school catchment areas, proximity to employment centres, trendy neighbourhoods, or picturesque villages. Contemporary approaches to **hedonic value** seek to establish which desirable characteristics are reflected in market prices for property in different areas.

2.3. What is unimproved land value?

Classical economists' distinction between the rent due to a landowner and the labour a tenant farmer would put in to produce a yield remains important, even if our contemporary economy and society look rather different. This distinction underlies the concept of **improvements** – works made to land or structures built upon it to realise social and economic outcomes. For example, developing a successful vineyard requires first improving the land by planting grapes, then adding outbuildings for pressing, ageing, and bottling, which may expand as the business grows. Were the vineyard to be sold, it would likely fetch a good price; equally, if the

vineyard were not there, the vacant land would *still* fetch some price. This is the **unimproved land value**, and it always makes up a portion of any property's market value.

Unimproved land value is a **conceptual separation** that seeks to isolate the value of the underlying land from the value created by work or investment upon it. Though the modern concept considers many more factors than agricultural potential, it still fundamentally aims to approximate the 'rent' (or sale price) a landlord could earn without doing anything on site. Unimproved land value does not increase because the owner works harder or invests more, but because the position of *that particular land* parcel within our wider economy and society confers **advantages relative to other locations**. Value in this sense is **relational rather than intrinsic**. Usually, when "land value" is discussed, unimproved land value is meant.

It is important to remember here that unimproved land value does not imply the absence of human influence. On the contrary, many of the most significant drivers of land value are the result of other human activities off site. These include public investment in infrastructure and services, planning decisions, demographic change, economic growth, and the cumulative effects of neighbouring development.

Many land reformers from the nineteenth century onwards have built upon both classical economists' separation of rent and labour and the recognition that unimproved land values are externally driven. These observations have underpinned a broader critique of land ownership as a source of *unearned* advantage. From this viewpoint, increases in land value represent **unearned gains** (also called an **unearned increment**). Today, this critique is not limited to concerns regarding rent extraction from tenants, but to encompass the land value conferred by the collective decisions of government and society.

2.4. What land value is not

Before concluding this section, it is useful to reprise what land value is *not*:

- Land value is ***not* the same as house prices or property values**, because these combine land and improvements into a single market price.
- Land value does ***not* primarily reflect the effort, skill, or investment of individual landowners**.
- As a concept, land value does ***not* ignore human activity** but reflects value arising from location and wider social and economic processes.

As this discussion has already implied, identifying unimproved land value raises some significant challenges, which the next section turns to.

3. Land valuation challenges

While the concept of **unimproved land value** can be clearly defined in theory, estimating this is much more complex in practice. In contemporary land and property markets, true unimproved value is rarely revealed directly and instead must be estimated. This section outlines the key challenges that arise when attempting to estimate unimproved land value, particularly at the parcel level and at scale.

3.1. Separating unimproved land value from improvements

Section 2 above introduced the concept of **unimproved land value**. While the concept itself is straightforward to understand, determining the unimproved land value in contemporary society – where most high value land is not empty fields, but already build upon – represents a significant challenge. **Pure unimproved land value is rarely observed directly in property markets**. Land and buildings are typically bought and sold together, and the transaction prices reflect a bundled value. In leasehold arrangements, especially for residential property, the lease charged for land may be a low or 'peppercorn' amount rather than reflecting market value. Even farmland is usually improved to some extent, with centuries of intervention improving drainage, removing stones, conditioning soils, and building walls, hedges, and access routes. Because sales of wholly vacant and unimproved land are rare, there are few opportunities to estimate the value of nearby built land, as one might do with online property sales comparison tools.

Consequently, land valuation typically requires some form of analytical separation between land and improvements. There are several potential methods for doing this, but each relies on certain assumptions, meaning that estimation errors are unavoidable and different valuation methods can produce markedly different land value estimates for the same site. Because the "real" unimproved land value can never be known, valuations **should always be understood as estimates.** Even where land values may look precise (e.g. calculated down to the nearest pound), they will always be inherently uncertain.

3.2. Multiple land and property markets

There is no single, unified market for buying and selling land. Instead, land (and the improvements on it) typically trades in multiple markets, corresponding to different

uses, like residential, commercial, and agricultural. Both the drivers of demand and the logics behind purchasing property are different in these markets. The data associated with sales can be different, too. For example, most residential property sales leave individual sales records, but commercial property often trades as part of a company, leaving no sales record for the property itself. Farmland tends to be held long-term, so agricultural property markets have comparatively low turnover. Because one town or area will typically contain multiple land uses, it is rarely possible to use a 'one-size-fits-all' approach to valuation. In practice, approaches that perform well in one market can fall down in another.

Even within a single use category, markets can be highly localised. Obviously, the volume of sales in popular urban markets is markedly different from that of small villages where there are simply fewer properties. But local markets can also move at different paces. For example, prices can rapidly change when a rural or coastal area becomes a desirable hotspot. By contrast, places where the market has become stagnant will see low turnover. Land valuation is meant to be sensitive to these kinds of localised changes – but the more localised a market is, the more granular the data to analyse it needs to be.

