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A technical assessment of the potential for a local land value tax in Wales

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A technical assessment of the potential for a local land value tax in Wales

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Views expressed in this report are those of the researcher and not necessarily those of the Welsh Government

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Glossary

Acronym/Key word	Definition
Ad valorem	In proportion to the estimated value of the goods or transaction concerned.
AVM	Automated valuation model.
Cadastre	An official record of the owners of land and of the amount and value of the land they own, used for calculating the amount of tax owed.
CORINE	Coordination of information on the environment programme.
CT	Council tax.
GIS	Geographic information system.
LUCS	Land Use Change Statistics.
LSOA	Lower layer super output area.
LVT	Land value tax.
MSOA	Middle layer super output area.
NDR	Non-domestic rates.
OS	Ordnance Survey.
VOA	Valuation Office Agency.
WIMD	Welsh Index of Multiple Deprivation.

1. Introduction and context

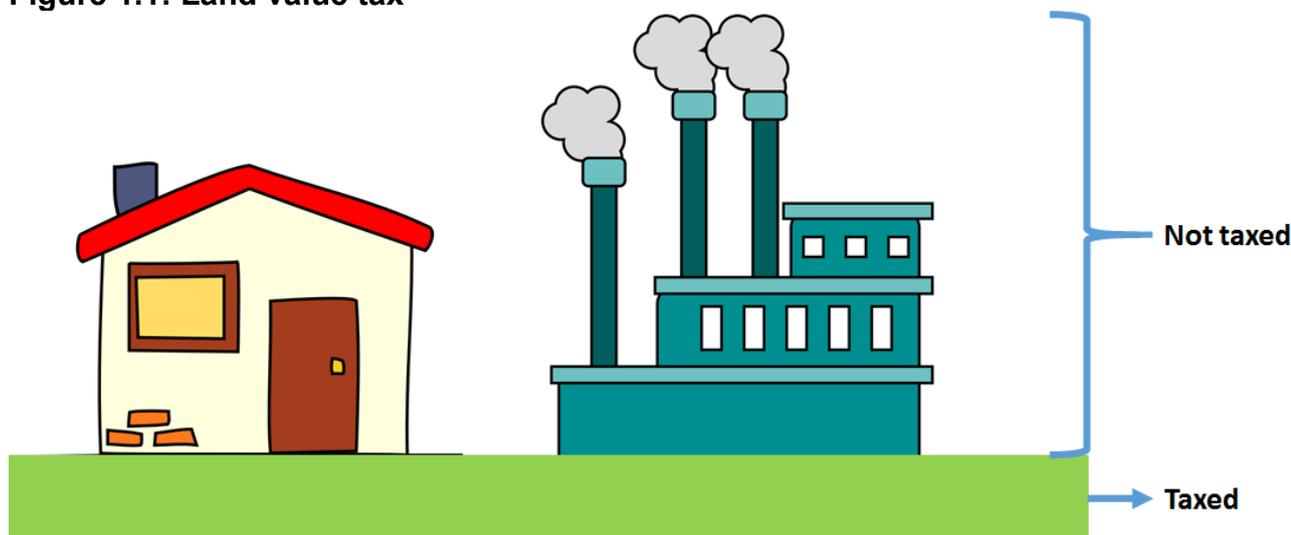
- 1.1 The main purpose of this assessment is to provide an initial appraisal of the practical viability of a local land value tax in Wales to replace the existing local taxes – council tax (CT) and non-domestic rates (NDR) – and to identify the further work that would be required in order to deliver such a policy.
- 1.2 This report identifies how a framework for an LVT could be designed so as to be compatible with the current institutional, political and economic environment in Wales. This encompasses considerations such as:
- Which tiers of government might set the rates for a local LVT;
 - The data required for operation and administration of a local LVT;
 - The potential for differential treatment of non-domestic and domestic land and property;
 - What reliefs, exemptions or limitations might apply under a local LVT regime;
 - Collection and administration mechanisms;
 - Links to the planning system;
 - The relationship with other taxes on land and property;
 - Transition to a new regime to replace the existing local taxes; and
 - Valuation mechanisms and revaluation requirements.
- 1.3 In addition, this report presents the results of preliminary modelling of residential land values in Wales as well as estimates of non-residential land values. This modelling has enabled us to determine the rates at which LVT would have to be levied in order to raise tax revenues equal to the current system of local taxation. It has also allowed us to identify the challenges and constraints that would need to be overcome in order to develop a more sophisticated model of land values in Wales.

What is a land value tax?

- 1.4 A land value tax is an ad valorem levy on the unimproved value of land, normally paid on an annual basis by the owner of the land.

- 1.5 Unlike most property taxes, LVT disregards the value of any improvements made to the land, including any buildings, plant or machinery located on the land. This concept is illustrated in figure 1.1.

Figure 1.1: Land value tax



What determines land value?

- 1.6 The financial value of land depends predominantly on two factors: the location of the land and its permitted uses.
- 1.7 Its permitted uses – whether a factory, offices or houses can be built on it - are determined by the planning system.
- 1.8 The value of location depends on numerous factors, such as:
- Access to and quality of infrastructure; including roads, rail and broadband.
 - Access to and quality of local services and amenities; including schools, hospitals and shops.
 - Environmental factors, such as noise and air pollution.
 - Strength of local labour markets.

The rationale for an LVT

- 1.9 There is compelling empirical evidence that recurrent taxes on immovable property have a positive impact on economic performance. For example, Cournède et al (2018) find that a balanced-budget increase in taxes on immovable property leads

to a larger increase in economic growth than the other tax policy changes that they consider, without impacting on levels of income inequality.

- 1.10 Unfortunately, Cournède et al (2018) do not consider LVT specifically and we are not aware of any similar studies that do. This is likely due to the limited number and nature of LVT regimes that exist in the real world (see paragraph 1.14). However, there are strong theoretical arguments in favour of LVT, which suggest that we might expect LVT to support a more efficient allocation of resources and stronger economic performance than other property taxes.
- 1.11 All of the main factors that determine the value of unimproved land are outside the control of the landowner. They are determined, instead, by the actions and decisions of wider society – such as decisions regarding infrastructure investment¹ and public service provision². For this reason, it may be equitable for the returns to land to be taxed, so that they are shared by wider society rather than captured solely by the landowner in the form of rising asset values.
- 1.12 Correspondingly, an LVT is likely to be economically efficient. Taxes in general change the incentives that people face, and hence their behaviours. For example, non-domestic rates can reduce the incentive for businesses to invest in plant and machinery³, and hence reduce the aggregate level of investment in the economy⁴. In contrast, the supply of unimproved land is fixed and so an increase in taxation on unimproved land cannot influence the amount of land available.

¹ For example, Ahlfeldt (2013) estimates that the Jubilee line extension of the London Underground led to an aggregate increase in land values of almost £716million in 1999 prices and excluding non-residential properties.

² Gibbons and Machin (2008) provide a summary of the overwhelming evidence that value of local schools is capitalised into housing prices. They suggest a consensus estimate of around 3-4% house price premium for one standard deviation increase in school average test scores. Similarly, Wang et al (2015) conclude that the number of bus stops within walking distance of a property is positively associated with the property's observed sale price.

³ As an example, Tata Steel's NDR bill rose by £400,000 a year after completing a £185m rebuild of a blast furnace at Port Talbot in 2013 (see Pickard and Pooler 2016).

⁴ The evidence base could benefit from specific empirical research regarding the effects of NDR on levels of Investment.

1.13 For these reasons, LVT has drawn widespread support from across the economics profession. Its most distinguished supporters have included Adam Smith⁵, John Stuart Mill⁶, Milton Freedman⁷ and James Mirrlees⁸.

LVT in practice

1.14 It is important to note that, despite the widespread support for a land value tax amongst many economists, such tax regimes are far from commonplace. There are a number of LVT regimes around the world. However, few of these raise large amounts of revenue. The exceptions, which collect revenues on a similar scale to the current local taxes in Wales, are Denmark, New Zealand and Queensland in Australia.

Table 1.1: Revenues of selected LVT regimes

	Local Currency	Sterling equivalent
Queensland, Australia (2016/17)	A\$ 1,082m	£ 561m
Estonia (2016)	€ 58m	£ 49m
New Zealand (2015)	NZ\$ 5,389m	£ 2,684m
Denmark (2016)	DKK 28,436m	£ 3,216m

Source: Hughes et al. (2018)

1.15 These regimes vary significantly from each other. In Denmark, tax rates vary across municipalities, from 1.6% to 3.4%. Agricultural and forestry land and public buildings pay a reduced rate. In Estonia, tax rates vary depending on land use. In Queensland, the state land tax has consistent rates across different land uses, but they differ between individuals and companies. The tax rate is progressive. For individuals, the tax rate increases from 0% for taxable values below A\$600,000 to a

⁵ “The annual produce of the land and labour of the society, the real wealth and revenue of the great body of the people, might be the same after such a tax as before. Ground-rents and the ordinary rent of land are, therefore, perhaps, the species of revenue which can best bear to have a peculiar tax imposed upon them.” Adam Smith - Wealth of Nations (1776), Book V, Chap. 2, Art. 1.

⁶ “Landlords grow rich in their sleep without working, risking or economizing. The increase in the value of land, arising as it does from the efforts of an entire community, should belong to the community and not to the individual who might hold title.” John Stuart Mill - Political Economy (1848), Book V, Chap. 2, Sec. 5.

⁷ “So the question is, which are the least bad taxes? In my opinion the least bad tax is the property tax on the unimproved value of land, the Henry George argument of many, many years ago.” An Interview with Milton Friedman (Human Events 1978).

⁸ “There is a strong case for introducing a land value tax. In the foreseeable future, this is likely to mean focusing on finding ways to replace the economically damaging business rates system with a land value tax.” Adam et al (2011), Chapter 16 Conclusions.

marginal rate of 1.75% for taxable values over A\$5,000,000. In New Zealand, local governments can choose the basis for their land and property tax, as well as the rates that they charge. A more detailed overview of the international experience is provided in Chapter 6 and Appendix IV of Hughes et al. (2018).

The current local tax regime in Wales

- 1.16 At present, there are two forms of local taxation in Wales. Non-domestic rates (NDR) were introduced in 1990, and CT in 1993. Both are examples of recurrent property-based taxes, but have significantly different features. The key feature of local taxes, as defined in UK legislation⁹, is that all of the revenue raised from these taxes must fund local authority spending.
- 1.17 Whilst NDR are collected locally, the receipts are pooled centrally by the Welsh Government and then distributed on the basis of need. The rateable value of each property corresponds to the notional annual rentable value of the property – including any fixed plant and machinery – on the date of valuation¹⁰. The tax payable is then determined using a multiplier set by the Welsh Government¹¹. Hence, local government has no role in determining the level of NDR, with the exception of some minor discretionary reliefs. In 2018-19, NDR raised £1,050 million in aggregate across Wales, accounting for 12.9% of local government gross revenues (StatsWales).
- 1.18 In contrast, CT revenues are collected and retained locally. All domestic properties are assigned to one of nine bands, based on property values at the time of the last revaluation in 2003. Local authorities have a high level of discretion in setting the annual tax rate for a Band D property to meet local spending plans. Tax payable on properties in other bands is equal to a ratio of the Band D rate. These ratios are

⁹ The Government of Wales Act 2006 (as amended by the Wales Act 2017), Schedule 7 specifies “local taxes to fund local authority expenditure (for example, council tax and non-domestic rates)”.

¹⁰ Valuations are currently carried out once every five years, with the last valuation having taken place in 2017.

¹¹ Currently, increases in the multiplier are tied to the CPI measure of inflation. Increases in the multiplier are limited to RPI by the Local Government Finance Act 1988, though this will be permanently changed through the Local Government and Elections Wales (2019) Bill.

determined centrally, by the Welsh Government. CT amassed revenues of £1,561 million in 2018-19¹², accounting for 19.2% of local government gross revenue (ibid.).

- 1.19 The two taxes have a wide range of reliefs, discounts and exemptions, most of which are determined by the Welsh Government centrally, though there are some elements of local discretion within this.
- 1.20 The remaining 67.9% of local government revenues in 2018-19 came in the form of grants from the Welsh Government, other bodies and other locally raised income.
- 1.21 There has been criticism of the current local tax regime in Wales. NDR has been criticised for discouraging business investment, whilst CT has been criticised for its lack of progressivity relative to property value. The system as a whole has been criticised for being overcentralised and for reducing the incentive for local authorities to grow their own tax bases and boost their local economies¹³.
- 1.22 The revenues raised by these two taxes represented 9.2% of total tax receipts in Wales in 2018-19 (Ifan et al 2019). On international comparison, this corresponds to a typical share of local taxes in total government revenue. The average share of local taxes in general government revenue across OECD countries in 2014 was 10.7% (see table 1.2).
- 1.23 However, whilst immovable property taxes are a key sub-central government tax in many countries, it is rare for local taxes to be based solely on property. The revenues raised via the two local property taxes in Wales is high, though not exceptional, by international comparison. The average share of property-based taxes in general government revenue across OECD countries in 2016 was 5.7% (see table 1.2).

¹² Note that this is the net figure accruing to local government. It includes £290 million of police funding collected through the council tax system. The figure is net of £252 million of Council Tax Reductions for low-income households and other reliefs and exemptions.

¹³ See, for example, the 2016 report of the Independent Commission on Local Government Finance Wales (Travers et al 2016).

Structure of the report

- 1.24 The remainder of the report is structured as follows:
- 1.25 Section 2 explains the methodological approaches that we have adopted in performing this assessment.
- 1.26 Sections 3 to 9 consider the broad design principles for a local LVT, reporting the findings from the qualitative aspects of our research.
- 1.27 Sections 10 to 12 are concerned with data. They discuss the data that we have based our modelling upon and what further data we feel would be required to enable more detailed and sophisticated modelling of land values in Wales.
- 1.28 Section 14 presents the results of our hedonic model of land prices. We have used these results to determine land value estimates for both residential and non-residential land. These estimates, and their implications for the distribution of the tax base under LVT, are presented in sections 0 and 16 respectively.

Table 1.2 International comparison of local taxes and property taxes¹⁴ as proportion of total tax revenues

	Local taxes as proportion of total tax revenues (2014)	Property taxes as proportion of total tax revenues (2016)
Sweden	36.9	2.2
Denmark	25.0	4.0
Iceland	24.5	5.4
Japan	23.5	8.3 *
Finland	23.5	3.6
Latvia	19.5	3.3
Korea	16.9	11.7
Italy	16.5	6.0
Switzerland	15.3	7.1
United States	14.1	15.4
Norway	13.9	3.3
Poland	13.4	3.6
France	13.0	9.5
Slovenia	10.6	1.8
Canada	10.3	11.9
Spain	10.0	7.5
Turkey	9.4	4.5
Germany	8.2	2.7
Israel	8.0	10.0
Chile	7.6	5.4
Portugal	7.2	4.0
New Zealand	6.7	6.0
Hungary	5.7	2.8
United Kingdom ¹⁵	5.0	12.6
Belgium	4.6	7.9
Netherlands	3.8	4.0
Australia	3.5	10.8 *
Luxembourg	3.3	9.6
Austria	3.2	1.3
Greece	3.0	8.1
Ireland	2.8	5.6
Slovak Republic	2.7	1.3
Mexico	1.6	1.9 *
Czech Republic	1.2	1.4
Estonia	1.1	0.7
Lithuania	n/a	1.3
Unweighted average	10.7	5.7

* Property tax data for Australia, Japan and Mexico relate to 2015.

Source: OECD (2016); OECD Revenue Statistics.

¹⁴ 'Property taxes' includes both recurrent taxes and event-based taxes.

¹⁵ NB, local taxes in the UK include only council tax (and the Northern Ireland equivalent, Domestic Rates). NDR is not classified by the OECD as a local tax because the final discretion to set and vary the tax rate does not lie with local government. We estimate that the equivalent figure including NDR would be 9%.

1.29 We note preliminary conclusions and areas for further work throughout the report. In section 16, we draw together the main conclusions from our work and provide key recommendations for further work as well as for the potential implementation of a local LVT in Wales.

2. Methodology

2.1 This research project employed a mixed methods approach, including both qualitative and quantitative aspects. This section summarises the various approaches employed.

Interviews

2.2 The interview stage of the research sought to gain an insight into potential areas for further attention and views on the challenges and opportunities arising from the introduction of a local LVT in Wales. The objective of the interviews was to obtain views and perspectives from a range of different experts in fields relevant to LVT; including valuation, data, planning, administration and collection. These experts were drawn from different categories including Local Government, the Welsh Government, academia and professional bodies.

2.3 In total 28 people were interviewed, and each interview was conducted by one of two researchers, to ensure a degree of consistency. All interviews were conducted during the period 11th June to 15th July 2019.

2.4 This consisted of 17 individual interviews, one interview involving a pair of interviewees and a focus group discussion involving nine interviewees. Both group interviews and three individual interviews were held face to face in the interviewees' places of work. One individual interview was held face to face at Bangor University. The remaining interviews were conducted by telephone. This was a consequence of the availability of the interviewees.

2.5 22 research contacts were initially suggested by the Welsh Government as potential interviewees and of these two declined to be interviewed. Subsequently there was some snowballing as a further eight interviewees were included, suggested by initial interviewees.

2.6 The interviews were semi structured with a list of core questions, with scope to follow up on responses to those questions and explore in more detail issues raised by interviewees. All interviews began with the same open-ended question and then subsequent questions varied according to the interviewee category e.g. local

government or valuation expertise. This approach offers flexibility to follow up on responses as an interview takes place. An extensive list of interview questions is provided in Annex A.

- 2.7 On average each interview lasted 50 minutes. Interviews were digitally recorded, and, in all cases, notes were taken. We did not undertake coding of the interview data but the two research interviewers met regularly to share understanding and views of significant and recurring issues raised. Given the qualitative nature of the method, we have not sought to describe and present views as held by a certain percentage of interviewees.
- 2.8 Some quotations from the interviews are presented in this report to inform the discussion; these are anonymous.

Call for evidence

- 2.9 We also sought the views of other stakeholders via an open Call for Evidence. The text of this call can be found in Annex B.
- 2.10 The Call for Evidence was open from 1st to 30th June 2019, hosted on Bangor University's website.
- 2.11 We disseminated the Call for Evidence via the authors' networks of contacts by e-mail and by twitter.
- 2.12 The Call for Evidence attracted six formal responses, as well as some limited informal correspondence. The formal responses comprised four from representatives of some of the groups most exposed to the proposed implementation of a local LVT in Wales, and two from individuals with a more general interest in LVT.

Literature reviews

- 2.13 LVT is an important topic and it has received a great deal of academic attention in recent years. A list of some relevant research papers was put forward to us by the Welsh Government, including research into local government funding and studies of

Scottish circumstances and US issues. References within these also gave rise to further papers to review. This helped inform our understanding at the stage of drafting interview questions. During the interview stage of this research some interviewees suggested other papers and references relating to LVT and related issues, such as developments in technology and GIS (geographic information system) techniques.

- 2.14 When researching the nature of cadastral data in other jurisdictions, in addition to drawing on references obtained from an online search of research on cadastres, further references were contributed by individuals we contacted at the International Federation of Surveyors and the Montana State Library.

Spatial data analysis

- 2.15 Section 11 presents analysis of land cover and land use in Wales. This analysis was performed using QGIS software, an open-source GIS application that supports viewing, editing, and analysis of geospatial data.