3.3. Data availability and data quality

Robust land valuation depends on high-quality, detailed data on transactions, property characteristics, location attributes, and market conditions. In practice, available datasets often fall short of these requirements. The challenges for data availability and quality include:

- Incomplete coverage.
- Uneven volumes of data by area or market.
- Inconsistencies in data, such as misclassifications or missing variables.
- A lack of sufficiently **granular data** to support **parcel-level** valuation.
- Inaccessible or expensive proprietary datasets.
- Difficulties linking multiple datasets together.

Data constraints affect both the accuracy and legitimacy of valuations. Limited or biased data can lead to systematic errors in estimated land values, particularly in areas with limited markets or atypical property types. Data quality especially constrains methodological choices. For example, some advanced data techniques are inappropriate (or impossible) where there are small samples and poor-quality variables. Relying on data that is poor or opaque can also limit transparency and reproducibility, which can in turn undermine confidence in valuations, especially where these are presented to the public.

3.4. The role of planning and regulation

Planning and regulatory frameworks play a role in influencing land value. Development plans, planning permissions, and environmental and heritage designations can all alter the use and value of land. Two otherwise identical parcels may significantly differ in value solely due to their planning status. In some cases, particularly for development land, land values will incorporate expectations about planning change. For example, a housing developer may secure a site ahead of planning permission being granted. These and other similar situations are described by the concept of **hope value** – sales values may reflect buyers' hopes for future changes in planning permission or development potential.

At the same time, development rights are not automatic within Wales's discretionary planning system, which adds considerable uncertainty. Valuation hence needs to take a position on how to treat planning and regulation. To what extent should valuation reflect current permitted use, consider alternative allowable uses, or attempt to adjust for hope value? Each choice involves both analytical (what is happening?) and normative (what should happen?) judgments. Because valuation methodologies inevitably embed assumptions, these types of choices are not just technical matters.

3.5. Attributing value created by public action

As noted in Section 2, reformers have long argued that increases in land value represent unearned gains, particularly when they arise from public investment and collective action. Forms of **value capture** – such as taxes and levies – are advocated to return some of the uplift landowners accrue back to the public purse. In practice, however, increases in land value often result from multiple overlapping interventions over time, rather than a single identifiable action. For example, a suburb that receives new bus infrastructure may already be in the process of becoming a more popular destination for work, residence, or leisure. While the new infrastructure will likely raise values further, isolating the effect raises new technical challenges and requires complex data analysis.

4. Methods in research and practice

Estimating the unimproved value of land requires a method to **separate** the value of land from improvements or otherwise **apportion** a value to land. This involves methodological choices. While the concept of land value is grounded in theory, valuation in practice depends on how value is defined, what data are available, and what purpose the valuation serves. There is no single agreed method in either academic research or professional practice. Instead, different approaches reflect different assumptions, administrative capacities, and policy goals.

This section reviews land valuation methodologies from two different perspectives: academic research and international taxation practice. These show a range of methods in use and demonstrate that land valuation is not just a technical exercise but involves important choices about design and objectives.

4.1. Learning from research

This section draws upon an adapted systematic literature review that identified empirical research on LVT in high and upper-middle income country contexts published in English between 1999 and 2024. Seventy studies met screening criteria. The methodology and results of this review are reported in detail in the working paper *Claims and contexts*. This section focuses solely on the valuation methods used in the screened studies.

In jurisdictions where land is already valued for taxation purposes, researchers relied on officially reported estimates. However, in jurisdictions where this data is not available (or was not sufficient for the study) researchers needed to construct or infer land value. The 37 studies that included valuation **did not converge on a single methodology**. Instead, researchers adopted different approaches depending on the analytical questions they were trying to answer and the data available to them.

The research review specifically focused on valuation approaches used in studies related to LVT, rather than wider literature on or using valuation methods. This means that the review cannot claim to comprehensively identify all methods in use.

4.1.1. How do researchers construct land value from property data?

Property sales data is often widely available and provides a starting point for many studies. Three main approaches for getting from a total property price to the land component are commonly used (and in some cases, used together). These techniques are not usually presented in the literature as identifying a 'true' unimproved land value. Instead, they are used to construct sufficient estimates that enable further analysis.

Residual or **extraction** approaches begin by estimating the value of improvements, such as through construction costs and depreciation schedules, or by using simpler allocation ratios.[4] Once the value of improvements is subtracted from the total property value, the remaining 'residual' is treated as land value. In the literature, residual approaches are often used pragmatically with limited testing. They are flexible and widely applicable, but their results depend on assumptions about the value of improvements.

Sales comparison approaches estimate land values by **looking directly at what comparable pieces of vacant land (or lightly developed land) in nearby or similar locations have sold for**.[5] Rather than modelling prices, they rely on extending the values seen in actual land sales to similar parcels or a wider area. Observed sale prices are adjusted for differences between sites, such as size or permitted use. These adjusted prices are then used to estimate land values for sites that have not recently sold. Sales comparison methods are well-established in both research and professional valuation practice. While they are grounded in actual land transactions, they strongly depend on the availability of suitable land sales. Estimates are less reliable where there are few transactions or in markets where transactions may rapidly become out of date.

Hedonic modelling is the most statistical approach to land valuation seen in the literature. Hedonic modelling works by **analysing real market transactions to understand how particular, observable property attributes or location characteristics influence the prices buyers are willing to pay**.[6] To apply the method to valuing land, researchers use the patterns identified in the model to estimate how much of a property's price is associated with land-related factors and how much is associated with improvements. For this latter step, hedonic modelling may be paired with area-level regressions or mass appraisal style estimations. Hedonic modelling requires large transaction samples and detailed data about

[4] E.g. Cohen, J. P., & Fedele, M. J. (2017). Where in Connecticut is the best location for a split tax? An analysis of land assessment equity in several cities. Anas, A. (2014). The effects of land value taxation in a computable general equilibrium model.
[5] E.g. Larson, W. D., & Shui, J. (2022). Land valuation using public records and kriging: Implications for land versus property taxation in cities. Spinney, J. E. L., & Kanaroglou, P. S. (2012). Municipal taxation and social exclusion: Examining the spatial implications of taxing land instead of capital.
[6] E.g. Wang, Y., et al. (2015). Bus stop, property price and land value tax: A multilevel hedonic analysis with quantile calibration.

properties and area characteristics to work effectively. Models using sufficient data can operate at a granular spatial scale (sometimes street or neighbourhood) and pick up hyper-local effects on prices. However, with only a small number of sales, a few unusual properties can skew the results.

A smaller strand in the research uses **multi-criteria** or expert **weighted** approaches to estimate land values.[7] Multi-criteria approaches **systematically combine a range of factors deemed relevant to land value** and use these to analyse a property. Each factor is assigned a weight reflecting its assumed importance, and these weighted factors are then summed to produce an overall land value rank or estimate. Factors might include, for example, location and accessibility, planning permissions, proximity to amenities, and environmental quality. Expert input may be included in this, or used to develop simpler ratios of land and improvements.[8]

In the literature, these methods occur in case studies or pilots, rather than in larger scale empirical studies. They may be used when data are limited, or when researchers want to make assumptions explicit, rather than embedding these in statistical models. These methods reflect judgments about what *should* matter for land valuation. They can combine qualitative and quantitative data to reach those judgments, but they do not seek to 'learn' from market behaviour or prioritise statistical precision.

4.1.2. How granular are land valuations in the research?

Although there are exceptions, valuation methodologies are not usually used in the literature to develop estimates at the parcel-level. In most cases, the actual **unit of interest is an area or group**. For example, valuation methods may be used to:

- Estimate average land value shares within property values[9]
- Estimate the typical effects of location attributes on land values[10]
- Construct distributions of land value across households or areas[11]
- Enable simulations of revenue-neutral changes in the tax base[12]
- Support comparative analysis of tax incidence.[13]

[7] E.g. Mangioni, V. J. (2014). Land value taxation and the valuation of land in Australia. Raslanas, S., et al. (2010). Land value tax in the context of sustainable urban development and assessment. Part II - Analysis of land valuation techniques: The case of Vilnius.
[8] E.g. Wuensch, J., et al. (2000). Land value taxation in indiana: Challenges and issues.
[9] E.g. Barbosa, R. (2021). Essays in public economics and financial macroeconomics.
[10] E.g. E.g. Wang, Y., et al. (2015). Bus stop, property price and land value tax: A multilevel hedonic analysis with quantile calibration.
[11] E.g. Murray, C. K., & Hermans, J. (2021). Land value is a progressive and efficient property tax base: Evidence from Victoria.
[12] E.g. Haveman, M. (2004). Evaluating the feasibility and burden-shifting effects of a statewide land value tax on commercial and industrial property.
[13] E.g. Cohen, J. P., & Fedele, M. J. (2017). Connecticut's land value taxation public act: Who would bear the burden?

Working at an area or group level allows researchers to **work with datasets that were never designed for land valuation**, such as household surveys or online sales registries. Because over- and under- estimates tend to cancel each other out in larger samples, an aggregated scale can offer a generally reliable overall picture – even if individual property estimates are not very precise. It is important to note that, in the literature, land value estimates are **primarily used as *inputs* for simulations or other analyses**, rather than *outputs* of interest in their own right. This means that the study's internal coherence is prioritised over getting valuations 'right' or validating them against other methods or external benchmarks.

4.1.3. How do researchers deal with data constraints?

As already noted, researchers often work with datasets that were not designed for land valuation. They may also deal with administrative records or sales transaction datasets that have incomplete information or limited spatial coverage. Data availability and quality inevitably influence methodological choices and researchers adopt pragmatic strategies to work with what they have. This can include:

- Restricting analysis to property types with more accessible or reliable data
- Using proxies or alternative datasets to substitute for missing variables
- Using spatial interpolation techniques to make estimates based on data from nearby locations
- Simplifying valuation assumptions
- Using hybrid combinations of different methods
- Using fixed land to property ratios.

These adaptations again emphasise the point that valuation methods in research are **chosen to make analysis feasible** rather than necessarily to maximise precision.

4.2. Learning from international practice

This section draws on scoping desk research focusing on existing property taxes in the **EU27 and 11 additional high-income democracies** that included a land component as at 2024. The research was not intended to be exhaustive, and the 84 taxes identified varied widely in nature and scope. Findings from this research were for internal purposes and have not to date been reported elsewhere.