Modelling land values

- 2.16 We have developed beta (basic) models of land values in Wales to assist with meeting the objectives of the project. Despite being in a basic form, these models ensure that results presented in the report are supported by empirical evidence.
- 2.17 Due to the difference in data availability, we have developed separate models for residential land values and non-residential land values.
- 2.18 All of the models have been developed using Microsoft Excel and STATA software and are based on regression analysis methodology.

Modelling of residential land values

2.19 The modelling of residential land values was completed in two steps. Firstly, we carried out a hedonic regression¹⁶ to determine relative land values between different areas of Wales. Secondly, we used data relating to the sale of land with no improvements but with planning permission granted, in order to calibrate the absolute value of land (i.e. in which areas land value is equal to zero).

2.20 The Hedonic regression analysis for this project will be based on:

$$Y_i = \alpha + \beta_1 X_i + \beta_2 C_i + \beta_3 D_i + \varepsilon_i \quad (2.1)$$

where Y_i is the i^{th} observed value of the residential property prices, X_i is the i^{th} observed value in a matrix of row-vectors representing the characteristics of the property, C_i is the i^{th} observed value in a matrix of row-vectors representing the location of the property at the lower layer super output area or local authority area, D_i is the i^{th} observed value in a matrix of row-vectors representing years, and ε_i is the error term.

2.21 The matrix of row-vectors C_i is of particular interest to this project as this will represent the impact lower super output areas has on land prices. Once property characteristics have been taken into account (which controls for property prices), the residential land price will be a function of the matrix row-vectors C_i .

Estimation of non-residential land values

2.22 Due to the lack of information available on the characteristics for non-residential property an alternative method is used to calculate the non-residential land prices. We use a two-step approach in calculating non-residential land prices.

¹⁶ Hedonic regression analysis is a popular method used in economics to determine the relative importance of the variables which affect the price of a good (Rosen 1974). The popularity of the methodology is due to its versatility and how it allows approximation of values based on people's and businesses' actual choices. A more detailed explanation of hedonic regression is provided in Annex C.

2.23 The first step involves identifying if there is a relationship between residential land prices and non-residential property prices, controlling for the type of property (i.e. industrial, office, other, of retail)¹⁷. This regression equation for the first step is:

$$Y_i = \alpha + \beta_1 D_i + \beta_2 IIN_i + \beta_3 IOF_i + \beta_4 IOT_i + \beta_5 IRE_i + \beta_6 RV_i + \varepsilon_i \quad (2.2)$$

where Y_i is the i^{th} observed value of the non-residential property prices, D_i is the i^{th} observed value in a matrix of row-vectors representing years, IIN_i is the i^{th} observed value of industrial*residential land price coefficient, IOF_i is the i^{th} observed value of office*residential land price coefficient, IOT_i is the i^{th} observed value of other*residential land price coefficient, and IRE_i is the i^{th} observed value of retail*residential land price coefficient, RV_i is the i^{th} observed value of rateable value and ε_i is the error term.

2.24 If Equation 2.3 shows a significant relationship between non-residential property prices and residential land prices, then the second step involves using regression analysis to derive an equation to estimate non-residential property prices on the basis of the known value of others (including residential land price coefficients). This regression equation for this second step is:

$$Y_i = \alpha + \beta_1 X_i + \beta_2 IN_i + \beta_3 OF_i + \beta_4 OT_i + \beta_5 RE_i + \beta_6 RV_i + \varepsilon_i \quad (2.3)$$

where Y_i is the i^{th} observed value of the non-residential property prices, X_i is the i^{th} observed value of the residential land price coefficient (C_i from Equation 2.2), IN_i is the i^{th} observed value of industrial property type, OF_i is the i^{th} observed value of office property type, OT_i is the i^{th} observed value of other property type, and RE_i is the i^{th} observed value of retail property type, RV_i is the i^{th} observed value of rateable value and ε_i is the error term.

¹⁷ These property types (SCAT sectors) are included in the equation as interaction factors (i.e. how the type of property interacts with the residential property prices).

3. Broad design principles for a local LVT

3.1 Sections 4 to 8 of this report consider various aspects of the design of a potential local LVT regime. In order to assess the suitability of these various options, we first need to outline a framework of relevant criteria against which the options may be assessed.

Features of a good tax regime

3.2 The Mirrlees Review (Adam et al 2011) identifies the following characteristics of a good tax system (p.22):

- Economic efficiency. Any unintentional distortions to the incentives and behaviours of households and firms should be minimised;
- Operational efficiency. All other things being equal, administration and compliance costs should be minimised
- Transparency. People should be able to understand the workings of the tax system.
- Fairness. Fairness of procedure, avoidance of discrimination, and fairness with respect to legitimate expectations.

3.3 In this report, we are considering elements of local taxation rather than the tax system in its entirety. It is important, therefore, that we consider how the taxes under consideration fit within that broader tax system. Broadway and Shah (2009) provide the seminal analysis on fiscal federalism. They identify four general principles for the assignment of taxes between different levels of government. These include the already mentioned economic efficiency and operational efficiency, as well as:

- National equity. Ensuring that all citizens are treated on an equal basis is the role of national government. Hence, the redistributive function of fiscal policy should reside primarily at the national level.
- Fiscal accountability. This is generally enhanced when local government is required to finance more of its expenditures from its own revenues. Accountability should make local government more vigilant and cost-conscious, as well as enhancing its independence.

- 3.4 These six criteria provide a useful basis for the assessment of any potential change in the local tax regime in Wales.
- 3.5 The Welsh Government's Tax Policy Framework (Welsh Government 2017) lays out five principles for Welsh taxes which are consistent with these six criteria:
- Revenue raising to fund public services.
 - Delivery of policy objectives, in particular to encourage jobs and economic growth.
 - Simple, clear and stable.
 - Collaboration and involvement.
 - Creating a more equal Wales.

4. Fiscal federal framework for a local LVT

- 4.1 Fiscal federal frameworks are essentially concerned with balancing the pooling of risks against the accountability and autonomy of local government. There is a natural tension between local accountability and incentivising authorities to grow their tax bases on the one hand, and the need to equalise outcomes across Wales and provide sufficient funding for services on the other. In the language of Broadway and Shah (2009), there is a trade-off between national equity and financial accountability.
- 4.2 Currently in Wales, the local tax regime pools almost all risks¹⁸. The only significant risk not pooled is that associated with the collection of CT. As a result, Welsh local government currently has low levels of fiscal autonomy relative to the European average¹⁹. Across Europe the median proportion of revenue generated by taxes under local control in 2012 was 41%²⁰. In Wales, CT is the only tax over which local government has a degree of policy control and it accounted for 20% of local government gross revenue in 2018-19.
- 4.3 It is possible to think of local tax regimes as being decentralisation in four different dimensions:
- collection of revenues,
 - assessment of liability,
 - policy setting, including the application of reliefs, exemptions or premiums, and
 - rate setting.
- 4.4 For example, for NDR, revenues are collected locally yet rates are set centrally. For CT, both the collection of revenues and rate setting are locally determined. Policy

¹⁸ The “Green Book” Background Information for Standard Spending Assessments (Welsh Government 2019) sets out in detail the mechanism by which the distribution of the Revenue Support Grant and redistributed NDR revenues are determined. In short, the Welsh Government carries out a Standard Spending Assessment (SSA) for each local authority, comprising Revenue Support Grant, redistributed NDR and the total notional council tax income each local authority could raise, based on a standard council tax figure multiplied by the tax-base of the authority. Local authorities can only significantly vary their budget from the SSA by varying their council tax rate from the standard rate.

¹⁹ This is true for local government across the UK, as evidenced by the Local Autonomy Index for European countries (Ladner et al 2015). The Williams Commission Report (Williams 2014) provides a broad discussion on the autonomy of local authorities in Wales.

²⁰ Source: Table 16 of the OECD Fiscal Decentralisation Database.

setting for both taxes is primarily done at a national level, with some limited elements devolved to local government. The criteria for many reliefs and exemptions for NDR and CT are set centrally, however, there are many elements of local discretion allowed in the application of some relief schemes, plus general discretionary powers allowed under both taxes.

4.5 It was clear from the interviews that the issue of collection is considered to be crucial to Welsh Government and local government notions of local taxation. There was little evidence that the issue of policy decentralisation is at the forefront of the minds of the representatives of Welsh Government or local government with whom we engaged²¹.

4.6 Some interviewees perceived a lack of skills and competencies within local government as a constraint on fiscal autonomy. However, others contended that this was a matter of ‘chicken and egg’ and that until powers are decentralised the necessary skills and competencies are not in demand and will not be developed. For example:

“If you believe that local [government] should be trusted with doing things but cannot because it doesn’t have the capacity or competence, that’s no reason not to give it those powers because those capacities and competencies will then have to be developed.”

4.7 Many of the services that local government delivers in Wales are legislated for at a national level, including the two dominant areas of spending, namely social care and education. In these areas, local government has limited discretion and control over service delivery and therefore spending and so, in accordance with the criteria of national equity discussed in paragraph 3.3, pooling of resources across the country is more appropriate. However, there are many areas of responsibility where local government has significant discretion over spending and so matching fiscal

²¹ There were two exceptions to this rule. Firstly, some thought has been given to the impact of retention of Non-Domestic Rates (as practiced in England), were a similar policy to be adopted in Wales (see, for example, Kapitsinis and Daria 2018 and Morgan 2016). Secondly, some local authorities have loosely considered the possibility of seeking powers to vary the ratio between CT bands.

autonomy with these powers would be consistent with the criteria of fiscal accountability.

Preliminary conclusion:

Any new local tax regime should explicitly link local control over services with local accountability via the decentralisation of tax powers. In other words, the debate over local taxes cannot be divorced from wider discussions about local democracy.

Recommendations for further work:

An assessment should be made of the extent to which local government in Wales has policy control over its various elements of expenditure.

An assessment should be made of the existing skills and competencies within local government to exercise fiscal autonomy, and the potential for developing these in the future.

5. Valuation

- 5.1 The valuation of land is a key practical challenge to implementing any LVT regime.
- 5.2 It is important to recognise that the value of illiquid assets, such as land, depends on how much an individual buyer is willing to pay, and how much an individual seller is willing to accept in payment. This means that valuing such assets at a point in time remote from a transaction involves a degree of subjectivity.

Preliminary conclusion:

Any valuation method should be judged on the basis of reasonableness and consistency, rather than a notion of accuracy.

Valuation methods

- 5.3 There are three broad methods of valuation that could potentially be applied to valuing land for the purposes of a local LVT in Wales:
- professional valuation, for example by a surveyor;
 - formula or model based valuation (possibly based on a hedonic regression); or
 - self-valuation²².
- 5.4 Epstein (2014) provides a valuable overview of self-valuation systems. He notes that “the spirited academic interest in these self-revelation devices is not matched by any practical move to implement them, even on an experimental basis”. Proposals for pure self-valuation depend upon punishment mechanisms to help to ensure that honest valuations are submitted, and for this reason would likely undermine trust in the tax system²³.
- 5.5 The existing valuation methods employed by the VOA are varied, but are essentially a hybrid of the first two methods listed above. They make use of both professional judgements and quantitative techniques. For the assessment of non-domestic

²² The Local Property Tax in Ireland was cited by an interviewee as an example of self-valuation. However, the methods by which valuations can be made are limited (see Revenue Ireland 2019).

²³ This issue should be considered against a backdrop of the newly formed Welsh Revenue Authority seeking to build trust with taxpayers. For the recently devolved Welsh taxes there is a stated aim in its Charter to be responsive to and supportive of taxpayers (See [Welsh Revenue Authority Charter](#)).

properties, they include predominantly (i) “rental” basis, and also: (ii) “receipts and expenditure” method and (iii) “contractor’s test basis”²⁴.

- 5.6 These methods have evolved over a long period of time, primarily on the basis of data availability and decisions made by valuation professionals, rather than on the basis of legislation. Whilst these methods are appropriate to the current local tax regime, and the case law that has built up around that regime, it is not clear that these methods would be the most appropriate for valuing land under an LVT regime.

Preliminary conclusion:

Valuation methods should be transparent and consistent across different types of land.

Recommendation for further work:

A detailed assessment carried out to determine the most appropriate method for valuing land values in Wales.

Valuation technology and frequency

- 5.7 Many interviewees referred to recent developments in technology that should assist with the valuation process and noted that they are already used by many different sectors. For example, one commented: “you can go to your local bank or building society and they will have AVM, they will know more about your property than you know yourself”. Some expressed the view that the VOA has been slower in adopting improvements in valuation technology than agencies in the private sector and in the public sector elsewhere in the world. For example:

“Countries like Estonia are very enabled. You look at Denmark [...] they are doing mass valuation stuff and valuations on a much more modern basis than we do. The information that I have [...] is that Britain is very bad at doing this stuff. It is still dealing with paper and all sorts of outmoded things. Modernise the whole

²⁴ Details are available on the [VOA website](#).

valuation system, and that gets you 90% of the way to implementing LVT if you wish.”

- 5.8 This technology could make possible the real-time valuation of land and property on a large scale. Examples in the private sector include [Geophy Commercial Real Estate Valuations](#) and [MPAC’s Automated Valuation Model](#) for residential property. Similar techniques are used in the public sector by [Estonia’s e-Land Register](#). This evidence suggests that debates in the UK regarding the frequency of revaluation are outdated and that a modern tax system could be based on real-time valuations.
- 5.9 Existing valuation methods in the UK do not separate out land and property and nor are they currently required. Hence, any method of valuation for an LVT would need to be significantly different from the existing methods. Therefore, a change to LVT might present an opportunity to effect a broader change in valuation methods, to incorporate new technologies.

Preliminary conclusion:

There is significant scope for updating the valuation system and increasing the use of technology in valuation, with the potential for producing real-time valuations.

- 5.10 In theory, LVT should be levied on the unimproved value of land in its highest and best use (HABU)²⁵ because it encourages use to its highest potential by increasing the cost of holding unused or under-used land²⁶.

Unimproved land and site value

- 5.11 In practice, it is not straightforward to determine what constitutes an improvement to the natural state of land. In Australia, the concept of ‘unimproved land’ is applied to valuing rural properties for LVT but ‘site value’ is used for urban land. No land in Wales remains in a completely natural state. For example, the remotest areas of the country have been cleared or drained for grazing, and enclosed by dry-stone walls. Hence, the site value concept is universally more applicable in Wales. This treats the value of land as the value of location, and so land value is ascertained by

²⁵ See, for example, Shepherd (2019).

²⁶ See, for example, Bird and Slack (2004).

comparing the value of a property in a particular location with similar properties in other locations, and treats the difference in the total property value as the difference in the value of those locations (or sites). Site value thus represents the premium in value of particular locations relative to reference locations with the lowest site value.

Preliminary conclusion:

Site value should form the conceptual basis for the valuation of land in Wales. Thought should be paid to whether 'site value tax' is a more appropriate term than 'land value tax'.

Highest and best use

- 5.12 HABU is an important theoretical concept, but again in practice its value is less clear, particularly in a consent-based planning jurisdiction such as Wales²⁷. In a perfect asset market, all assets will be valued at their HABU value because the purchaser has the opportunity to put that asset to its HABU and is competing with other potential purchasers who have the same opportunity²⁸. Valuation professionals often refer to this as 'hope value' being priced in by the market, reflecting the probability of changing consents associated with the asset. In the real world, where property markets are often far from perfect, there may be the potential for the market to price a property such that it doesn't reflect HABU. The winner's curse suggests that market values may exceed HABU²⁹. On the other hand, uncertainty aversion could lead market values to be biased towards current use rather than HABU. In practice, in liquid markets, market values are the best proxies that we have for HABU. In less liquid markets, it may be better to extrapolate site values from nearby locations.

²⁷ HABU is used in the US and there is now some established case law on this, but this has been established in the context of a zonal planning system.

²⁸ The International Valuation Standards (2017) state that "The Market Value of an asset will reflect its highest and best use".

²⁹ The winner's curse is the tendency for a winning bid in an auction to exceed the true value of an item. In a world of incomplete information, the auction is likely to be won by a bidder who overestimates the true value of the item. For a fuller account, see Thaler (1988).

Preliminary conclusion:

Land valuation in Wales should attempt to simulate the value at which a comparable but empty site would transact in an arm's length transaction in which the parties had each acted knowledgeably, prudently and without compulsion. Such a valuation would automatically include any appropriate 'hope value'.

Capital or rental values

- 5.13 Under the current local property taxes, non-domestic properties are predominantly assessed at rental value whilst domestic properties are assessed based on capital value. Economic theory is silent on which of these is preferable as the base for an LVT. In theory, capital values should simply be equal to the discounted sum of future rents. Hence, using either as a base for LVT should be equivalent, at least in the long run.
- 5.14 In practice, any valuation process is dependent upon observations of transactions and so a decision on whether to use rental or capital markets should place due weight on the relative liquidity of the capital and rental markets. We heard evidence that the lack of rental markets for commercial land, in particular, would make assessment of capital values preferable. For example:

“I think you have to go for capital, in many cases rental value for land information is just not available. Capital value gives a consistent valuation across the whole country. Everything's got a capital value, not everything will have a rental value so it's better to go for capital value [...] that's the value everybody knows.”

We recommend that further evidence is gathered on the relative liquidity of capital and rental markets for land in Wales.

- 5.15 On the other hand, if an LVT were levied on the owners of land, rather than the occupier, then the tax itself will have a significant impact on capital values but a much smaller impact on rental values³⁰. This endogeneity of capital value could

³⁰ Assuming that the owners cannot pass much of the tax on to occupiers through rent increases, as suggested by theory and empirical evidence (see paragraphs 6.1 to 6.3).

make the forecasting of tax receipts more challenging, and hence policy decisions concerning tax rates would be more complex.

Preliminary conclusion:

There are strong arguments in favour of using capital value and in favour of using rental value of the base for an LVT. Further work should be done to assess the relative merits of these arguments.

Recommendation for further work:

Gather evidence on the relative liquidity of capital and rental markets for land in Wales.

Contaminated or degraded land

- 5.16 Contaminated or degraded land may have zero or negative rental value in the short run, but have a positive capital value due to expected positive rental value some time in the future.

Preliminary conclusion:

Consideration should be paid in the design of an LVT to ensure that there is no incentive for owners or occupiers to degrade their land.

6. Collection and administration

Liability

- 6.1 Financial or legal liability for a tax refers to the person, business or organisation which is responsible for paying the tax bill. The economic incidence for a tax, however, refers to how the costs of the tax ultimately impact upon the distribution of economic welfare.
- 6.2 Basic economic theory suggests that the economic incidence of a tax depends upon supply and demand elasticities, and not on financial liability. In the case of property taxes, where the elasticity of supply is low, theory suggests that the economic incidence of a tax is shouldered predominantly by the owners of the property, rather than the occupiers. In the case of land, where the elasticity of supply is close to zero, almost all of the economic incidence will fall on the owners.
- 6.3 This theory is supported by an extensive empirical literature which shows that property taxes are close to fully capitalised into property prices. The seminal paper in this area is Oates (1969), and it gave rise to a voluminous literature which is reviewed in Hilber (2015). Of particular relevance to our study, Bond et al (1996) show that changes in non-domestic rates feed through almost entirely in the long run to changes in rental values. Similarly, Bond et al (2013) show that in the context of NDR exemptions in Enterprise Zones in England, “the average capitalisation effect obtained was not significantly different from 100%, implying that all of the local tax exemption benefits accrue to the owners of the property”.
- 6.4 Most interviewees expressed a preference for LVT to be levied on the owner. Aligning financial liability with economic incidence in this way makes sense, and would enhance the transparency of the tax by making clear where the incidence falls. For example:

“Regardless of whether one has LVT or whatever [...] the economic incidence of property tax falls on the owner, and the Mirrlees Report was very good on all of that, and the stuff that the Institute for Fiscal Studies has done on this sporadically over the years as well, and if the economic incidence is on the owner they should pay the tax.”