The research provided instructive learning on how land is valued in practice in a variety of contexts. Across the taxes reviewed, valuation approaches varied in their features and complexity. This included the basis for valuation, the administrative infrastructure and methods applied, the data used, and additional factors such as indexation and zoning. Four key typological features of the different valuation approaches could be identified, which are briefly outlined in the following sub-sections.

The international practice review identified how land valuation is undertaken across different jurisdictions, but did not assess accuracy, appeal rates, administrative costs, or downstream outcomes. Learning from international practice should be interpreted as suggesting design possibilities rather than demonstrating effectiveness or success.

4.2.1 What is the underlying logic for valuation?

While there is a clear logic behind the theoretical concept of unimproved land value, in practice valuing land for taxation purposes does not necessarily aim to approximate the same measure of value. Four general premises behind valuation regularly appear in practice:

- **Market value:** valuation aims to approximate the price a property would fetch in an open market transaction.[14]
- **Income value:** valuation aims to approximate the income an owner would drive from the property, through rent or production. This is primarily applied to commercial property or agricultural land.[15]
- **Cost value:** valuation reflects the replacement cost for the property. This is primarily applied to buildings but may be used to calculate the residual value of land.[16]
- **Administrative value:** valuation is an accounting practice for tax purposes and largely abstracted from 'real world' transactions.[17]

4.2.2. How does valuation treat land use?

Land use matters for valuation in practice, because residential, commercial, and/or agricultural properties are often treated differently in tax policy. How land use can be treated is also closely related to the structure and permissiveness of the planning system in force. Approaches hence range from the ideal to the pragmatic:

- **HABU**: a parcel is valued based on its **highest and best use**.[18]
- **Designated use:** A parcel is valued based on its permitted use, or designated use in a development plan. This is common in taxes on vacant or under-developed land.[19]

[14] E.g. Queensland Revenue Office (2024). Land tax. Queensland Government (2024). Land valuation programs.
[15] E.g. State Tax Inspectorate, Republic of Lithuania (n.d.). Real estate tax. Register of Legislation, Republic of Lithuania (2022). Real Estate Tax law of the Republic of Lithuania.
[16] E.g. Boletín Oficial del Estado (2023). Royal Legislative Decree 2/2004, of March 5, approving the revised text of the Law Regulating Local Finance. General Directorate of Cadastre, Spain (n.d.) Frequent questions.
[17] E.g. State Revenue Service, Latvia (2024). Property tax. Legal Acts of the Republic of Latvia (2024). About real estate tax. Legal Acts of the Republic of Latvia (2024). Law on State Cadastre of Real Estate.
[18] E.g. Revenue NSW (n.d.), Land tax. NSW Government (2023). Valuation of Land Act 1916.
[19] E.g. Financial Management, Czech Republic (2024). Property tax.

- **Actual use:** a parcel is valued based on its current actual use.[20]

4.2.3. How does valuation treat location?

While it is an accepted theoretical principle that the value of land is influenced by its location, in practice there are policy choices involved in how and to what extent location becomes reflected in valuation. There are three broad approaches, in order of granularity:

- **Site value:** a parcel is valued based on the attributes of the site and its proximity to particular features, such as services or infrastructure. More sophisticated forms of site valuation may incorporate hedonic modelling (described in 4.1.1. above).[21]
- **Area value:** a parcel is valued in comparison to the surrounding area and/or the area's attributes. This is generally derived through mass appraisal.[22]
- **Zonal value:** a parcel is valued according to a defined zone or other administrative geography. This may be done at smaller (e.g. CBD, inner suburbs, outer suburbs) or larger (e.g. urban, rural) scales.[23]

In some cases, how location is treated may be a matter of data availability or administrative ease. In others, the treatment of location reflects specific policy choices. For example, in recent tax reforms in Germany, a few federal states with pressured urban property markets have opted against forms of site value due to concerns about increased tax burdens for residents.

4.2.4. How is assessment undertaken?

Obviously, valuation for tax purposes needs to derive an assessment at the property or parcel level. In practice, there are a number of ways that this can be achieved, which may variously depend on administrative feasibility, data availability, and cost, amongst other factors. The most common forms of assessment are:

- **Mass appraisal:** many properties are valued together at scale using standardised data, systems, and methodological approaches.[24]
- **Professional appraisal:** a property is individually appraised by a professional valuer. This may include both site visits and computer-assisted appraisal.[25]

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[20] E.g. The Luxembourg Government (2024). Land tax and the mobilisation of land and housing. Chambre des Députés (2023). 8082.
[21] E.g. Tax and Customs Authority, Portugal (n.d.) Municipal real estate tax code.
[22] E.g. RevenueSA (2024). Land tax. Office of the Valuer-General (2024). Property Valuations. Government of South Australia (2024). Land Tax Act 1936.
[23] E.g. Republic of Bulgaria, Ministry of Finance (n.d.). Immovable property tax. Republic of Bulgaria, Ministry of Regional Development and Public Works (2023). Local taxes and fees act.
[24] E.g. RevenueSA (2024). Land tax. Office of the Valuer-General (2024). Property Valuations. Government of South Australia (2024). Land Tax Act 1936.
[25] E.g. Irish Tax and Customs (n.d.) Local Property Tax. Law Reform Commission of Ireland (2024). Finance (Local Property Tax) Act 2012.

- **Self-assessment:** the taxpayer is responsible for submitting a valuation. (This is rarely *true* self-assessment, as online look-up tools are often provided, and taxpayers may also use a professional valuer).[26]
- **Flat assessment:** the assessment is based on one or two simple variables, typically plot size. Further appraisal is usually not necessary.[27]
- **Actualised:** assessment is based on the actual price or income for the property, such as a recent sale or annual accounts.[28]

4.2.5. What data and systems are needed?

Different approaches to valuation require different data inputs. Some choices of approach will directly determine the data required. For example, a market valuation on an area basis requires comparable sales transaction data. Conversely, data availability can also determine the approach taken. More complex valuations require more inputs, supported by data infrastructure and professional capacities. Alternative methods are necessary in low-data contexts where capacities and infrastructures are lacking or costly. Across the review, data inputs used for valuation included:

- Sales transaction and/or rental data
- Cadastral or land registry data
- Geospatial data
- Demographic data
- Planning data.

Several taxes incorporated additional features in terms of administrative infrastructure and/or operational practice. These included:

- A national or sub-national valuation office
- A **cadastral** system
- Different valuation options for local government or taxpayers to select
- Valuing on a period average to smooth fluctuations

4.3. Discussion

Learning from both research and practice shows that land valuation is not a technical problem with a single optimal solution. Valuation approaches differ – sometimes widely – in the purposes they serve, the assumptions they embed, and the trade-offs that they make between precision and feasibility. Moreover, an approach that works

[26] E.g. Irish Tax and Customs (n.d.) Local Property Tax. Law Reform Commission of Ireland (2024). Finance (Local Property Tax) Act 2012.
[27] E.g. Ministry of Finance, Poland (2024). Property tax.
[28] E.g. Boletín Oficial del Estado (2023). Royal Legislative Decree 2/2004, of March 5, approving the revised text of the Law Regulating Local Finance.

for research purposes or for tax policy in another jurisdiction may not necessarily transfer well to Wales.

4.3.1. Purpose and implications

In research, land value is constructed as an analytical input, rather than as an outcome of interest in itself. This means that researchers choose valuation methods primarily to make further analysis feasible and coherent, rather than to optimise accuracy at the parcel level or withstand external scrutiny. By contrast, valuation for taxation purposes directly creates liabilities. This places stronger demands on transparency, explainability, and consistency at the parcel level. Methods that are robust for modelling studies and methods that are appropriate for tax assessment may not necessarily be the same.

4.3.2. Market realism vs accounting feasibility

A key distinction emerging from the review is between valuation approaches that aim to approximate market value and those that seek a 'book' or accounting value for tax or other purposes. **Market value** approaches most closely resemble the theoretical understanding of unimproved land value, but in practice the market value of land can rarely be accurately known. This means that market value approaches tend to be data intensive and sensitive to thin or volatile markets, and they may also be costly to maintain at scale. **Book valuations** are more pragmatic and prioritise applying rules or standards rather than trying to make precise predictions. In international practice, valuation systems will often deliberately stabilise values or simplify spatial variation in order to ensure liabilities are predictable and the system is administratively feasible.

Market and book valuations can be viewed as a spectrum, with most practical approaches likely falling somewhere between either pole. From this perspective, the relevant question is not whether a method perfectly reflects unimproved land value in theory, but whether it performs adequately given institutional capacities, data infrastructures, and policy goals.

Table 1: Market-based and book value approaches

	Book value	Market value
Core assumptions	▪ Land is a non-depreciating asset that can be given a value	▪ Land has an exchange value ▪ Gains in property value not due to improvements accrue to land
Perspective on value	▪ Value is defined through rules and conventions	▪ Value is revealed through market exchange
Approach to accuracy	▪ Reliability is prioritised, and requires consistent standards	▪ Certainty requires a transaction; where this is not possible, estimates should approximate market logic.

Practical aim/s	▪ Incorporating land into the tax base	▪ Capturing value uplift ▪ Using tax to incentivise development
Valuation practices	▪ Few dimensions. ▪ Applying straightforward calculations on a broad basis.	▪ Multiple dimensions ▪ Applying complex assessment methods at parcel or locality scale.

4.3.3. Granularity

In the research literature, land valuation is not typically used to derive specific estimates at the parcel level. Instead, estimates are applied to analysing outcomes by area or group, for which over- and under- estimates at the parcel level tend to cancel out. This also means that researchers can work productively with imperfect or incomplete data. By contrast, tax assessment requires valuation at the parcel level. Errors here do not cancel out, but accumulate into appeals, perceived unfairness, and political challenge. Methods that perform well statistically at aggregate scales may not do the same when applied to individual properties.

4.3.4. Design choices

The differences that emerge from the review underscore that valuation methodologies are not neutral. In practice, choices such as the use basis for valuation, how to treat planning uncertainty and hope value, and how finely to reflect locational differences all embed assumptions about what tax burdens should look like, who should bear them, and why. Recognising this helps explain why international practice does not converge on a single approach to land valuation.

Moreover, valuation systems tend to reflect existing professional practices in each jurisdiction, data availability, administrative structures, and legislative frameworks. It is also fair to assume that other ‘soft’ factors influence valuation choices, such as administrative ease and political acceptability.