- 6.5 Shifting the financial liability for an LVT to the owner of the land could have implications for the collection and administration of the tax, which require further consideration.
- 6.6 Shifting the financial liability for an LVT to the owner of the land would require legislation to set out a clear definition of ownership for the purposes of this tax. For example, in the case of long leases with peppercorn ground rents, legislation would need to be clear as to whether the freeholder or leaseholder was considered as the landowner for tax purposes.

Preliminary conclusion:

For reasons of transparency, the financial liability for LVT should fall on the owner, rather than the occupier, of the land. Legislation must clearly define ownership for the purposes of the tax.

Recommendations for further work:

Gather evidence on the definition of ownership used in similar contexts internationally.

Assess whether switching liability to owners would have any impact on collection rates.

Collection

- 6.7 Collection should be designed in such a way to facilitate compliance; this was raised by many interviewees. Currently, collection rates for local property taxes in Wales are high³¹ and the system is cost effective, as collection is “a well-trodden path”. Many interviewees attributed this to the local collection mechanism, and the local expertise inherent within it. For example:

“There’s 22 revenue and benefits teams across Wales [...] it gives you local knowledge, it gives you a kind of understanding of their local tax base and a kind of buy-in to the tax because they’re collecting money for their local authority to

³¹ The collection rates in 2018-19 were 97.3% for council tax and 97.6% for NDRs (StatsWales).

fund that local authority and those teams are well established through years and years and years of people working in them and evolving and growing, and there's a lot of expertise in there so in some areas they are very efficient in the way that they work".

- 6.8 Local collection is also viewed as a strong mechanism for ensuring the accountability of local government. The design process should try to anticipate issues and areas of avoidance – e.g. landowners might move ownership abroad.
- 6.9 There was a widespread view amongst interviewees that the existing local property taxes are unpopular. Some suggested that the visibility of these taxes may be a factor in this. For example:
- “People think that council tax is much bigger than it is. You ask people what the biggest tax is, they say income tax and they have council tax right near the top of the list, I think for example ahead of VAT, despite the fact that VAT is far bigger. And it's partly just the visibility of it, the fact that it's one of the only taxes which actually lands on your doormat and you have to write a cheque or set up a direct debit or whatever, whereas things like VAT and National Insurance is just taken almost without them noticing”.
- 6.10 Some interviewees suggested that alternative methods of collection might mitigate this. Alternative approaches were identified from elsewhere. For example, in Greece, authorities have collected property tax through the utility system³² and, in Denmark, LVT is collected through a system similar to the UK PAYE system. Collecting LVT via payroll deductions might improve its acceptability, by reducing its visibility. The applicability and feasibility of such systems in a Welsh context requires further consideration due to the present devolution settlement.
- 6.11 Our research, however, found that the evidence on the unpopularity of CT is far from conclusive. The Final Report of the Lyons Inquiry into Local Government (Lyons 2007) discusses at length the fairness or otherwise of CT. It reports that perceived unfairness was widespread in the submissions to the Inquiry and that “the fact that CT bills may not reflect ability to pay, or income, is the most commonly

³² There is anecdotal evidence that there was a lot of opposition to collecting taxes through the utility system when this was introduced in Greece. See, for example, Smith (2011).

cited reason for CT's perceived unfairness". However, it does not present systematic evidence. A poll from 2015 (YouGov 2015) provides evidence that CT is viewed as less fair than taxes on income, alcohol and tobacco; similar in fairness to VAT; but significantly fairer than a number of other taxes. A poll from 2012 (IPSOS 2012) found that 53% of those polled believed CT is fair, whilst 41% believed it was unfair. Furthermore, unpopularity does not seem to have a significant impact on current collection rates for CT, which were 97.3% in 2018/19.

- 6.12 The use of imprisonment as a penalty for non-payment of CT has proved highly controversial and the Welsh Government has now ended this sanction. Some interviewees reported that imprisonment is rare and that the recovery process for CT is straightforward. If the tax moved to the landowner, collection and recovery could be more time-consuming, costly and a burden on the court system. An alternate sanction for non-payment of LVT could take the form of a charge on the land, paid on death and/or when the land is sold.

Preliminary conclusion:

Collection and assessment of liability do not need to be carried out at the same level of government as policy powers. Indeed, there are benefits to independence. As recommended earlier in this report, the assessment of land values has primacy and should be carried out by a single agency.

Recommendation for further work:

Gather further evidence on the use of alternative collection regimes.

Appeals

- 6.13 The rights of taxpayers to appeal are an important part of any taxation system. Historically, appeals have been a significant and costly issue under the current NDR system³³. Interviewees suggested that there are lessons to be learnt from the introduction of the 'check, challenge, appeal' procedure in England, and that time constraints in the appeals processes are an important consideration. Transparency

³³ Jones and Rogers (2018).

in the valuation process, as well as the legal framing of tax legislation are key in this respect.

Preliminary conclusion:

An effective appeals system is a key issue for a new local tax regime. This should be a major consideration when determining the valuation process.

7. Exemptions, reliefs and limitations

- 7.1 There was a consensus among interviewees that exemptions, reliefs and limitations should be minimised, one commenting for example: “exemptions, reliefs and limitations [...] broadly my answer would be don’t have any, there aren’t generally good arguments for them”. Many expressed concerns with the range of reliefs under NDR, including SBRR and empty properties, which are potentially open to abuse, for example “business rates avoidance has become a big issue, particularly with empty properties”. Also, the inconsistency of exemptions over time raises questions over equity. Typically, the fewer the exemptions, the lower the tax rate that needs to be charged to raise the same revenues³⁴. There are strong economic efficiency arguments and strong operational efficiency arguments against exemptions^{35,36}. However, removing existing exemptions could raise challenges and have fiscal implications elsewhere. For example, removing the student exemption could potentially increase the cost of student support.
- 7.2 The greater progressivity of LVT, relative to CT, is likely to mitigate against the desire to provide exemptions, reliefs or limitations for certain groups of people. The potential shift of financial liability from occupiers to owners might also reduce the call for such schemes.
- 7.3 A number of interviewees identified political expediency as an important driver of exemptions. Shifting financial liability to landowners could significantly reduce the political incentive to introduce exemptions. If there are grounds for providing support to certain sectors or individuals, then that should be provided through an explicit subsidy rather than through the tax system.

³⁴ We calculate that removing all reliefs and exemptions from council tax would have allowed the average rate to have been reduced from £1,236 to £900 in 2018/19. Removing all reliefs and exemptions from NDR would have allowed the multiplier to be reduced from 51.4p to 41.9p. These figures are strictly illustrative and based on the potentially flawed assumption that collection rates would have remained unchanged.

³⁵ See Augustine (2009) for a comprehensive account of the effect of exemptions and reliefs on the property tax base.

³⁶ There are also potential operational efficiency arguments in favour of certain exemptions. Many exemptions are created because the tax is difficult and more costly to collect from certain types of property or types of people, e.g. unoccupied properties or transient populations.

- 7.4 Where difficulties in paying a land tax are identified, interviewees in the main thought that they should be dealt with via deferrals or charges on the land rather than through exemptions. However, it was noted that deferring a charge might be presented as a death tax.
- 7.5 Property tax deferral programmes are practiced in a number of tax jurisdictions, including the Republic of Ireland, British Columbia, and 24 states in the US. Munnell et al (2017) provides a brief overview of the existing deferral programmes in the US, as well as an outline a proposal for such a scheme in Massachusetts. They note that these schemes “appear to be used infrequently”. This was also the case for a deferral programme introduced in Northern Ireland in 2010³⁷.

Preliminary conclusion:

Exemptions, reliefs and limitations should be avoided. Government support for particular sectors, activities or characteristics are better done outside of the tax system (e.g. via subsidy payments) so as to avoid unintended consequences. Where necessary, payment difficulties relating to an LVT should be dealt with via deferrals or charges on the land rather than through exemptions, provided that a cost-effective scheme could be designed.

Recommendation for further work:

Gather further evidence on the use of deferral schemes or charges on land. Consider how best to design such a scheme, taking account of expected take-up and administrative costs.

Agricultural land and forestry exemptions

- 7.6 The agricultural sector has been exempted from property-based taxes for over 100 years, and so any decision to include agricultural land within an LVT would likely face significant resistance.

³⁷ The Rates (Deferment) Regulations (Northern Ireland) 2010 were approved in March 2010. Prior to implementation, estimates suggested the Scheme could have 2,000 participants at any one time but in fact only 16 agreements were entered into in 2010/11 and 5 in 2011/12. The scheme was closed to new applications in 2013, due to the high administrative costs per participant.

- 7.7 The basis for the exemption is that Welsh farmers deliver public goods for which they often receive no payment from consumers, but which underpin the rural tourist industry as well as providing social and cultural wellbeing benefits.
- 7.8 There is some evidence that farmland and forestry is used as a tax shelter, and that this has led to a consolidation of agricultural land ownership and land prices which are not sustainable for agricultural businesses³⁸. Introduction of an LVT to which agricultural land is exempted could exacerbate this issue.
- 7.9 Estonia currently taxes its agricultural land at 2%, with no corresponding tax on improvements³⁹. This has helped to prevent Estonia's farmland from being monopolised or used as a tax haven.
- 7.10 The Barclay Review (2017) of NDR in Scotland recommended that all land should be included on the valuation roll, regardless of whether exempted or not. That way, the cost of exemption can be assessed, and potentially weighed against any public good arguments in favour of exemption. However, it is worth noting that this recommendation has not been implemented by the Scottish Government⁴⁰.

Preliminary conclusions:

There is no overwhelming economic rationale for exempting agricultural land from LVT. However, there are clear political obstacles to ending a century old exemption. Agricultural land should be included in a comprehensive cadastre for Wales in order to provide clarity on the costs and benefits of any potential exemption from an LVT.

Recommendations for further work:

Gather further evidence on the extent of the role of Welsh agricultural land and forestry in tax avoidance.

Model the effect of an LVT on agricultural land prices, and rents for agricultural land.

³⁸ See, for example, Monbiot et al 2019.

³⁹ See Estonia Tax and Customs Board (2019).

⁴⁰ See Greenwood and Misselbrook (2017).

Asset-rich, cash-poor individuals and businesses

- 7.11 A recurring issue raised by interviewees was how to deal with asset-rich, cash-poor individuals within an LVT regime. Similar concerns are emphasised in relation to CT by the Lyons Inquiry into local government in England⁴¹. While interviewees saw this as a high profile problem, and that “the little old lady living in a high value property will tug at people’s heart strings”, a number of interviewees were sceptical regarding the scale of this issue, for example: “there are people who fall in that category, but not a huge number”. Most thought this issue should be dealt with by a charge on the property, paid on death and/or when the property is sold.
- 7.12 It is unclear whether LVT would ameliorate or exacerbate this problem relative to CT. According to the distributional analyses that we provide in section 14, individuals in modest properties would expect to see their tax bill fall as a result of a shift to LVT. However, those with very significant land holdings would see their bills increase significantly.
- 7.13 Data from the Family Resources Survey shows that there is an imperfect correlation between household incomes and property values. 48% of households from the upper half of the income distribution live in band A to C houses whilst 16% of households from the lower half of the income distribution live in band E to I houses. We are unaware of any data or studies relating to asset-rich, cash-poor businesses.
- 7.14 The low uptake of the property tax deferral programmes in Northern Ireland and US (referenced in paragraph 7.5) suggests that either the need for such programmes might be low, or there may be issues with awareness or access to schemes.

Preliminary conclusion:

Concern for the impact of LVT (and property taxes more generally) on asset-rich, cash-poor individuals represents a significant political obstacle to their implementation.

⁴¹ See the final report of the Lyons Inquiry (Lyons 2017).

Recommendations for further work:

Gather evidence on the prevalence of asset-rich, cash-poor households in Wales.

Model the impact of an LVT on these individuals.

Charitable relief

7.15 Small charities, with no land holdings, are unlikely to be impacted by a change to LVT. If the tax were paid by landlords, the theoretical and empirical evidence that we have suggests that they would not be able to pass the tax on to tenants.

7.16 However, a small number of charities are very significant landowners in their own rights. These include the National Trust and all eight Universities.

Preliminary conclusion:

LVT could have a significant impact on owners of properties currently subject to charitable relief.

Recommendation for further work:

Gather evidence on the prevalence of landowning charities in Wales.

Model the impact of an LVT on these institutions.

8. Links to the planning system, other taxes and benefits

Links to the planning system

- 8.1 Currently, the planning system and local government finance are largely independent of each other. For example, domestic and non-domestic designations for the purposes of local taxation are laid out in the 1988 and 1992 Acts, and this can be inconsistent with the designation in the planning system. Change of use in one system does not imply change of use in the other. This sometimes leads to confusion and dissatisfaction amongst members of the public when interacting with the two systems. For example, one interviewee gave the example of changes of use:
- “If someone gets planning permission to convert a barn into a holiday let, the planning system would prevent the owner from living in it as a domestic property but council tax would be payable on it up until the point at which the property has been let out for sufficient weeks to prove that it is eligible to be taxed as a non-domestic property”.
- 8.2 Planning decisions that impact significantly upon tax revenues are counterbalanced by changes to the Revenue Support Grant and so have negligible effect on local authority budgets. As a result, planning decisions at the local level are very rarely influenced directly by tax considerations.
- 8.3 The current tools focused at addressing land value capture – section 106 and the Community Infrastructure Levy (CIL) – relate only to new developments. They are very localised in scope and not widely used in the case of CIL. Section 106 was highlighted by interviewees as being very inefficient. LVT would give more incentive to local authorities to grant planning permission and so help to promote growth.
- 8.4 There are current concerns within the planning system regarding sites that are allocated in local development plans (LDPs) but are not brought forward for development⁴². Concerns exist that some landowners seek adoption of land into LDPs in order to boost their land value as collateral to borrow against, rather than

⁴² See, for example, Arcadis (2017), a report commissioned by the Welsh Government into the role of viability in the planning process.

for purposes of development. LVT may mitigate against this incentive, though this would depend upon decisions about when the tax liability would be incurred.

- 8.5 Concerns also exist regarding the impact of LVT on the supply of land coming forward for development in the planning process. Often land is included in a LDP several years before it will be viable for development, and yet inclusion immediately increases the value of the land. The fear is that a resulting increase in LVT liability would disincentivise land being brought forward for inclusion in the LDP.

Preliminary conclusions:

Implementation of LVT does not require an overhaul of the planning system. Whilst LVT should provide a general incentive for more appropriate development of land, it is a blunt tool and does not remove the need for an effective planning regime.

Thought should be given as to how land earmarked for development might be treated under an LVT regime. For example, there may be grounds for phasing in LVT liabilities over time or providing a deferral mechanism for land when initially included in an LDP or granted planning permission.

Links with other Taxes and Benefits

- 8.6 The Vacant Land Tax currently under consideration by the Welsh Government may become redundant if a local LVT were introduced with no exemptions for empty land.
- 8.7 Some interviewees suggest that Land Transaction Tax should be scrapped if an LVT is introduced. However, most arguments for this were based on the inefficiency of LTT and not contingent on LVT. International evidence suggests that recurrent property taxes and event based property taxes coexist under most tax regimes⁴³.
- 8.8 A local LVT would also have links to other taxes and benefits that are not devolved. For example, the introduction of a local LVT could conceivably impact upon revenues from other taxes, including capital gains tax, inheritance tax, and even income tax if it impacted upon designations of primary residence (or migration). Also, currently under corporation tax there are business incentives and capital

⁴³ See, for example, OECD(2018).

allowances to develop and expand, this might then be taxed under NDR, discouraging investment. This would not happen under LVT.

- 8.9 Interviewees identified two mechanisms by which implementing an LVT without exemptions might impact upon public spending. If owners of student accommodation were able to pass on the tax through rent increase, this could lead to an increase in student grants or loans. Similarly, where people move into care homes, and an LVT reduces their net income, then this will affect their ability to pay for their care charges.

Preliminary conclusion:

LVT could have an impact on revenues raised from other taxes, as well as on some forms of public expenditure.

Recommendation for further work:

Model the impact of an LVT on these taxes and payments.

9. Transition

- 9.1 Changes to tax systems are expensive, giving rise to administrative costs for the public sector and compliance costs for taxpayers⁴⁴.
- 9.2 There are also significant political risks associated with such changes. Several interviewees referred to the community charge (more commonly known as the poll tax), and the lessons to be learned from its introduction. For example, the importance of avoiding taking large numbers of people to court, with the cost and unpopularity suffered as a result. However, it is interesting that the Resolution Foundation recently claimed that CT “has come to look very like the poll tax it replaced”⁴⁵.
- 9.3 There are many strong advocates for LVT amongst economists and policy professionals. However, general understanding of the tax amongst the wider population is poor⁴⁶, and effective communication would be critical to any implementation.
- 9.4 A preference for some sort of smoothing arrangements around the tax taken – no interviewee was in favour of a “big bang” change. Options for a phased transition or incremental reform could involve:
- Incremental changes to the current taxes e.g. move NDR to a land only basis, increasing (or removing) the number of CT bands.
 - Geographical phasing, one council at a time.
 - Gradual rate changes, decreasing NDR/CT rates over time whilst increasing LVT rates⁴⁷.

A phased approach (particularly geographical phasing) would lend itself to a formative evaluation being embedded to help with implementation when rolled out further. However, it would also have significant legislative and equality implications.

⁴⁴ See, for example James and Nobes (2016).

⁴⁵ See Corlett and Gardiner (2018).

⁴⁶ See IPSOS (2012) question 7.

⁴⁷ A proposal of this type was put forward by Holtham (2015).

Preliminary conclusion:

There are numerous options for a gradual transition from the existing local tax regime to a potential LVT regime. Which of these options is best will depend on the specific nature of the LVT regime.

10. Data used in our modelling

10.1 The data used in our modelling came primarily from two sources: the Valuation Office Agency (VOA) and HM Land Registry. We also made use of data manually retrieved from the Zoopla website in order to calibrate absolute land values. All data were anonymised.

VOA and Land Registry residential data

10.2 We sourced this data in order to run the hedonic regressions described in equation 2.2, and hence provide us with estimates of relative residential land values across different locations in Wales.

10.3 The VOA residential data provides us with CT banding and property characteristics data for all residential properties in Wales. This amounts to a total of 1,440,921 observations as at July 2019. The property characteristics include total floor area, number of rooms, number of bedrooms, number of bathrooms, property type (detached, semi, terrace, flat, bungalow etc.), availability and type of parking, and age of the property.

10.4 The Land Registry price-paid dataset contains data on property transaction prices for all years between 2013 and 2018.

10.5 These datasets do not have a commonly defined unique key. We, therefore, proxied a unique key by combining each property's postcode with the first line of the address in order to merge the databases. We also merged a mapping of middle- and lower-layer super output areas to postcodes.

10.6 The final dataset available for modelling residential land values in Wales contains 184,495 observations of properties consisting of transaction prices, property characteristics, and various locational markers (local authority, mid and lower level super output areas (MSOA and LSOA)). This represents 13% of all residential properties in Wales.

10.7 The distribution of these observations across local authorities is shown in table 10.1, which also compares this with the distribution of all residential properties in Wales (as recorded in the VOA data) and the distribution of residential property transactions (as recorded in the Land Registry data).

Table 10.1: Distribution of residential property data by local authority

	VOA CT data		Land Registry data		Merged data	
	Obs.	%	Obs.	%	Obs.	%
Blaenau Gwent	32,757	2.3%	5,313	1.8%	3,731	2.0%
Bridgend	64,592	4.5%	14,615	5.0%	9,600	5.2%
Caerphilly	79,296	5.5%	14,897	5.1%	10,228	5.5%
Cardiff	157,343	10.9%	35,565	12.1%	22,046	11.9%
Carmarthenshire	87,918	6.1%	17,650	6.0%	10,876	5.9%
Ceredigion	35,550	2.5%	6,090	2.1%	2,479	1.3%
Conwy	57,366	4.0%	13,440	4.6%	7,326	4.0%
Denbighshire	44,898	3.1%	8,980	3.1%	5,661	3.1%
Flintshire	69,126	4.8%	14,761	5.0%	9,908	5.4%
Gwynedd	61,614	4.3%	11,381	3.9%	5,558	3.0%
Isle of Anglesey	35,196	2.4%	6,716	2.3%	3,406	1.8%
Merthyr Tydfil	27,371	1.9%	4,770	1.6%	3,266	1.8%
Monmouthshire	42,157	2.9%	9,573	3.3%	6,030	3.3%
Neath Port Talbot	66,405	4.6%	12,205	4.2%	8,434	4.6%
Newport	68,795	4.8%	16,464	5.6%	11,944	6.5%
Pembrokeshire	61,592	4.3%	12,228	4.2%	6,593	3.6%
Powys	64,847	4.5%	11,487	3.9%	5,196	2.8%
Rhondda Cynon Taf	109,748	7.6%	22,338	7.6%	14,990	8.1%
Swansea	113,051	7.8%	21,612	7.4%	14,921	8.1%
Torfaen	41,836	2.9%	7,799	2.7%	5,521	3.0%
Vale of Glamorgan	58,918	4.1%	14,613	5.0%	10,041	5.4%
Wrexham	60,545	4.2%	10,558	3.6%	6,740	3.7%
TOTAL WALES	1,440,921	100.0%	293,055	100.0%	184,495	100.0%

Source: VOA data and authors' calculations

10.8 Table 10.2 presents the distribution of residential property information by tax band. Nearly 60% of Welsh residential properties are in the tax Band A, B, or C. Less than 2% of properties are in Band H and I. Information on properties in tax band A and B are underrepresented in our merged dataset whilst properties in Bands C to F are overrepresented. This is congruent with data from the Welsh Revenue Authority on Land Transaction Tax filings, which show that Band A properties in particular are less frequently transacted. The reasons for this are not clearly established, but it may be in part that social housing stock is often found in the lower bands and does not transact regularly.

Table 10.2: Distribution of residential property data by CT band

Tax band	VOA CT data		Merged Residential data		
	Obs.	%	Obs.	%	Diff.
A	210,482	14.6%	13,869	7.5%	-7.09%
B	302,050	21.0%	32,658	17.7%	-3.26%
C	313,300	21.7%	43,805	23.7%	2.00%
D	232,899	16.2%	37,188	20.2%	3.99%
E	193,236	13.4%	30,878	16.7%	3.33%
F	117,200	8.1%	17,151	9.3%	1.16%
G	53,309	3.7%	6,806	3.7%	-0.01%
H	12,857	0.9%	1,585	0.9%	-0.03%
I	5,588	0.4%	555	0.3%	-0.09%
TOTAL WALES	1,440,921	100%	184,495	100%	

Source: VOA data and authors' calculations

Zoopla data

- 10.9 In order to calibrate absolute land values for our residential estimates, we needed to source price data for unimproved land. We were unable to identify unimproved land within the Land Registry price paid data. We, therefore, manually retrieved appropriate data from the Zoopla website.
- 10.10 We collected asking prices or guide prices for unimproved land with planning permission for residential development. The criteria used to select the data was that a price and reference to residential planning permission was specified on the primary listing page on Zoopla search on 23/10/19, that the land was in an unimproved state, and that the property had been listed since 01/06/19.
- 10.11 This search gave rise to 76 listings, comprising a total 270 properties. The majority of listings (49 in all) were for individual building plots but the remainder were for multiple building plots of up to 58 properties. Each observation provided a precise postcode (that could be mapped to LSOAs), a price and a variety of property characteristics.

VOA and Land Registry non-residential data

- 10.12 The VOA non-residential data that we have been able to source is far more limited than the respective residential data. We have the rateable values for every property

in Wales that is rated for NDR purposes, together with SCAT codes defining the industry classification of the property, and the property's address. However, we have no further property characteristics. There are a total of 117,983 observations in this dataset.

- 10.13 Property transaction prices for all years between 2013 and 2018 were again sourced from the Land Registry price paid dataset, but were augmented by further observations from the Land Registry Commercial and Corporate Ownership Dataset.
- 10.14 Again, in order to merge the datasets, we proxied a unique key by combining postcodes with the first line of the property address. We also merged a mapping of middle and lower layer super output areas to postcodes, as well as a mapping of SCAT codes to industry sectors.
- 10.15 The final dataset of non-residential properties in Wales, available for modelling non-residential land values, contains 4,650 observations of properties. This represents 4% of all non-residential properties in Wales. The database contains transaction price, rateable value, industry classification, and various locational markers (local authority, MSOA and LSOA).

Limitations of the data

- 10.16 The process of merging different datasets to produce information suitable for modelling land values resulted in a lot of data being lost (due to no unique keys being available to merge the information). This was especially problematic for non-residential properties.
- 10.17 The property characteristics available for residential properties is reasonably rich. However, a key missing characteristic is the size of plot. The data does not therefore allow us to discriminate between similar houses with different size gardens for example.
- 10.18 Hedonic regression analysis cannot be applied to the non-residential property data because no information is available on property characteristics (e.g. size, floors, quality of the building).

Preliminary conclusions:

Data on property characteristics and property transactions are currently collected by different government agencies and these data sources do not have a common unique way of identifying properties. This can lead to a loss of significant amounts of data when merging datasets.

Information on the characteristics of non-residential data in Wales is not publicly available and is difficult to source.

11. Land cover and land use data

11.1 There are a number of inventories of land cover and use in Wales. These vary in their classification methods and their level of detail. In this section, we provide an overview of two of these datasets⁴⁸.

CORINE land cover data

11.2 The European Union's CORINE (Coordination of Information on the Environment) programme provides an inventory of land cover in 44 classes. The CORINE Land Cover (CLC) database uses a Minimum Mapping Unit (MMU) of 25 hectares for areal phenomena and a minimum width of 100m for linear phenomena. This data, therefore, does not distinguish linear features such as roads or railways. Nor does it distinguish smaller scale variations in land cover, of less than 0.25km². However, it does provide a consistent broad overview of land use in Wales. Figure 11.1 illustrates this data for Wales.

Table 11.1: Overview of land cover in Wales

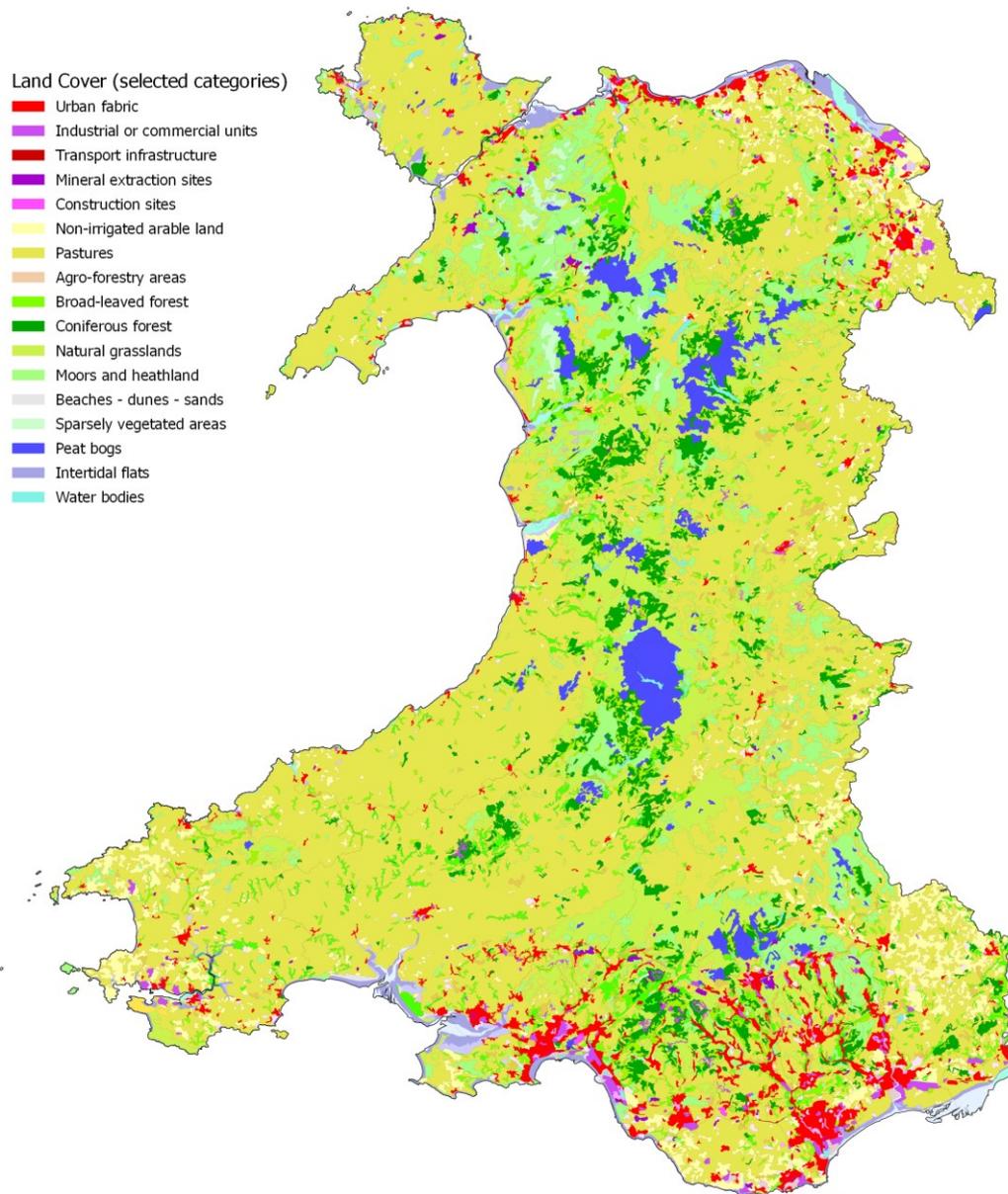
	Hectares	Proportion
Continuous and discontinuous urban fabric	76,406	3.6%
Industrial or commercial units	18,439	0.9%
Transport infrastructure	4,705	0.2%
Mineral extraction, dump and construction sites	7,584	0.4%
Sport and leisure facilities / green urban areas	17,042	0.8%
Arable land	115,379	5.4%
Pastures	1,084,064	51.2%
Other agricultural	19,313	0.9%
Forestry	197,376	9.3%
Natural vegetation	463,048	21.9%
Beaches, dunes, sands / bare rocks	2,312	0.1%
Bogs and marshes	66,507	3.1%
Water / intertidal flats	44,988	2.1%
TOTAL WALES	2,117,161	100.0%

⁴⁸ Commercial databases exist, for example Geomni's UKLand database, but we have not considered these due to cost and the lack of obvious benefit. Alternative classifications of land use and cover, linked to OS mapping, also exist and are described in LandInform (2006) but we have been unable to access this data.

Source: CORINE Land Cover database and authors' calculations

11.3 Table 11.1 summarises the CORINE land cover data for Wales. We have consolidated the 44 land cover classes into a less detailed classification. Agriculture, forestry and land in its natural state account for 94% of Wales' surface area.

Figure 11.1: Land cover



Source: CORINE Land Cover Database (2018)

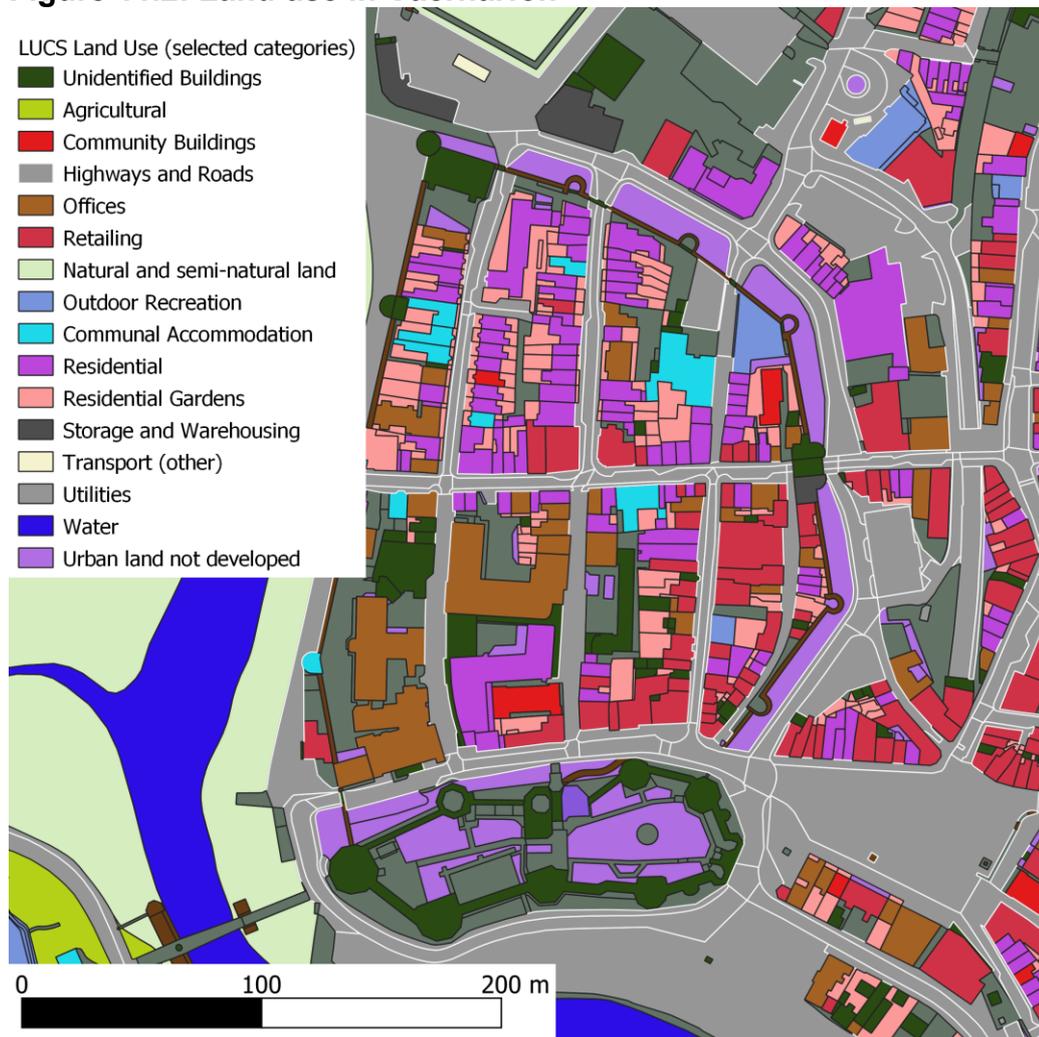
11.4 A detailed breakdown of land cover by local authority is provided in Annex D. Much of this detail is unsurprising in its nature. For example, whilst Cardiff accounts for just 0.7% of Wales' land area, it accounts for 8.1% of its urban fabric. Conversely, Powys accounts for almost a quarter of Wales' land, but less than 5% of its urban

fabric. Less obviously, however, the data highlights the highly concentrated distribution of industrial land and land dedicated to transport infrastructure.

Ordnance Survey land use data

- 11.5 The Ordnance Survey (OS) provide detailed mapping of Wales, at a far more granular level than the CORINE data. The data follows the Land Use Change Statistics (LUCS) classification. This classification was designed for recording land use change by OS field surveyors during the course of map revision. It is a hybrid classification that uses both land use and land cover categories.
- 11.6 An extract from the map, showing land use in the centre of Caernarfon, is shown in figure 11.2. To provide a comparison of levels of detail, the CORINE data encapsulates all of the area illustrated, east of the river Seiont, as a single polygon of 'continuous urban fabric'.
- 11.7 Table 11.2 provides an overview of the OS Land Use data for Wales. Agriculture, forestry and land in its natural state account for 92% of Wales' surface area.
- 11.8 A detailed breakdown of this land use data by local authority is provided in Annex E.

Figure 11.2: Land use in Caernarfon



Source: OS Land Use Data

11.9 Our analysis shows that there is a reasonable level of consistency between these two datasets. They concur that over 90% of Wales land area is accounted for by agriculture, forestry or natural land.

11.10 There are some significant differences in the scope of the two datasets. For example, the inclusion/exclusion of coastal margins in the two datasets is inconsistent, leading to different measures of total land area for all coastal local authorities. Furthermore, the classification systems used are not straightforwardly comparable.

11.11 However, the distribution of land characteristics across local authorities remains reasonably consistent, and the main differences in the datasets appear to stem from

the different geographical scales on which they have been developed. Notably, highways and road transport account for 2.5% of Wales' land area according to the OS data but less than 0.1% in the CORINE data. This arises from the fact that the minimum mapping unit for the CORINE data is 100m for linear features.

Table 11.2: Overview of land use in Wales

	<u>Hectares</u>	<u>Proportion</u>
Agricultural land	1,072,380	50.6%
Agricultural buildings	710	0.0%
Community buildings	6,186	0.3%
Defence	4	0.0%
Forestry and woodland	321,721	15.2%
Rough grassland and bracken	305,780	14.4%
Highways and Road Transport	53,053	2.5%
Industry	2,503	0.1%
Offices	376	0.0%
Retailing	752	0.0%
Leisure and recreational buildings	34	0.0%
Minerals	355	0.0%
Natural and semi-natural land	220,372	10.4%
Outdoor recreation	18,122	0.9%
Institutional and Communal Accommodation	262	0.0%
Residential	9,790	0.5%
Residential Gardens	43,906	2.1%
Storage and warehousing	492	0.0%
Transport (other)	5,164	0.2%
Utilities	1,931	0.1%
Vacant land previously developed	1,392	0.1%
Water	24,272	1.1%
Urban land not previously developed	9,132	0.4%
Landfill waste disposal	123	0.0%
Unidentified building	3,824	0.2%
Unidentified general manmade surface	18,577	0.9%
Unidentified structure	195	0.0%
Unidentified other	1	0.0%
TOTAL WALES	2,121,406	100.0%

Source: OS land use data and authors' calculations

11.12 The level of detail in the OS land use data makes it useful as a basis for a Welsh cadastre on which an LVT regime could be based. The data is consistent with CORINE land cover data.

Preliminary conclusions:

The OS Land Use database provides detailed mapping of property boundaries in Wales. The data appears consistent at the aggregate level with the CORINE Land Cover database.

There is currently no straightforward way of linking the geographical information in the OS land use database to Land Registry or VOA data.

Mapping for the purposes of taxation would require more precision than the mapping data currently available for Wales. However, the data available provides a comprehensive starting point on which mapping for the purposes of an LVT could be founded.