4.3.5. The role of professional valuation expertise

Professional practice underpins many of the valuation systems observed in international practice, influencing both how land is assessed and how disputes are resolved. In the UK, valuation expertise and professional standards are well established, although valuers do not routinely separate land from improvements. There are some established land valuation methodologies in the UK, including deriving an aggregate land value for the national accounts, but these are not used to deliver parcel-level valuations at scale. Professional expertise hence presents a constraint and an opportunity. Existing expertise may need to be adapted, but it also provides credibility and a foundation of defensible methods and standards.

4.3.6. AI and machine learning applications

Neither the research literature nor international practices reviewed had a strong emphasis on **artificial intelligence** or **machine learning** applications in land valuation. This likely reflects the more recent rise of these techniques and that, in practice, jurisdictions tend to prioritise transparency and stability in valuation systems. Where algorithms appear in practice, these are usually embedded within mass appraisal systems and little information is available on the specific techniques used.

Nevertheless, increasing use of **automated valuation models** (AVMs) and advances in computational capacity and data science suggest that AI and machine learning approaches may play an innovative role in future valuation systems. These methods are particularly attractive for handling large, linked datasets with complex relationships between variables, and for supporting frequent revaluation cycles. However, it is important to understand how these methods perform relative to more established approaches and to explore the implications for transparency and public trust.

5. Five methodology groups

The review of research and international practice demonstrates that land valuation does not converge on a single optimal method. For the purposes of developing land valuation in Wales, testing different approaches and design choices in context is essential. This section introduces five methodology groups for testing in Wales. These groups have been chosen because they:

- Represent distinct approaches to constructing land value and allow comparison.
- Differ in their data needs and potential granularity.
- Reflect different trade-offs between market realism, feasibility, transparency, and scalability.
- Cover a spectrum from low data to complex techniques.
- Include established methods as well as provide space for innovation.
- Both incorporate findings and address gaps from the research and practice reviews.

The five groups outlined below are not the only ways that methodologies could be grouped (and some methods may apply to more than one). Instead, the groups are designed to allow for systematic comparison of how different approaches to valuation perform under Welsh conditions.

5.1. Market-based statistical methods

Market-based statistical methods **estimate land values by analysing market transactions and using transparent models to understand how prices vary with characteristics such as location and permitted use**. To overcome the challenge of separating land from buildings in sales data, these methods need to either use land-only transactions where these are available and applicable (which is usually rare) or apply modelling strategies.

This group of methods is rooted in urban/regional economics and applied econometrics, and also draws upon geospatial data and GIS. Examples of specific approaches within this group include:

- **Hedonic regression models**, which estimate land values by breaking down property prices into the different things buyers potentially pay for (such as floor space and location) and measuring how much each of these factors contributes to the observed price. By identifying which factors are associated

with land and which with improvements, analysts can make an estimate for the land component of the property.

- **Spatial econometric models** recognise that nearby places tend to influence each other, so land values in one location are often related to values in surrounding areas. These models often start with a hedonic framework but take an extra step by adjusting for spatial spillovers in value.
- **Repeat-sales and panel** approaches estimate land values by tracking how prices change for the same property over time, rather than comparing different properties to each other. They need sufficient repeat transactions to be effective.
- **Land-structure decomposition** approaches are used to estimate how much of a property's price comes from improvements and how much from the underlying land. These are not stand-alone valuation methods but are paired with other models to isolate the land component.
- Estimation using **quasi-experimental methods** (like difference-in-difference) can be applied to test how interventions like new transport infrastructure or planning changes affect surrounding property prices. These methods identify uplift in land value but are unable to estimate *total* land value.

To apply these methods to land in Wales, valuers first need to collect relevant data and assess its quality, coverage, and fitness for purpose. Wales has useful starting points for transaction data, notably HM Land Registry Price Paid Data. However, modelling at the parcel level needs detailed property characteristics, and understanding locational attributes needs relevant geospatial data.

This group of methods has both strengths and limitations. These include:

Strengths

- Transparent and reproducible models
- Can quantify uncertainty
- Able to explain assumptions
- Ability to estimate uplift

Weaknesses

- Weaker performance in thin markets
- Sensitive to data quality and missing variables
- Requires new data and periodic re-estimation to remain up-to-date

5.2. Algorithmic and machine-learning approaches

Algorithmic and machine-learning approaches can be applied to **predict land values at scale from large, linked datasets and develop automated valuation models (AVMs)**. They differ from market-based statistical methods mainly in how they learn from data. Whereas statistical models usually start with assumptions about why

property prices differ and then test those relationships, machine-learning works to find patterns that predict values, even if those patterns are complex or hard to explain. Typically, machine-learning uses a sub-set of properties to 'train' the model before testing how it performs with properties it has not yet seen.

This group combines modern machine-learning and 'big data' advances with computer-assisted mass appraisal traditions in property taxation and assessment practice. Examples of specific approaches in this group include:

- **Tree-based ensemble methods**, such as random forests and gradient boosting, combine the results of many simple decision trees. To estimate land value, each tree makes a rough prediction based on different property and location characteristics. By averaging or weighting many predictions together, the model can capture patterns in prices while reducing the risk of large errors from any one decision.
- **Neural networks** learn complex patterns in data through layers of interconnected calculations, inspired by how the brain processes information. They are good at handling large and diverse datasets, but the reasons behind their predictions can be difficult to explain in simple terms.
- **Hybrid models** can be designed to combine predictive algorithms alongside rules based on planning, valuation practice, or specific policy requirements.