Recommendation for further work:

There is a strong case to be made to link the geographical information in the OS land use database with Land Registry or VOA data to form a comprehensive cadastre for Wales, and this should be investigated further.

12. Data requirements for implementing an LVT

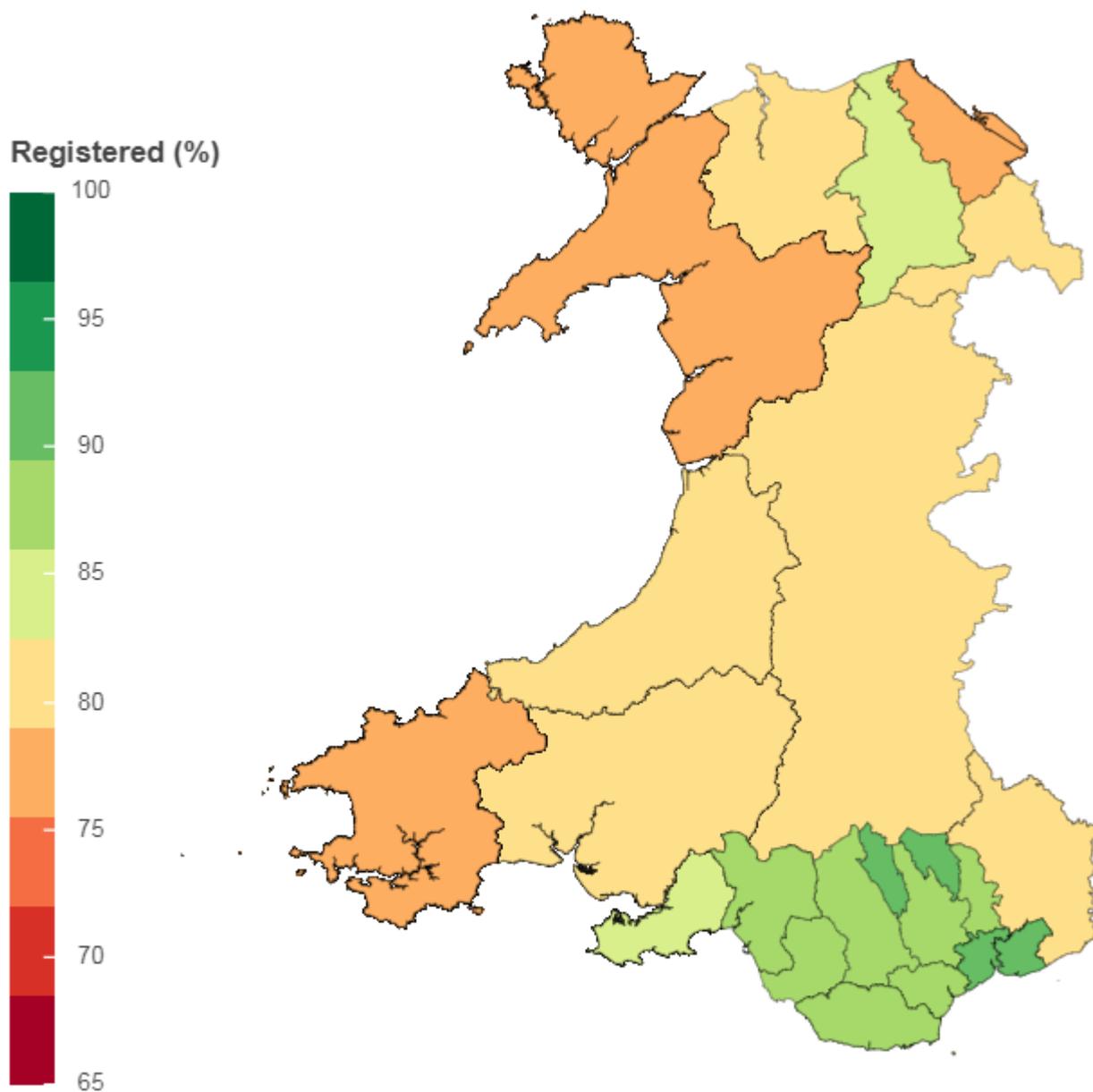
- 12.1 Robust valuation and assessment of land are key for an efficient property tax system; and are crucial both for tax policy and administration (Blochliger 2015). Cadastral databases can provide this information and facilitate efficient land or property tax administration and collection. Indeed, an efficient LVT system requires information about rights and interest in land and cadastral databases can include data parcel information and land ownership information. Cadastres map property rights and are a record of their geo coordinates.
- 12.2 The UK does not have a cadastre, which makes it unusual among major economies; this is largely because English law does not have a concept of dominium or direct ownership of the land itself (Grover, 2008).
- 12.3 In Wales currently, the three main components of cadastral data are gathered and managed by three different agencies. The registration of land ownership is the responsibility of HM Land Registry, the mapping of boundaries is the responsibility of the Ordnance Survey (OS), and the valuation of property for tax purposes is carried out by the Valuations Office Agency (VOA).

Land ownership

- 12.4 Implementation of a local LVT would require a complete register of land ownership. As of November 2019, 18.64% of land in Wales remains unregistered. The distribution of registered land across the 22 local authorities is illustrated in figure 12.1.
- 12.5 The vast majority of unregistered land is accounted for by agricultural land (55%) or land in its natural state (35%). Transportation accounts for a further 7% of unregistered land. Only 1.3% of unregistered land is in residential use. (Source: HM Land Registry)

Figure 12.1: Registered land

Area Coverage November 2019



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Source: HM Land Registry

- 12.6 Significant fees are payable for the voluntary first registration of land, and it is likely that this, combined with the legal fees usually incurred in registration, is a significant impediment to full registration. There would be initial expenditure in compiling a complete land register but interviewees highlighted that this would be one-off, rather than ongoing, cost.
- 12.7 The unresolved issue of the definition of “owner” is important here: currently the Land Registry does not require registration of leasehold interest in land if the lease is shorter than 7 years.

Land use and extent

- 12.8 Depending upon the valuation methods used and the exemptions, reliefs and limitations allowed, it is likely that the introduction of an LVT would require a complete register of land use.
- 12.9 Comprehensive land use data exists, in the form of the OS mapping data described in section 11. However, there is currently no straightforward way of linking this geographical information to other sources of property data.
- 12.10 This data also provides comprehensive coverage of boundaries in Wales.
- 12.11 Beyond our superficial assessment of the OS Land Use data in section 11, we are unaware of any assessment of the quality of this data.

Land value

- 12.12 We have not been able to gain a comprehensive view of the data that is held by the VOA for the purposes of valuing properties for CT and NDR. Whilst the data they do hold is clearly extensive, it is unlikely that they hold all of the property characteristics that might be desirable for developing a fully specified land valuation model. For example, it is unlikely that the VOA will hold data on plot size for residential properties as it would not be necessary for assessing CT bands.

International comparison

- 12.13 There are a number of examples of up-to-date, comprehensive, open and transparent cadastres or valuation rolls established by central and sub-central jurisdictions around the world. As with many taxes, property tax reform is very country specific, but information from other countries can offer useful insights.
- 12.14 We have looked at three jurisdictions that have cadastral databases: Denmark, Estonia, and Montana, a US state with the only US state-wide cadastral database (Freeman, 2011). Although these jurisdictions are similar in that they each maintain a cadastral database, they are very different (comprising a long established country, a country independent since 1991 and a US state) and have significant differences in terms of history, geographical size, tax law, the timescale in which the cadastre was developed etc. Table 12.1 provides an overview of these three cadastres together with a geographical comparison with Wales.
- 12.15 Although in each of the jurisdictions the primary purpose of the cadastre was to facilitate the levying of tax (Christensen, 2002, Kaing, 2012, Rahn, 2018) the cadastres in each of these locations have relevance and functions beyond tax, and each can be seen as a multi-purpose cadastre: serving the need for comprehensive information including the combination of land-use, environmental issues and property issues. In Montana “usage of the data goes beyond the state Department of Revenue” (Freeman, 2011) including providing information for utility companies, school districts and conservation organisations. Therefore, for many commentators “it is accepted that when cadastral information is part of integrated information systems it can improve the efficiency of the land transfer process as well as the overall land management process.” (Christensen, 2002).
- 12.16 The one-off costs of establishing a cadastral database from scratch are likely to be considerable. There is little information available about the initial cost of setting up a cadastre, although this will vary according to the circumstances and requirements of each jurisdiction. However, it has been reported in the case of Montana’s project to set up the cadastre, finished in 2003, the initial capital cost was \$3 million. Subsequently by 2009 the state estimated the annual value of its cadastral data (net

of ongoing costs) at \$10 million (Freeman, 2011)⁴⁹. Reports from elsewhere also highlight the scope to reduce duplication and costs to government through collaboration and sharing data (Finley, Coleman and MacNeil, 2016).

Table 12.1: International comparison of cadastral data

	Denmark	Estonia	Montana	Wales
Geographical information				
size	42,933 km ²	45,200 km ²	380,800 km ²	20,800 km ²
population	5.8m	1.3m	1m	3.1m
Cadastral comparisons				
updated	daily (1)	daily (2)	daily (3)	
Responsible for administration	Danish Geodata Agency (4)	National Land Board (5)	Montana State Library (6)	
Valuations carried out	private surveyors (7)	licensed valuers (8)	private surveyors (9)	
Became fully digital	1997 (10)	2003 (11)	2003 (12)	
Publicly available data	Yes (13)	Yes (14)	Yes (15)	

Notes and sources: (1) Danish Geodata Agency; (2,11) Republic of Estonia Land Board; (3,9) Rahn (2018); (4) Lassen (2017); (5,8) Giovarelli and Bledsoe (2001); (6) Montana Cadastral Framework (2017); (7,10) Christensen (2002); (12,15) Freeman (2011); (13) Danish Cadstre Office; (14) Tiits (2006).

Denmark:

12.17 A cadastre was first established in the 18th century. The primary purpose of this cadastre was to levy land taxes. Over time it has changed from being a basis for land valuation (initially based on the yield capacity of soil) to supporting a land market. Full digitalisation of the cadastre was completed by 1997 (Enemark and Hojgaard, 2017) and it now “plays a central role in the public management and administration of land ownership” (Danish Geodata Agency). The National Survey and Cadastre maintains the cadastre of approximately 2.5 million land parcels

⁴⁹ This is the total estimated value of the data to a wide range of data users. Applications include disclosure of property ownership information, land use planning, utilities, permits and schools. Stevens (2002) reports that 80% of applications are cost-savings to the user.

comprising approximately 1.5 million properties (Lassen 2017). Private surveyors carry out cadastral surveys. The cadastre is updated daily.

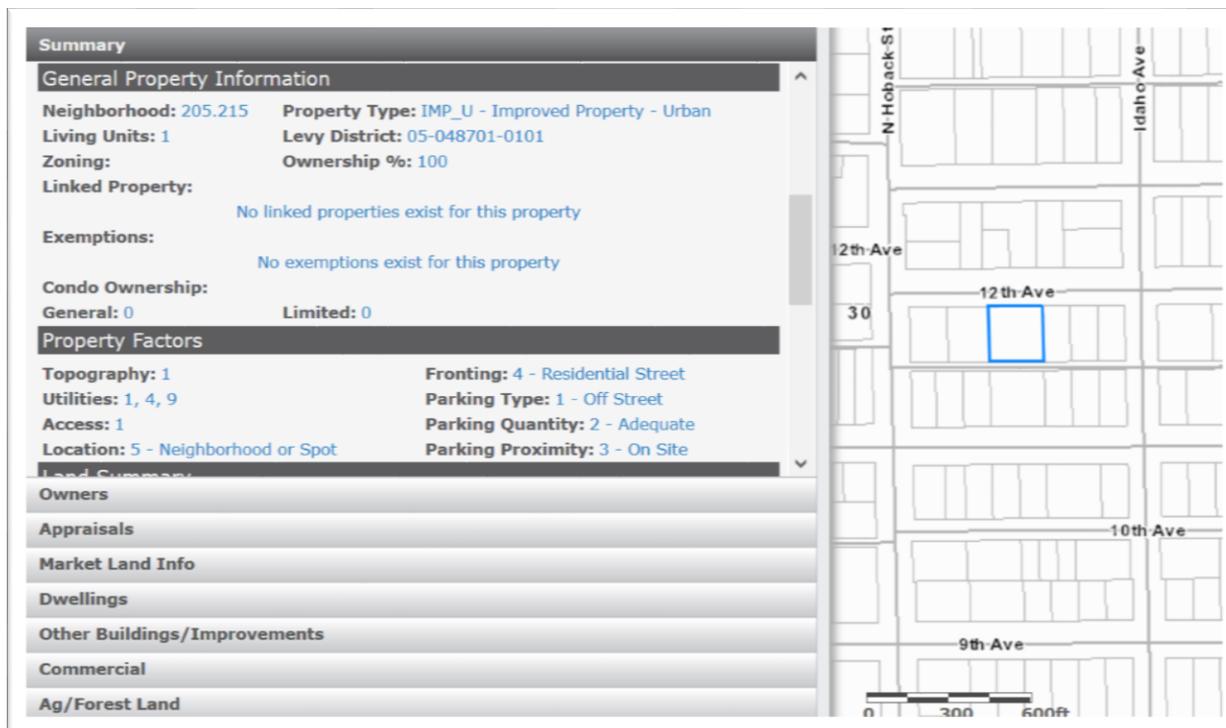
Estonia:

- 12.18 Estonia became an independent country in 1991. Land reform has necessitated a major overhaul of the land administration system created during the Soviet period. In Estonia the cadastre is primarily maintained for assessment of land for tax purposes. Estonia has been identified as the most competitive tax system in the OECD, in part because of its land value tax, (Lundeen and Pomerlau, 2014) the administration of which is facilitated by its cadastre.
- 12.19 Cadastral registration is based on land parcels. Land valuation is regulated by the National Land Board but is actually carried out by licensed valuers. All land valuation assessments are public.

Montana:

- 12.20 Montana is a very large state that is mainly sparsely populated. It has a GIS-based state-wide cadastral database, of parcels of land (both public and private property) that is easily publicly accessible online and serves many different types of customers (Stevens, 2002). Full digitalisation of the cadastre was completed by 2003. The data is collected and maintained primarily for the purposes of property tax assessment.
- 12.21 A user of the online database can use the address or the name of owner to access information that is not publicly available in the UK. In addition to the value of the property (split between land value and building value) other details include: the names of all people who own the property, a very detailed description of the property including, for example, the amount of parking available, the number of bedrooms and bathrooms and details of the central heating and any air conditioning. It also includes an appraisal of the condition, location and “desirability” of the property, with a top ranking of “10” representing excellent. An extract from the Montana cadastre is shown in figure 12.2.
- 12.22 Montana’s cadastral data is maintained by the Department of Revenue (except for eight counties in Montana where it is maintained at the county level).

Figure 12.2: Extract from the Montana Cadastre



Source: [Montana Cadastre](http://montana.cadastre.gov)

Cadastral data in the UK

- 12.23 In the UK, despite having a very active and efficient property market, there is no central record of the precise location of boundaries; instead a general boundaries rule exists. Common law rules do not have a concept of direct ownership of the land itself, and there is sometimes uncertainty over the notion of “owner” (Grover 2008).
- 12.24 In the UK there is likely to be some public concern, and potential legal constraints, regarding detailed information being publicly available via an open access cadastre. Indeed, there are concerns about identity fraud in the UK facilitated by the information that is currently available via the Land Registry. (HM Land Registry, 2018).
- 12.25 The UK’s only genuine cadastre is the Rural Lands Register. This was created in order to implement the changes in the European Union’s Common Agricultural Policy between 2003 and 2005, which changed the system of agricultural support

from one based upon guaranteed prices to farmers to one based upon the area of agricultural land occupied. According to Grover (2014), “the story of how this cadastre was created was one of chaos with serious delays in making payments to farmers and the threat of legal action against the UK by the EU. Part of the problem was inaccuracies in the older analogue maps. The cost of realising the register was £16.1 million compared with an estimate of £6.8 million, mainly as a result of the mapping costs in obtaining accurate information about parcel areas.”

- 12.26 There is heterogeneity in the approach to collecting and managing cadastral data within the UK. The Ordnance Survey is the official mapping agency in Wales, England and Scotland. It is a government-owned company, 100% in public ownership, which is accountable to the UK Government’s Secretary of State for Business, Energy and Industrial Strategy. Registration of the ownership of land and property in Wales and England is the responsibility of HM Land Registry, a non-ministerial department of the UK Government (Department for Business, Energy and Industrial Strategy, BEIS). The equivalent role is carried out in Scotland by the Registers of Scotland, a non-ministerial department of the Scottish Government. The valuation of property is carried out in Wales and England by the Valuation Office Agency, which is an executive agency of HM Revenue and Customs (a non-ministerial department), whilst in Scotland, this function is performed by the Scottish Assessors.
- 12.27 In Northern Ireland, all three of these functions - mapping, registration and valuation - are carried out by the Land and Property Services, an agency of the Department of Finance of the Northern Ireland Executive.
- 12.28 The UK Government’s Geospatial Commission is looking into the UK’s geospatial strategy in order to promote the best use of geospatial data, and these developments need to be considered when developing data processes in Wales.

Preliminary conclusions:

Wales should learn from the examples of good practice reviewed above in developing similar data processes.

The evidence from Montana and Northern Ireland suggests that the benefits of combining cadastral functions in a single agency are likely to outweigh the costs. A

comprehensive cadastral database should be developed under a single agency in Wales, to ensure that the various aspects of geographical data can be used compatibly.

13. Results of the modelling

Residential land values

- 13.1 The hedonic regression equation (equation 2.1) was calculated using the final dataset produced for residential property in Wales. The coefficients (β_2) were calculated for the local authority area and the LSOA (i.e. two models were calculated for the different areas, with all other factors remaining the same).
- 13.2 The property characteristics included in the model are: the property area, number of rooms, number of bathrooms, property type, availability and type of parking, age of the property. The model also controls for the year of transaction.
- 13.3 The coefficients (β_2) for each local authority area are given below:

Table 13.1 – Local Authorities coefficients

Local Authority	Coefficients (β_2)
Blaenau Gwent	-556.3
Bridgend	-158.7
Caerphilly	-241.9
Cardiff	556.6
Carmarthenshire	-382.6
Ceredigion	0.0
Conwy	-51.7
Denbighshire	-212.3
Flintshire	-93.4
Gwynedd	26.7
Isle of Anglesey	-90.8
Merthyr Tydfil	-465.8
Monmouthshire	372.7
Neath Port Talbot	-468.3
Newport	-13.2
Pembrokeshire	-150.4
Powys	-35.8
Rhondda Cynon Taf	-361.8
Swansea	-100.7
Torfaen	-142.3
Vale of Glamorgan	432.0
Wrexham	-124.1

Source: Authors' calculations

- 13.4 The coefficient of determination⁵⁰ for the hedonic regression model (equation 2.1) for local authority areas is 26.1%, which indicates a weak performance of the model. This reflects the spread in the data between what is observed and what is estimated from the model.
- 13.5 For Equation 1.1 the F statistic⁵¹ is computed as 1,629.3 and the probability as <0.001. The probability is extremely small that one could have obtained such a strong relationship between the dependent and independent variable purely by chance. Therefore, the evidence suggests that residential property price is influenced by property characteristics and location (as measured by local authority area).
- 13.6 The probabilities of the coefficients⁵² for each local authority is less than 0.01 for all areas with the exception of Gwynedd, Newport, and Powys. Therefore, the coefficients for all but three of the local authorities provide reliable indicators that land prices are significantly different to the average land price for Wales as a whole. Average land prices in Gwynedd, Newport and Powys, however, are not significantly different to the average land price for Wales as a whole.
- 13.7 The hedonic regression model was calculated again with the same factors but for the lower layer super output areas (rather than local authority areas). The coefficients (β_2) for the lower super output area are not given in this report due to the number of areas (1,909 LSOAs) but the results are used to derive land prices and are reflected in the map in figure 13.2.

⁵⁰ The most commonly used measure of the goodness of fit of a regression line (i.e. how well the regression model performs) is the coefficient of determination. The value of the coefficient of determination varies between 0 and 1. The closer it is to 1, the better the fit; the closer it is to 0, the poorer the fit.

⁵¹ A measure often used to determine if any of the independent variables really influence the dependent variable is the F statistic. Large values of F tend to imply that at least one of the independent variables has an effect on the dependent variable. The F distribution is used to determine the probability that an observed value of the F statistic could have arisen by chance, given none of the independent variables has any effect on the dependent variable.

⁵² The t statistic of a coefficient can be used to test whether the true value of a coefficient is zero. Such a test allows the assessment of whether a particular independent variable influences the dependent variable. All other things equal, the bigger the value of the t statistic (in absolute terms), the smaller the probability that the true value of the regression coefficient in question really is zero. Based on the t distribution, it is possible to calculate the probability, if the true value of the regression coefficient is zero, that the t statistic is as large (in absolute terms) as we observed.

- 13.8 The coefficient of determination for the regression model based on equation 2.1 for LSOAs is 36.3%, which indicates a weak performance (but better than the model with local authority area). Despite using the same factors, the improvement in the model performance is attributed to the increase in areas that have an influence on price.
- 13.9 For the hedonic model with LSOAs, the F statistic is computed as 54.2 and the probability as <0.001. The probability is extremely small that one could have obtained such a strong relationship between the dependent and independent variable purely by chance. Therefore, the evidence suggests that residential property price is influenced by property characteristics and location (as measured by LSOA).
- 13.10 The probabilities of the coefficients for each lower super output area is less than 0.1 for all areas with the exception of 356. Therefore, 1,553 LSOAs have land prices significantly different from the Wales average.

Non-residential land values

- 13.11 The relationship between residential land prices and non-residential land prices (equation 2.2) was calculated using the dataset produced for non-residential property in Wales (including the relevant local authorities' coefficients, β_2).
- 13.12 If there is a relationship between non-residential property prices and residential land prices then the probabilities for each interaction term should show that the coefficients are significantly different from zero. The results of the coefficients are given below:

Table 13.2 – Interaction terms

Interaction term	Coefficients
Industrial property group	0.15
Office property group	0.19
Other property group	0.11
Retail property group	0.12

Source: Authors' calculations

- 13.13 The coefficient of determination for the regression model based on equation 2.2 is 52.0%, which indicates a moderate performance of the model. This is unsurprising given the lack of variables reflecting property characteristics.
- 13.14 For equation 2.2, the F statistic is computed as 502.9 and the probability as <0.001. The probability is extremely small that one could have obtained such a strong relationship between non-residential property prices and the interaction terms purely by chance. Therefore, the evidence suggests that non-residential property price has a strong relationship with residential land prices.
- 13.15 The probabilities of the coefficients for each interaction term is less than 0.1 therefore there is a significant relationship between residential land prices and all non-residential property type.
- 13.16 Given there is a significant relationship between non-residential property prices and residential land prices, we estimate non-residential land values on the basis of equation 2.3. The model is applied to the Valuation Office Agency data (which contains information on all non-residential properties in Wales) to calculate the total value of non-residential property in Wales. The ratio between residential land prices and residential property prices observed for each local authority is applied to the calculated non-residential property prices to derive non-residential land prices.
- 13.17 The coefficient of determination for the regression model based on equation 2.3 is 52.1%, which indicates a moderate performance. Hence there should be caution in the use of the final non-residential land prices calculated by this model.
- 13.18 For equation 2.3, the F statistic is computed as 193.0 and the probability as <0.001. The probability is extremely small that one could have obtained such a strong relationship between non-residential property prices and the different factors purely by chance.
- 13.19 Nearly none of the probabilities of the coefficients for each factor is less than 0.1 which reinforces the caution that should be applied to the use of the final non-residential land prices calculated by this model.

Preliminary conclusion:

This section presents the results of a beta model for estimating residential land prices. This approach is consistent with what is seen in the literature. While the current beta model gives specific attention to location, the approach is costly for degrees of freedom (i.e. the number of ways by which the independent variables can move).

Recommendation for further work:

The beta model could be developed further using a (fixed effect) panel regression approach for modelling land prices. This should produce a more statistically robust model. Such an approach would also allow dynamic analysis of the local property markets in Wales (through threshold estimations). However, applying this advanced statistical methodology would require additional data cleansing given the sensitivity of the approach to errors in the data. Given current data availability the (fixed effect) panel regression approach could not be used to determine non-residential land prices.

14. Residential land values

- 14.1 We estimate total residential land values in Wales equal to £113.4 billion.
- 14.2 Our estimate is consistent with the Office for National Statistics' UK Balance Sheet Estimates (ONS 2018). This estimates the value of UK land owned by households at £4.1 trillion in 2018. On this basis, our estimate would suggest that residential land in Wales accounts for 2.8% of the value of all residential land in the UK.⁵³

Table 14.1: Residential land values and property values by Local Authority area

£mil	Land value	[% Wales total]	Total Property value	[% Wales total]	Land as proportion of total property
Blaenau Gwent	601	[0.5%]	2,849	[1.2%]	21%
Bridgend	4,151	[3.7%]	9,320	[4.0%]	45%
Caerphilly	4,029	[3.6%]	9,888	[4.2%]	41%
Cardiff	19,907	[17.5%]	33,425	[14.2%]	60%
Carmarthenshire	4,812	[4.2%]	12,929	[5.5%]	37%
Ceredigion	3,497	[3.1%]	7,167	[3.1%]	49%
Conwy	4,864	[4.3%]	10,079	[4.3%]	48%
Denbighshire	3,270	[2.9%]	7,252	[3.1%]	45%
Flintshire	5,227	[4.6%]	11,420	[4.9%]	46%
Gwynedd	5,805	[5.1%]	10,537	[4.5%]	55%
Isle of Anglesey	3,121	[2.8%]	6,210	[2.6%]	50%
Merthyr Tydfil	817	[0.7%]	2,751	[1.2%]	30%
Monmouthshire	6,376	[5.6%]	10,389	[4.4%]	61%
Neath Port Talbot	2,255	[2.0%]	7,317	[3.1%]	31%
Newport	5,338	[4.7%]	11,239	[4.8%]	47%
Pembrokeshire	5,160	[4.5%]	10,787	[4.6%]	48%
Powys	6,339	[5.6%]	12,545	[5.3%]	51%
Rhondda Cynon Taf	4,406	[3.9%]	11,865	[5.1%]	37%
Swansea	7,965	[7.0%]	17,390	[7.4%]	46%
Torfaen	2,455	[2.2%]	5,852	[2.5%]	42%
Vale of Glamorgan	8,744	[7.7%]	13,945	[5.9%]	63%
Wrexham	4,292	[3.8%]	9,439	[4.0%]	45%
TOTAL WALES	113,431	[100%]	234,597	[100%]	48%

Source: Authors' calculations

⁵³ It is worth noting that the ONS estimates are made by applying the residual method at an aggregate level. This involves subtracting the aggregate value of structures in the UK (as measured by the capital stock database) from the national balance sheet combined value of land plus structures. See ONS (2017) for details.

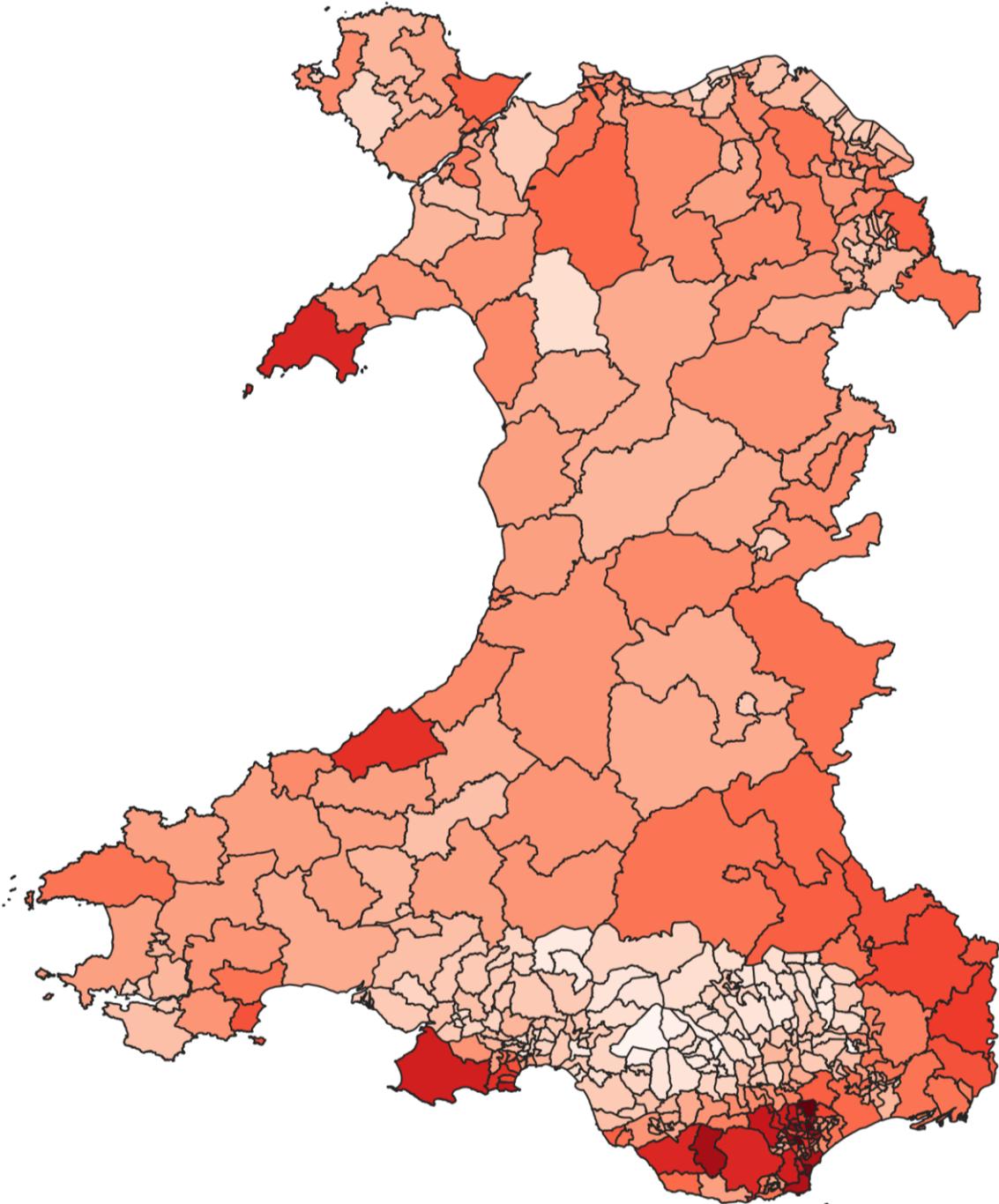
- 14.3 We estimate the value of all residential properties in Wales, including land and structures, at £234.6 billion⁵⁴. Hence, land represents 48% of total residential property values in Wales.
- 14.4 The value of land varies significantly across the country. Table 14.1 disaggregates our estimates of land and total property values for the 22 local authorities. Land represents just 21% of property values in Blaenau Gwent, whilst in the Vale of Glamorgan it represents 63%.

Analysis at the middle layer super output area (MSOA) level

- 14.5 A more detailed breakdown of land values across Wales is illustrated in figure 14.1 which shows residential land values at the MSOA level.
- 14.6 The very highest land values are concentrated in Cardiff, the Vale of Glamorgan and on the Gower. Almost all of the very lowest land values are found in the south Wales coalfield.
- 14.7 All of Blaenau Gwent's nine MSOAs are amongst the lowest two deciles. Merthyr Tydfil and Neath Port Talbot also have no MSOAs in the upper half of the distribution.
- 14.8 At the other extreme, all of Monmouthshire's eleven MSOAs are amongst the highest quartile. Ceredigion is the only other local authority area with no MSOAs in the lower half of the distribution. Only one of Cardiff's 48 MSOAs is in the lower half.
- 14.9 However, the majority of local authority areas display substantial heterogeneity. For example, Swansea has MSOAs in all ten deciles of the distribution.
- 14.10 Table 14.1 shows each local authority's MSOAs split by decile of the land value distribution.

⁵⁴ This estimate is arrived at by multiplying the number of residential properties in each MSOA by the average price paid in transactions relating to properties in that MSOA in the Land Registry price paid data, and aggregating over all MSOAs. It is consistent with other estimates of the aggregate value of residential Properties in Wales. For example, Bowles (2019) provides an estimate of £226.10 billion.

Figure 14.1: Residential land values per metre square at the MSOA level



Darker shades represent higher land values per metre square of residential property
Source: Authors' calculations

Table 14.1: MSOAs by decile of land value distribution

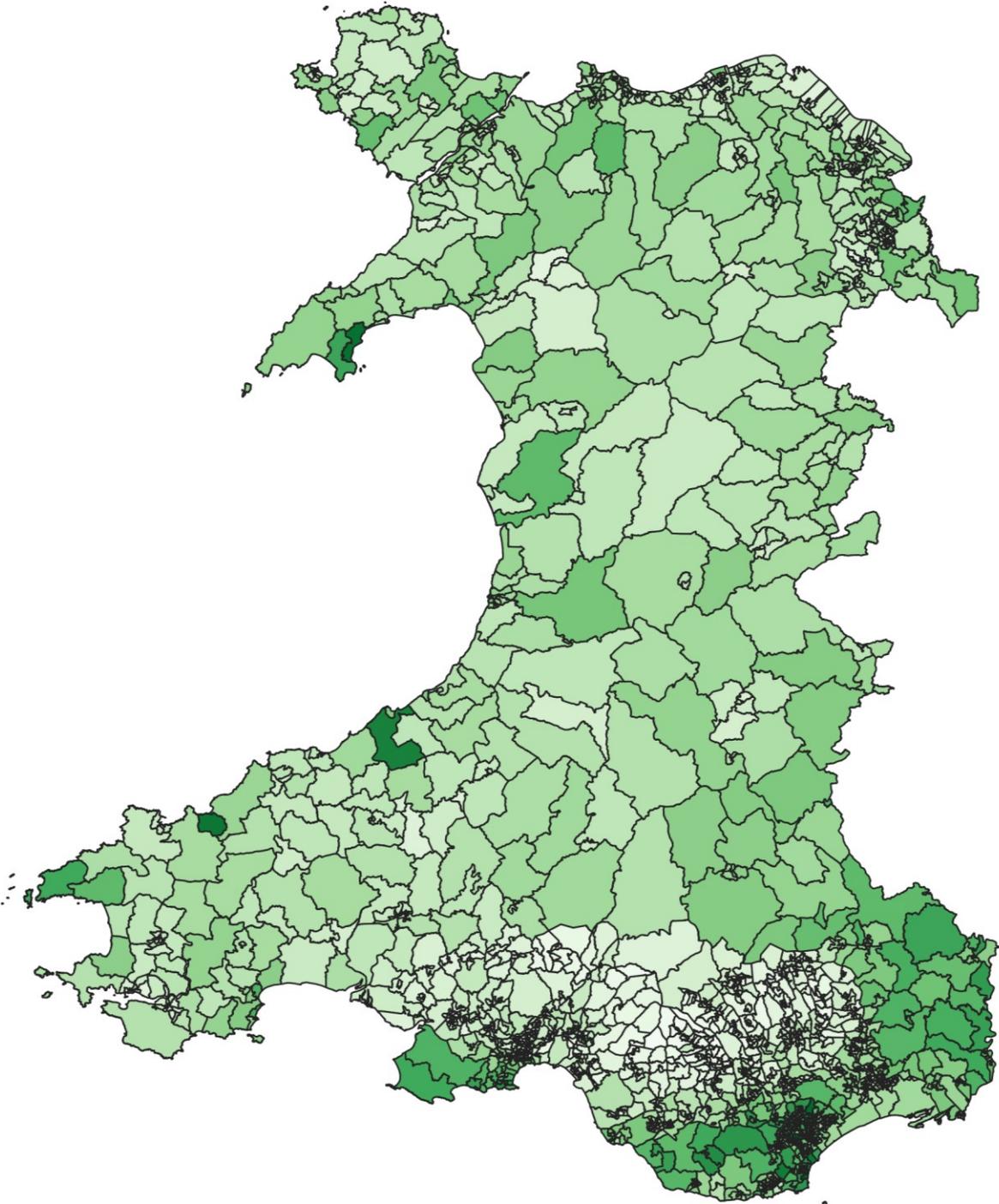
	Lowest	2nd	3rd	4th	5th	6th	7th	8th	9th	Highest	Total MSOA
Blaenau Gwent	5	4	-	-	-	-	-	-	-	-	9
Merthyr Tydfil	2	3	2	-	-	-	-	-	-	-	7
Neath Port Talbot	8	3	5	3	-	-	-	-	-	-	19
Rhondda Cynon Taf	14	4	5	1	-	1	3	3	-	-	31
Carmarthenshire	2	6	5	5	2	1	4	-	-	-	25
Caerphilly	3	2	7	5	3	1	1	1	1	-	24
Torfaen	1	3	2	1	2	-	2	2	-	-	13
Bridgend	3	1	2	3	4	2	2	-	2	-	19
Wrexham	1	1	1	3	7	1	2	-	2	-	18
Swansea	1	7	3	5	3	3	2	1	2	4	31
Denbighshire	-	3	-	1	2	3	3	3	-	-	15
Pembrokeshire	-	1	2	2	2	3	3	-	3	-	16
Flintshire	-	-	3	4	2	3	4	2	2	-	20
Isle of Anglesey	-	1	1	1	1	1	1	2	1	-	9
Gwynedd	-	1	1	2	1	4	4	2	1	1	17
Powys	-	1	1	2	3	2	2	4	4	-	19
Newport	-	-	1	1	5	6	1	-	6	-	20
Conwy	1	-	-	1	3	2	1	4	3	-	15
Ceredigion	-	-	-	-	-	3	1	4	-	1	9
Vale of Glamorgan	-	-	-	-	1	2	1	1	3	7	15
Cardiff	-	-	-	1	-	3	4	10	3	27	48
Monmouthshire	-	-	-	-	-	-	-	2	8	1	11
TOTAL WALES	41	41	41	41	41	41	41	41	41	41	410

Source: Authors' calculations

Analysis at the lower layer super output area (LSOA) level

- 14.11 Figure 6.2 illustrates residential land values disaggregated to the level of lower layer super output areas (LSOAs). The same broad patterns are observed here as for modelling at the MSOA level. What is striking, however, is how localised some residential land markets are.
- 14.12 For example, coastal second-home hotspots such as Abersoch and Newport (Pembs.) stand out as areas with much higher land values than their immediate surrounding areas. In the case of Newport (Pembs.), the average land value per square metre of residential property is £2,201, compared to just £855 in the neighbouring LSOA of Dinas Cross.