Algorithmic and machine-learning approaches are data-intensive and can risk becoming a 'black box'. Models need to be well-documented and appropriate oversight is necessary to check that models function sensibly and to identify bias or errors. Explanation techniques, like model dependence plots showing the influence of changing one factor, can also be used to help non-technical users understand how the model reached its results.

The strengths and limitations of this group of methods include:

Strengths

- Coverage can be scaled
- Can handle complex interactions between variables
- May have strong predictive accuracy with rich training data
- Supports frequent re-valuation cycles

Weaknesses

- Risk of low transparency and trust challenges
- Risk of bias or uneven accuracy across areas or property types
- Dependent on large datasets and stable data infrastructure

5.3. Formula-based approaches

Formula-based approaches **produce land values using simple, explicit rules**. For example, a formula may apply a flat rate per square metre to parcel area, with basic

adjustments for location or land use. These types of approaches are low cost, easy to understand, and straightforward to scale. They are particularly suited to low data contexts and are used internationally as pragmatic methods where valuation capacity is limited or administrative simplicity is prioritised. Developing a formula requires a starting point. For tax purposes, this is likely to be the total revenue sought.

Examples of formula-based options include:

- **Zonal rates**, which set £/m² rates by value zones (e.g. CBD, suburban, rural) and land use types, potentially with some local adjustments.
- **Banding approaches**, which define basic bands by location or parcel area to approximate a value distribution.
- **Multipliers** start from a flat base rate and add value multipliers for selected location characteristics or constraints.

While formula-based approaches return a land value, there is a strong trade-off between simplicity and accuracy, meaning that the value returned is less likely to reflect how unimproved land value is understood in theory. Generally, these approaches aim at developing a 'book' value rather than estimating a market value. However, hybrid approaches can be used to periodically recalibrate rates using transaction data. Formula-based approaches can provide a benchmark against which more complex models can be tested. They may also be useful for supporting tax policies that have specific dis/incentive or value capture goals.

The strengths and limitations of this group of methods include:

Strengths

- Highly transparent
- Administratively simple and low cost
- Comparatively stable over time
- Easy to explain and communicate

Weaknesses

- Low sensitivity to market change and nuanced location attributes
- May mask considerable variation
- Can create persistent winners and losers at scale

5.4. Conventional valuation approaches

Conventional valuation approaches apply well-established methods from the valuation profession, including both techniques for mass appraisal and case-by-case professional judgment. These methods sit within professional valuation standards and practice, notably the global standards set and maintained by RICS[29] (Royal

[29] RICS (n.d.). Valuation standards.

Institution of Chartered Surveyors). They have a developed base of expertise and provide defensible reasoning.

The valuation profession has established methods for valuing land. These include:

- **Sales-comparison**, which derives land values from comparable land sales adjusted for location, permitted use, constraints, and site characteristics.
- The **income approach**, which uses the rent a site attracts and is most common for commercial uses.
- **Residual valuation**, which derives land value by calculating the value of a completed development and then subtracting the costs of building and a reasonable developer return. (This term may also be used to describe allocation methods.)
- **Allocation methods**, which use replacement cost and depreciation to estimate land value for developed property.

In the UK, land valuations are currently carried out for estate and farm appraisals, vacant and development land transactions, compulsory purchase surveying, and local authority disposal of land. However, the UK profession does not regularly separate the value of land from improvements, which means that expertise across markets and at scale is more limited.

The strengths and limitations of conventional valuation approaches include:

Strengths

- Anchored in professional standards
- Can be explained on a case-by-case basis
- Uses established expertise
- Useful for complex sites

Weaknesses

- Can be sensitive to judgment calls (especially residuals and allocation)
- Needs consistent assumptions
- Labour intensive at scale if not adapted for mass appraisal

5.5. Innovative and experimental approaches

There are other potential methods for land valuation that do not fit neatly into any of the four groups described above. These ‘other’ approaches are likely to be more experimental when used at scale. They may be useful for addressing weaknesses in some approaches, for making cost or feasibility improvements, for improving the public acceptability of valuations, or for improving policy alignment. However, because these approaches are less common in both research and practice, their outcomes are also less certain.

Indicative examples include:

- **Self-assessment** mechanisms, in which landowners declare a value for their own land. (In practice, this usually occurs with tools to aid assessment and audit or penalty rules.)
- **Willingness to pay** methods ask people directly (e.g. through surveys or choice experiments) how much they would be willing to pay for particular locations or site characteristics.
- **Participatory valuation** and **deliberative approaches** involve local residents, stakeholders, and/or expert panels in discussing how areas of land should be valued and reaching agreement.
- **Delphi methods** systematically gather and refine the views of an expert panel through multiple rounds of anonymous feedback to converge on an informed consensus.
- **Multi-criteria decision analysis** combines multiple indicators and applies weightings to derive relative rankings.

Each individual method will have different strengths and weaknesses. In general, experimental methods can be useful for testing scenarios but may be more resource-intensive to run at scale.

6. Key questions for policy

The five methodology groups outlined above represent a range of potential ways to construct land value. Selecting between them is more than a matter of each method's technical performance, especially if valuations are to be implemented across Wales or support future tax policy. From a policy perspective, the key issues for method selection concern whether methods are:

- Appropriate in the Welsh context
- Aligned with policy goals
- Sufficiently validated to withstand scrutiny
- Sufficiently accurate and consistent to assign liability fairly and reliably
- Sufficiently transparent to gain public trust
- Politically defensible
- Coherent for legal and regulatory purposes

This section provides a list of questions to help guide the comparison of methods once they are tested in Wales and support discussion.

6.1. Considering conceptual and policy fit

Valuation methods do more than provide estimates: they construct land value according to particular assumptions. Choices about conceptual and policy fit concern how value is understood, where liabilities would fall, and how the valuation method aligns with Welsh policy objectives.

1. **What kind of land value is being produced?**
    a. To what extent does the methodology approximate market value or construct an administrative 'book' value?
    b. How stable are the valuations likely to be over time? How sensitive is the method to short-term market volatility?
    c. What kind of revaluation cycle would the method enable, or would likely work best with the method?
2. **What assumptions are (or could be) embedded about land use and planning?**
    a. Does the method enable valuation on the basis of actual use, designated use, or highest and best use?
    b. How would planning uncertainty or hope value be treated, if at all?

c. To what extent can assumptions in the method be aligned with Welsh planning policy and tax reform objectives?

3. Which policy goals could this method support?

a. Is the method better suited to revenue-raising, value capture, behavioural dis/incentives, or distributional fairness? Which trade-offs between these is the method likely to create or reinforce?
b. Does the method enable other types of useful analysis beyond tax assessment?
c. Are there any policy goals that would not be aligned with this method, or that might conflict?

4. How visible is public value creation?

a. Would the method allow uplift from public investment to be identified or approximated?
b. To what extent can valuation using the method respond to public infrastructure and amenity improvements over time?

5. What behavioural signals might the method send?

a. Could the valuations the method produces dis/incentivise particular land uses or holding patterns?
b. How is the method likely to treat under-used or vacant land?
c. To what extent would behavioural dis/incentives align or conflict with other policy areas, such as environmental and heritage conservation, agricultural policy, and housing affordability?

6. What are the distributional effects?

a. If the method were scaled up to all of Wales, who would likely be the 'winners' and 'losers' and why?
b. How could the method be adapted to support distributive outcomes, such as through different rates or reliefs?

7. How path dependent are the results?

a. How much are future valuation results likely to depend on initial assumptions or baselines?
b. Is there a risk that the method could 'lock in' some inequalities if the method or its results were used over a long term?

6.2. Considering technical robustness and administrative feasibility

Even an attractive method on paper must function reliably under real-world conditions. In practice, valuation depends on data quality, institutional capacity, and administrative systems, and all of these can constrain what is possible.

8. **How robust is the method to data limitations?**

    a. What data does the method rely on, and what are the main data gaps or data availability issues in the Welsh context?
    b. How sensitive are the results to missing, outdated, or ‘noisy’ data, and to sample size?
    c. What happens in places with few transactions?

9. **How scalable and sustainable is the approach?**

    a. What institutional capacity would be required to scale up the method to all of Wales?
    b. What are the likely ongoing costs? (E.g. data, infrastructure, staff, appeals, revaluation cycles.)
    c. How easily could the method be modified or adapted over time?

10. **What kinds of error are acceptable (and for whom)?**

    a. How are errors likely to occur? To what extent are they inherent to the method, knock-on effects from data, or caused by how the method is applied?
    b. To what extent can errors be identified and rectified? Can they be seen at the source or do they only become apparent in results?
    c. Is the method likely to produce random errors or could errors systematically affect some places or types of land?

11. **What does success look like at pilot stage?**

    a. Which criteria should be used to judge whether piloting the method in Wales is successful? Is success about, for example, accuracy, consistency, coverage or something else?
    b. What would count as sufficient evidence to either proceed with or abandon a method?

6.3. Considering legitimacy and transparency

When used for taxation, valuation directly affects liabilities and will be subject to scrutiny and appeal. Methods that are difficult to explain or defend risk undermining public trust, even if technically sound.

12. **How transparent and explainable are the results?**

    a. Can the way valuations have been derived be explained in plain terms to taxpayers and other stakeholders?
    b. Are the main assumptions the method makes visible?
    c. If two similar parcels received different valuations, would it be possible to explain why?

d. If a taxpayer disagreed with the valuation, how would the method be contestable?
e. Is the method likely to be politically defensible and withstand scrutiny?

13. How consistent and fair are the valuations across different Welsh contexts?

a. How does the method perform in different Welsh geographies (e.g. rural and urban), for different land uses (e.g. residential, commercial), and in markets with different turnover volumes?
b. Could the method systematically advantage or disadvantage particular places or land uses?
c. How different are valuations likely to be between local authorities? Could differences in stability over time be expected?
d. What kinds of disputes might the method raise?

14. How does the method handle uncertainty?

a. Does the method have a way to quantify or otherwise express uncertainty? (E.g. confidence intervals, valuation ranges.)
b. Can uncertainty be communicated without undermining legitimacy or trust?

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