Figure 14.2: Residential land values per metre square at the LSOA level



Darker shades represent higher land values per metre square of residential property
Source: Authors' calculations

14.13 Similar stark differences exist within urban areas. In Cardiff, for example, the average land value per square metre in the LSOA of “Cyncoed 1” is £2,246; whilst in the neighbouring LSOA of “Pentwyn 2” the value is £565. Most notably, we find that the LSOA with the lowest land value in Wales is “Castle 2 North” in Swansea, with a negative price of -£135⁵⁵, whilst its neighbouring LSOA of “Castle 7 East” has a positive land value of £1,594.

Implications for a land value tax

- 14.14 On the basis of our estimates of land values, a uniform national tax rate⁵⁶ of 1.41% on residential land value would be sufficient to raise the same revenues as CT in 2018/19⁵⁷. This assumes that no exemptions or reliefs apply and that collection rates remain unchanged.
- 14.15 This gives rise to an average tax bill per residential property of £1,113 per annum.
- 14.16 However, a uniform national rate would shift revenues across local authority areas relative to the current CT regime. The change in tax base is illustrated in table 14.3.
- 14.17 Under the current CT regime, 6.4% of Band D equivalent properties are located in Rhondda Cynon Taf (RCT). However, RCT only accounts for 3.9% of land values. Hence, a change to an LVT regime would see the proportion of the tax base in RCT fall by 2.5 percentage points. Conversely, Cardiff’s share of the tax base would increase by 5.2 percentage points because its share of land value is significantly higher than its share of Band D properties. Any impact on revenue for councils could be minimised by considering the distribution of the Revenue Support Grant.

⁵⁵ This suggests that an owner of an average piece of land in this LSOA would have to pay for somebody to take it off their hands. More realistically, it suggests that the market price of a house built on land in this location would be less than the construction cost of the house.

⁵⁶ In this section we estimate a uniform national rate of LVT because of its simplicity and clarity. Alternatives might involve graduated tax rates or geographically differentiated rates. We postpone discussion of these to section 16.

⁵⁷ Given a collection rate of 97.3%, this rate would raise £1.561 billion. See footnote 12 - this is the net figure for CT raised in 2018/19. We calculate the gross figure of CT for 2018/19, before any reliefs or exemptions at £2,119 million. If a LVT were required to raise this amount, a uniform national tax rate of 1.88% would be needed. This would give rise to an average tax bill per residential property of £1,471.

Table 14.3: Change in distribution of tax base between CT and LVT regimes

	Number of Band D equivalent properties	Proportion of Band D equivalent properties	Residential land value (£mil)	Proportion of residential land value	Change in proportion of tax base
Blaenau Gwent	24,669	1.7%	601	0.5%	-1.2%
Bridgend	61,173	4.3%	4,151	3.7%	-0.6%
Caerphilly	69,417	4.9%	4,029	3.6%	-1.3%
Cardiff	175,381	12.4%	19,907	17.5%	5.2%
Carmarthenshire	84,991	6.0%	4,812	4.2%	-1.7%
Ceredigion	37,400	2.6%	3,497	3.1%	0.4%
Conwy	58,179	4.1%	4,864	4.3%	0.2%
Denbighshire	45,085	3.2%	3,270	2.9%	-0.3%
Flintshire	72,002	5.1%	5,227	4.6%	-0.5%
Gwynedd	58,446	4.1%	5,805	5.1%	1.0%
Isle of Anglesey	34,589	2.4%	3,121	2.8%	0.3%
Merthyr Tydfil	21,615	1.5%	817	0.7%	-0.8%
Monmouthshire	51,654	3.6%	6,376	5.6%	2.0%
Neath Port Talbot	56,644	4.0%	2,255	2.0%	-2.0%
Newport	68,128	4.8%	5,338	4.7%	-0.1%
Pembrokeshire	62,909	4.4%	5,160	4.5%	0.1%
Powys	69,932	4.9%	6,339	5.6%	0.7%
Rhondda Cynon Taf	90,727	6.4%	4,406	3.9%	-2.5%
Swansea	109,231	7.7%	7,965	7.0%	-0.7%
Torfaen	37,985	2.7%	2,455	2.2%	-0.5%
Vale of Glamorgan	68,354	4.8%	8,744	7.7%	2.9%
Wrexham	61,190	4.3%	4,292	3.8%	-0.5%
TOTAL WALES	1,419,704	100.0%	113,431	100.0%	0.0%

Source: Authors' calculations

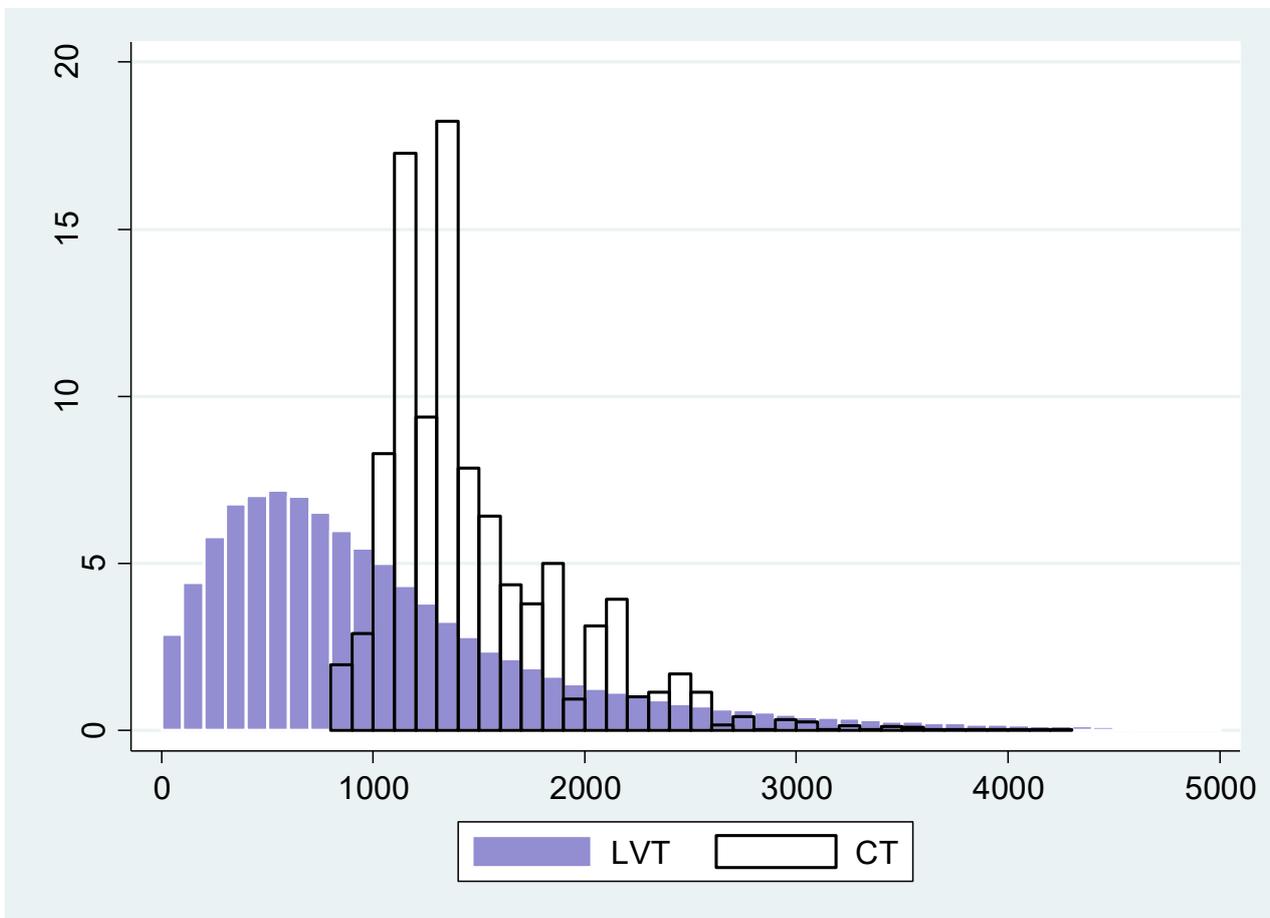
The distribution of household tax liabilities

14.18 Making comparisons regarding individual household tax burdens between a potential LVT regime and the present CT regime is fraught with difficulties. The wide range of reliefs and exemptions that apply to CT mean that around 55% of households do not pay the full CT rate. It should be noted that the following analysis relates to the full liability of CT and does not reflect reliefs and exemptions. For LVT, the assumption is that no exemptions or reliefs apply.

14.19 Figure 14.3 illustrates the distribution of tax liabilities under CT in 2018/19 and under our estimate of LVT.

14.20 58.41% of households would face LVT liabilities of less than £1,000 per annum. A further 28.37% would face liabilities between £1,000 and £2,000. 12.14% of households would have bills between £2,000 and £5,000. The final 1.08% of residential properties would have liabilities above £5,000. Many of the properties in this final group include very large properties such as student halls and residential care homes which currently enjoy significant reliefs.

Figure 14.3: Distributions of gross tax liabilities under LVT and CT



Source: Authors' calculations

14.21 The following examples should be treated as illustrative only of those households who do not currently enjoy reliefs or exemptions.

14.22 In 2018/19, a Band A property in Blaenau Gwent was subject to a CT bill of £1,218⁵⁸. We estimate a typical Band A property in Blaenau Gwent to have a land

⁵⁸ Note that, for consistency, these figures include the police authority element of CT.

value of £15,259, which would give rise to a tax bill of £215 under a uniform LVT rate of 1.41%.

- 14.23 In 2018/19, a Band I property in Cardiff was subject to CT of £3,245⁵⁸. We estimate a typical Band I property in Cardiff to have a land value of £423,081, which would give rise to a tax bill of £5,965 under a uniform LVT rate of 1.41%.
- 14.24 Our estimates of land values at the LSOA level are highly correlated with the Welsh Index of Multiple Deprivation (published in November 2019). The correlation coefficient with the overall index is 62%, and the correlation of land values with the individual components of WIMD are shown in table 14.4.
- 14.25 We also calculated the average change in tax bill in each LSOA that would arise following a change from CT to LVT. The correlation between these changes and the various components of deprivation are also shown in table 14.4. This shows that the ‘winners’ from a change to LVT are concentrated in the more deprived LSOAs and the ‘losers’ in the less deprived LSOAs.

Table 14.4: Correlation between components of WIMD and (i) land value; (ii) change in tax bill were an LVT to replace CT

	Correlation with land value	Correlation with change in tax bill
WIMD	61%	61%
Income	62%	63%
Employment	66%	68%
Health	66%	70%
Education	65%	67%
Access to Services	16%	9%
Community Safety	37%	41%
Physical Environment	-12%	-5%
Housing	26%	22%

Source: Authors’ calculations

Preliminary conclusions:

The total value of residential land in Wales is £113.4 billion, representing 48% of total residential property values.

The value of residential land varies significantly across the country, but there are also stark differences at the local level.

An LVT rate of 1.41% of capital value would raise the same revenues as CT in 2018/19.

A change from CT to LVT would shift the tax base away from more deprived areas towards more affluent areas. Correspondingly, the distribution of household tax liabilities would broaden.

15. Non-residential land values

- 15.1 It is important to note the preliminary nature of the estimates presented in this section. As explained in section 0, the data requirements for valuing non-domestic properties are somewhat more demanding than the requirements for residential property. More importantly, however, the data that we have managed to access for non-domestic properties in Wales is far more limited than the data we have sourced for residential properties. The results presented in this section represent a first attempt at valuing non-residential land in Wales, and as such we believe there is significant value in presenting them here. However, they should be treated with a degree of caution and care should be taken in drawing conclusions on their basis.
- 15.2 We estimate the land values of properties that currently pay NDR at £27.6 billion.
- 15.3 On the basis of this estimate, a uniform tax rate of 3.90% on non-residential land value would be sufficient to raise the same revenues as NDR in 2018/19⁵⁹. This assumes that no exemptions or reliefs apply and that collection rates remain unchanged.
- 15.4 These estimates are analogous to those found in other research. For example, Chapter 16 of the Mirrlees Review states: “Given available data, it is hard to be precise about what rate of LVT on commercial land would be required to replace business rates on a revenue-neutral basis. Some basic calculations suggest that a rate somewhere in the region of 4% of land value levied once a year might achieve this” (Adam et al 2011).
- 15.5 Table 15.1 shows how the tax base would shift across local authority areas were an LVT to replace the current NDR regime⁶⁰.

⁵⁹ Given a collection rate of 97.6%, this rate would raise £1,050 million. This is the net figure for NDR raised in 2018/19. We estimate that gross NDR for 2018/19 was £1,235 million. A rate of 4.58% would be required to raise this sum.

⁶⁰ We are unable to calculate bill change scenarios for non-residential properties due to the lack of property characteristics data.

Table 15.1: Change in distribution of tax base between NDR and LVT regimes

	Total rateable value under NDRs (£mil)	Proportion of rateable values	Non- residential land value (£mil)	Proportion of non- residential land value	Change in proportion of tax base
Blaenau Gwent	31.7	1.3%	139.4	0.5%	-0.8%
Bridgend	98.3	4.1%	951.8	3.4%	-0.6%
Caerphilly	87.5	3.6%	875.1	3.2%	-0.5%
Cardiff	458.2	19.1%	6,887.7	25.0%	5.9%
Carmarthenshire	116.8	4.9%	1,126.0	4.1%	-0.8%
Ceredigion	54.3	2.3%	695.8	2.5%	0.3%
Conwy	86.8	3.6%	966.8	3.5%	-0.1%
Denbighshire	67.6	2.8%	640.5	2.3%	-0.5%
Flintshire	145.4	6.0%	1,235.4	4.5%	-1.6%
Gwynedd	112.0	4.7%	1,625.2	5.9%	1.2%
Isle of Anglesey	38.8	1.6%	655.5	2.4%	0.8%
Merthyr Tydfil	41.5	1.7%	208.7	0.8%	-1.0%
Monmouthshire	64.7	2.7%	1,165.4	4.2%	1.5%
Neath Port Talbot	93.9	3.9%	684.3	2.5%	-1.4%
Newport	143.1	6.0%	1,241.3	4.5%	-1.5%
Pembrokeshire	126.7	5.3%	1,445.7	5.2%	0.0%
Powys	81.3	3.4%	992.7	3.6%	0.2%
Rhondda Cynon Taf	133.6	5.6%	1,091.4	4.0%	-1.6%
Swansea	182.5	7.6%	1,885.4	6.8%	-0.8%
Torfaen	56.6	2.4%	413.9	1.5%	-0.9%
Vale of Glamorgan	81.2	3.4%	1,571.5	5.7%	2.3%
Wrexham	100.6	4.2%	1,103.3	4.0%	-0.2%
TOTAL WALES	2,402.8	100.0%	27,602.4	100.0%	0.0%

Source: Authors' calculations

Preliminary conclusions:

The total value of land underlying properties which currently pay NDR is £27.6 billion.

An LVT rate of 3.90% of capital value would raise the same revenues as NDR in 2018/19.

16. Conclusions and recommendations

- 16.1 Throughout this report, we have listed preliminary conclusions and have highlighted areas of work that have been beyond our scope, but which we believe should be completed before any local LVT regime is introduced⁶¹. In this section, we have synthesised and prioritised those conclusions into three primary findings and six key recommendations.
- 16.2 **Primary Finding 1: Land values in Wales.** Our modelling work estimates that the total value of residential land in Wales is £113.4 billion, and the total value of land underlying properties which currently pay NDR is £27.6 billion.
- 16.3 **Primary Finding 2: A local LVT in Wales could raise sufficient revenues to replace the current local taxes.** An LVT rate of 1.41% on residential land would be sufficient to raise the same revenues as are currently raised by CT. An LVT rate of 3.90% charged on the properties that currently pay NDR would be sufficient to replace that tax.
- 16.4 **Primary Finding 3: The data requirements for implementing a local LVT in Wales are not currently met.** Mapping data, property characteristics data and property transactions data are currently collected by different government agencies. There is currently no straightforward way of linking the geographical information in the OS land use database to Land Registry or to VOA data. The data currently available provides a useful starting point, but the implementation of a local LVT would require richer data on property characteristics, and the ability to link this with more precise mapping data as well as transactions data.
- 16.5 **Key Recommendation 1: A cadastral database for Wales should be established under the control of a single agency.** This would bring together the

⁶¹ For ease of reference, these preliminary conclusions and recommendations for further work are collected in Annex F.

land registration, mapping and valuation functions within a single entity, as has been successfully achieved in Northern Ireland. The database should take advantage of modern GIS techniques, as well as modern valuation methodologies (which, in turn, should ensure consistency and transparency in valuation). This would greatly facilitate the implementation of a local LVT, but would likely have significant benefits beyond local taxation in areas such as planning and agriculture, by ensuring consistency and compatibility of data. Initial work should be carried out to assess the costs and benefits of such a cadastre.

- 16.6 **Key Recommendation 2: A local LVT should place financial liability on the landowner rather than occupier.** There is overwhelming evidence (see paragraph 6.3) that the economic incidence of property taxes falls on the property owner rather than the occupier. Changing the financial liability of property taxes to coincide with their economic incidence would significantly improve the transparency of the tax system. Shifting the financial liability from tenants to landlords would mitigate against arguments in favour of widespread exemptions.
- 16.7 **Key Recommendation 3: A local LVT should minimise the use of reliefs and exemptions.** The progressive and continuous nature of LVT (as shown in Figure 14.3) significantly reduces the need for reliefs to support poorer households that exists under the regressive CT regime. An LVT regime could therefore significantly reduce the costs of exemptions and reliefs. Broadening the tax base in this way can significantly reduce the tax rates required to raise the same amount of revenue, as shown in paragraph 14.14. Where necessary, payment difficulties relating to an LVT should be dealt with via deferrals or charges on the land.
- 16.8 **Key Recommendation 4: Consider what structure of rates would be appropriate for a local LVT in Wales.** In the modelling for this report, we have considered a uniform national rate for residential land and a separate uniform national rate for non-residential land. We have taken this approach for reasons of simplicity and clarity. However, graduated rates (for example, through the

implementation of a tax-free allowance) could be used to increase the progressivity of LVT. Furthermore, separate national and local rates could be used to enhance the fiscal accountability of local government. It is also worth noting that there is no compelling economic argument for taxing non-domestic land at a higher rate than residential land, though this feature is inherent in the current local tax regime.

- 16.9 **Key Recommendation 5: Any new local tax regime should explicitly link local control over services with local accountability via the decentralisation of tax powers.** Our modelling shows that the introduction of an LVT would shift the tax base away from local authorities in less affluent areas of Wales towards more prosperous local authorities. This is an inevitable result of the high progressivity of LVT. It implies that the Welsh Government would have an important role in ensuring that fiscal transfers compensate for this unevenness in the tax base. However, the importance of national equity should be balanced against the need for local accountability. Any LVT regime should ensure that local government has a level of responsibility over the setting of tax rates which matches its policy powers. In other words, the debate over local taxes cannot be divorced from wider discussions about local democracy.
- 16.10 **Key Recommendation 6: Further work should be done to gather evidence on agricultural land ownership in Wales.** There is no overwhelming economic rationale for exempting agricultural land, forestry or land in its natural condition from LVT. However, the taxation of agricultural land is a crucial issue and beyond the scope of this report. We have not, therefore, attempted to value agricultural land. We believe that further work should be done to gather evidence on agricultural land ownership in Wales, its role, if any, in tax avoidance and the effects of an LVT on agricultural land prices and rents.

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Annex A

The following is an extensive list of interview questions. This list was tailored for each interview, reflecting the expertise of individual interviewees. Principal questions are highlighted, with potential follow-up questions listed thereafter.

LVT Research interview questions

- Opening spiel:
 - Objectives and nature of the research
 - Consent, recording, anonymity

- A. General understanding of a land value tax:
 - 1. What is your understanding of LVT?**
 2. What do you see as the main advantages and disadvantages of LVT?
 3. Where has LVT been implemented well / poorly?
 4. What are the principles underlying a land value tax?
 5. How do these compare with the principles underlying NDRs / council tax?
 6. How important do you view economic efficiency in the context of local taxes in Wales? How do you assess the economic efficiency of LVT, NDRs and council tax?
 7. How important do you view equity in the context of local taxes in Wales? How do you assess the equity of LVT, NDRs and council tax?
 8. How important do you view administrative efficiency in the context of local taxes in Wales? How do you assess the administrative efficiency of LVT, NDRs and council tax?

- B. Fiscal-federal structures:
 - 1. To what extent should local authorities in Wales be accountable for local taxes?**
 - 2. To what extent should the Welsh Government have a role in redistributing local tax revenues?**
 3. Under the current local tax regime in Wales (NDRs / CT), where do you view that the power for decision-making resides?
 4. Under the current local tax regime in Wales (NDRs / CT), where do you view that the accountability to taxpayers resides?
 5. How would other levels of government fit into a LVT regime:
 - i. City regions?
 - ii. Community Councils?

- C. LVT and other taxes:
 - 1. Do you view a LVT as complimentary to or as a substitute for other devolved taxes?**
 2. What are the principles underlying the following existing or potential taxes?
 - i. Land Transactions Tax;
 - ii. Vacant Land Levy;
 - iii. Tourism Levy.

- D. LVT and the planning system:
 - 1. How would a LVT and the planning system impinge on each other?**

2. How might a LVT change the incentives for Planning Authorities to grant various forms of planning permission?
3. How does the inclusion of land within a Local Development Plan, but without the granting of specific planning consent, affect land values?
4. How might a LVT affect Section 106 agreements?
5. How would the current planning regime inhibit choices about / provide opportunities for the design or operation of a local LVT?

E. Valuations methodology:

1. **What are the issues around valuing land?**
2. How should land be valued: capital value or rental value?
3. How should land be valued: according to highest and best use or to current use?
4. Who should value it?
5. How often should revaluations take place?
6. What methodologies does the VOA currently use to value non-domestic properties?
7. What methodologies does the VOA currently use to value domestic properties?
8. How resource intensive is this process?
9. What qualifications or training do staff need in order to be able to complete these valuations?
10. How easily could these methodologies be adapted to value the unimproved land element of these properties?
11. To what extent does the VOA make use of hedonic regression in valuing properties?
12. To what extent does the VOA make use of data from external sources in performing revaluations?

F. Administration and collection:

1. **How would the costs of administration and collection of LVT vary from NDRs/CT?**
2. How would the costs of compliance under LVT vary from NDRs/CT?
3. How would the costs of appeals under LVT vary from NDRs/CT?
4. What parameters are likely to affect these costs?
5. How would appeals be dealt with?
6. What issues might arise regarding the border with England?
7. What would be the optimal tax collection and administration body/bodies?
8. How would taxpayers interact with the tax collection body and how would they understand an LVT?

G. Exemptions, reliefs and limitations:

1. **What exemptions, reliefs or limitations should be allowed under LVT? What would be the rationale?**
2. What is the reasoning for the following exemptions / limitations from NDRs?
 - i. Small business relief;
 - ii. Agricultural land and buildings, including fish farms;
 - iii. Buildings used for training or welfare of disabled people;
 - iv. Buildings registered for public religious worship or church halls;
 - v. Registered childcare premises;
 - vi. High Street and retail rates relief;
 - vii. Hydropower projects;
 - viii. Charitable rate relief;
 - ix. Empty properties.

3. What is the reasoning for the following exemptions / limitations from CT?
 - i. Single person discount;
 - ii. Disabled person reduction;
 - iii. Student exemption;
 - iv. Empty properties.

H. Transition and implementation:

1. ***What are the key factors necessary to enable an effective transition from the current system of local taxation in Wales to a LVT?***
2. What are the advantages and disadvantages of the following methods of transition?
 - i. Abrupt change;
 - ii. Phased by land type e.g. replace NDRs initially, followed by CT at later date;
 - iii. Phased by geography – implement one council area at a time;
 - iv. Phased by property value e.g. higher rated/banded properties first;
 - v. Gradual rate changes – decrease NDR/CT rates, increase LVT rates over time.
 - vi. Are other forms of transition possible?

• Closing question in to all interviewees:

1. Are there any other issues regarding the implementation of a LVT in Wales that you believe this project should consider?
2. And are there any other points you'd like to raise?
3. Is there anyone else you think we should contact regarding this research?

Annex B: Call for evidence

The following text appeared in the call for evidence:

Call for Evidence on the potential for a local Land Value Tax in Wales

Bangor University has been appointed by the Welsh Government to carry out a Technical Assessment on the potential for a local Land Value Tax in Wales as a replacement to the existing local property taxes, Non-Domestic Rates and council tax.

The remit of the Assessment is to provide an initial appraisal of the practical viability of a local Land Value Tax in Wales, and to identify the further work that would be required in order to deliver such a policy. A brief topic guide relating to this project can be downloaded.

The purpose of this Call for Evidence is to identify potential issues relating to the implementation of a local LVT in Wales that merit investigation. We invite written evidence on any aspect of the scope of the Assessment. In particular, we would welcome evidence on the following matters:

- Are there any groups of taxpayers who would be particularly advantaged or disadvantaged by a change from the existing local taxes to a Land Value Tax regime?
- What are the issues around valuing land?
- Should land be valued at capital value or rental value?
- How should a local Land Value Tax be administered and collected?
- Are there any grounds for exemptions, reliefs or limitations on a local Land Value Tax?
- What are the key factors necessary to enable an effective transition from the current system of local taxation in Wales to a Land Value Tax?

This call for evidence will close on 30th June 2019.

Annex C: Hedonic regression

Land is usually treated as a composite commodity traded in bundles, and valued for its utility-bearing characteristics (ibid.). Hence, households value the characteristics of a good rather than the good itself. Because land is fixed in space, households and businesses implicitly choose a bundle of different goods and services by selecting a specific object (Malpezzi 2003). Methodologically, this is represented by the hedonic price function, which emerges from the competitive bidding of buyers (Bin et al 2011). The equilibrium between supply and demand persists when households and businesses maximize their utility, limited by their social and economic constraints (Quigley 1985). Thus, the hedonic equation determines the functional relationship between the land value price and its characteristics in a particular market (Sheppard 1997).

Hedonic regression is regularly used in land valuation because land value is determined by different characteristics. These characteristics can be structural, locality, and environmental based. The two-step approach to hedonic modelling allows the importance of each character to be determined.

The first stage involves employing regression techniques to estimate the Hedonic Price Function of the land. This function will relate the prices of many land parcels in the same area to the different characteristics⁶².

In the second stage, these implicit prices are regressed against the actual quantities/qualities chosen by people and businesses in order to attain the marginal willingness to pay for the amenity. The results of this analysis will indicate the changes in property values for a unit change in each characteristic, given that all the other characteristics are constant.

Such a model regresses the value of the property on non-traded structural and local characteristics. Assuming *ceteris paribus* conditions, the estimated coefficients mimic the implicit prices of certain characteristics and report how the price changes when one of these characteristics changes (Wooldridge 2008).

⁶² While studying the application of the Hedonic Pricing Method, the first assumption made is the value of land is affected by a particular combination of characteristics that it possesses given that land with better qualities demand higher prices as compared to properties with lower qualities. This is the Hedonic Pricing Function.

Annex D: CORINE land cover by Local Authority

Hectares	Swansea	Blaenau Gwent	Vale of Glamorgan	Cardiff	Caerphilly	Newport	Neath Port Talbot	Ceredigion	Conwy	Gwynedd	Merthyr Tydfil	Bridgend	Powys	Rhondda Cynon Taf	Pembrokeshire	Denbighshire	Monmouthshire	Cardiff	Flintshire	Torfaen	Wrexham	Anglesey	WALES	
Continuous urban fabric	107	-	140	115	-	-	-	89	145	78	59	-	32	-	52	49	-	216	-	-	55	47	1,184	
Discontinuous urban fabric	5,902	1,959	2,648	6,054	4,620	3,372	4,232	1,442	3,003	3,237	1,521	3,766	3,470	5,975	3,433	2,279	2,348	4,844	3,740	2,306	3,198	1,871	75,222	
Industrial or commercial units	990	448	784	1,023	502	1,551	2,215	229	353	159	232	724	655	1,253	1,467	460	582	1,246	1,871	538	865	293	18,439	
Road and rail networks and associated land	33	-	33	40	33	-	203	-	75	-	22	28	-	4	-	-	113	74	9	-	-	31	699	
Port areas	299	-	337	374	-	322	290	-	-	90	-	-	-	-	122	-	-	51	77	-	-	61	2,022	
Airports	125	-	393	-	-	-	-	74	-	303	-	-	-	-	168	-	-	170	321	-	-	429	1,984	
Mineral extraction sites	45	40	240	47	95	28	769	62	380	1,674	450	262	620	352	148	161	102	125	272	44	192	222	6,330	
Dump sites	-	-	-	134	41	-	-	-	-	25	-	-	25	77	70	82	-	-	-	-	-	-	-	455
Construction sites	-	36	-	38	-	36	293	-	-	-	28	-	68	184	26	-	25	-	-	-	63	-	799	
Green urban areas	348	-	87	689	176	291	286	-	-	-	165	125	28	36	-	39	68	-	35	170	28	-	2,571	
Sport and leisure facilities	479	184	749	384	394	815	408	478	915	1,154	77	409	1,094	376	771	847	1,128	1,119	982	45	930	732	14,471	
Non-irrigated arable land	2,148	-	8,365	632	449	2,894	542	2,183	1,227	1,150	-	1,013	20,052	13	22,097	7,177	22,067	2,168	10,675	747	7,183	1,436	114,219	
Pastures	14,951	868	17,220	3,313	11,286	8,017	10,521	113,948	52,029	87,794	1,971	10,139	260,699	12,381	110,718	44,497	41,355	174,004	20,848	2,847	27,308	57,351	1,084,064	
Complex cultivation patterns	-	-	-	-	-	-	-	-	-	-	-	-	2	-	1,117	-	-	41	-	-	-	-	-	1,160
Land principally occupied by agriculture, with significant areas of natural vegetation	993	1	563	29	972	66	740	194	101	550	883	236	7,050	1,518	1,562	284	1,381	1,652	29	352	-	156	19,313	
Broad-leaved forest	2,338	436	1,049	580	1,432	414	2,452	1,626	2,497	8,414	450	821	6,716	1,300	4,649	1,668	4,232	4,521	1,500	495	1,128	653	49,371	
Coniferous forest	120	510	108	92	1,633	749	6,648	10,611	5,281	18,644	477	1,427	33,321	4,834	695	5,687	3,675	8,865	271	660	1,032	1,071	106,411	
Mixed forest	370	165	167	169	1,303	89	3,434	4,137	3,331	1,607	389	169	7,333	1,357	2,428	1,090	2,485	10,590	714	81	187	-	41,593	
Natural grasslands	4,138	3,156	4	74	2,478	-	5,690	22,166	13,453	47,183	2,167	3,789	95,592	6,649	5,868	7,027	1,416	17,101	683	752	3,391	1,941	244,717	
Moors and heathland	2,261	2,626	112	-	1,654	47	1,219	8,468	21,647	53,758	661	1,316	42,366	2,187	4,980	8,913	3,484	4,777	897	3,339	3,203	3,643	171,559	
Transitional woodland-shrub	213	26	25	179	590	129	3,752	4,963	1,394	5,639	201	749	10,272	2,952	778	1,605	391	1,963	85	167	174	48	36,295	
Beaches, dunes, sands	-	-	-	-	-	-	87	56	26	50	-	-	-	-	-	37	-	807	79	-	-	60	1,201	
Bare rocks	197	-	-	-	-	-	-	-	147	667	-	-	-	-	-	100	-	-	-	-	-	-	1,111	
Sparsely vegetated areas	-	27	-	-	-	-	137	100	1,189	8,581	-	-	221	-	66	-	32	26	-	27	-	72	10,477	
Inland marshes	-	-	-	110	-	118	-	-	-	28	-	-	-	-	-	-	-	-	19	-	-	316	591	
Peat bogs	142	364	-	-	82	-	162	7,385	5,036	11,289	1,362	-	28,011	941	179	1,656	-	1,169	-	-	1,429	325	59,533	
Salt marshes	1,839	-	57	5	-	168	36	501	41	1,052	-	32	4	-	253	-	-	1,509	733	-	-	152	6,383	
Intertidal flats	2,994	-	647	329	-	867	702	100	1,178	4,078	-	491	-	-	1,677	577	619	4,836	2,911	-	-	2,161	24,167	
Water courses	-	-	-	-	-	-	-	-	108	-	-	-	-	-	260	-	-	-	-	-	-	-	368	
Water bodies	67	27	4	188	-	-	215	407	706	1,916	79	28	1,886	28	84	184	120	82	25	54	-	538	6,639	
Coastal lagoons	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30	30	
Estuaries	-	-	-	-	-	-	-	967	325	1,499	-	-	1	-	388	28	570	-	2,064	-	-	112	5,953	
Sea and ocean	956	-	-	-	-	-	145	392	716	1,555	-	6	-	-	869	190	-	1,901	-	-	-	1,103	7,832	
TOTAL ALL COVER	42,055	10,873	33,732	14,597	27,739	19,974	45,180	180,577	115,302	262,176	11,196	25,529	519,518	42,415	164,923	84,638	86,193	243,860	48,841	12,624	50,366	74,854	2,117,161	

Annex E: OS land use by Local Authority

Hectares	Swansea	Blaenau Gwent	Vale of Glamorgan	Cardiff	Caerphilly	Newport	Neath Port Talbot	Ceredigion	Conwy	Gwynedd	Merthyr Tydfil	Monmouthshire	Bridgend	Powys	Rhondda Cynon Taf	Pembrokeshire	Denbighshire	Carmarthenshire	Flintshire	Anglesey	Torfaen	Wrexham	WALES
Agricultural land	14,502	2,124	22,237	3,354	10,952	9,402	11,401	101,020	48,793	78,814	2,962	56,791	9,650	266,513	10,969	113,478	48,957	146,304	27,626	51,448	3,687	31,395	1,072,380
Agricultural buildings	7	3	17	1	12	28	32	83	26	34	2	103	4	85	32	55	60	57	21	20	1	27	710
Community buildings	441	127	257	522	281	276	254	257	207	328	120	221	249	411	392	283	213	423	328	151	186	258	6,186
Defence	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	4
Forestry and woodland	4,604	1,807	2,999	1,648	5,750	2,093	16,739	27,413	16,090	42,502	2,167	14,569	4,198	82,550	12,046	15,364	14,183	39,169	4,741	3,750	2,074	5,267	321,721
Rough grassland and bracken	7,372	3,384	787	427	4,601	476	7,074	30,430	20,085	53,250	2,947	3,454	5,499	104,232	9,653	12,186	4,732	22,721	1,501	5,869	3,092	2,009	305,780
Highways and Road Transport	1,680	592	1,269	1,589	1,415	1,185	1,793	3,485	2,461	4,275	535	2,316	1,241	9,298	1,936	4,089	2,182	5,720	1,919	1,734	679	1,658	53,053
Industry	49	44	40	150	116	151	136	21	25	378	98	35	74	145	67	580	58	25	128	23	67	92	2,503
Offices	37	20	7	42	17	15	6	5	11	11	12	7	8	18	29	8	9	57	15	8	11	22	376
Retailing	84	21	26	77	31	46	25	16	24	36	25	16	32	32	47	31	24	58	33	18	9	41	752
Leisure and rec. buildings	4	1	1	5	0	1	2	2	1	1	1	1	0	2	2	2	2	3	1	0	0	3	34
Minerals	0	0	13	6	4	27	90	4	0	59	20	27	5	21	12	19	16	15	2	2	0	14	355
Natural and semi-natural	6,373	1,058	882	728	207	2,728	1,644	11,588	21,641	70,911	661	4,783	774	42,191	1,883	9,631	8,735	17,281	5,064	6,553	512	4,544	220,372
Outdoor recreation	988	235	1,149	960	817	950	927	427	732	1,437	274	879	524	1,261	788	920	1,336	1,309	814	352	277	765	18,122
Inst. and Comm. Accom.	13	4	6	15	8	8	10	11	14	28	5	8	10	16	12	25	14	20	9	9	5	12	262
Residential	710	189	416	858	489	403	411	316	422	468	168	328	400	547	670	525	341	722	463	306	251	388	9,790
Residential Gardens	2,755	554	1,646	2,395	1,619	1,395	1,606	2,111	1,829	2,502	469	2,196	1,457	3,710	1,850	3,120	1,667	4,151	2,337	1,781	888	1,867	43,906
Storage and warehousing	20	3	12	31	35	43	37	8	13	20	2	24	19	21	69	25	22	16	31	7	12	22	492
Transport (other)	348	24	417	276	77	377	240	112	133	567	44	95	102	204	132	590	71	335	474	446	33	67	5,164
Utilities	91	6	190	48	68	93	44	36	29	88	4	40	35	18	50	545	10	156	211	105	7	60	1,931
Vacant land previously developed	45	29	51	82	29	240	112	42	29	46	44	42	48	50	97	64	52	110	60	29	26	63	1,392
Water	524	111	256	355	198	523	685	1,676	1,522	3,885	173	1,235	171	5,141	376	989	754	2,339	1,418	1,275	133	531	24,272
Urban land not previously developed	570	297	422	532	420	554	793	148	351	450	166	470	415	288	474	498	215	488	616	191	350	423	9,132
Landfill waste disposal	0	0	0	0	15	3	13	0	0	3	0	1	0	14	9	7	11	0	46	0	0	1	123
Unidentified building	101	20	116	119	58	97	102	255	150	249	24	155	81	721	64	368	111	489	195	172	45	130	3,824
Unidentified general manmade surface	747	216	714	692	519	532	872	1,001	739	1,591	274	684	530	2,045	747	1,554	665	1,890	885	692	276	712	18,577
Unidentified structure	9	2	7	7	1	17	12	7	7	14	1	8	8	12	8	17	6	27	8	7	4	8	195
Unidentified other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
TOTAL LAND USE	42,074	10,873	33,937	14,920	27,739	21,663	45,061	180,474	115,337	261,949	11,196	88,488	25,535	519,546	42,415	164,973	84,445	243,884	48,945	74,951	12,624	50,377	2,121,406

Annex F: Comprehensive list of preliminary conclusions and recommendations for further work

Preliminary conclusions:

1. Any new local tax regime should explicitly link local control over services with local accountability via the decentralisation of tax powers. In other words, the debate over local taxes cannot be divorced from wider discussions about local democracy.
2. Any valuation method should be judged on the basis of reasonableness and consistency, rather than a notion of accuracy.
3. Valuation methods should be transparent and consistent across different types of land.
4. There is significant scope for updating the valuation system and increasing the use of technology in valuation, with the potential for producing real-time valuations.
5. Site value should form the conceptual basis for the valuation of land in Wales. Thought should be paid to whether 'site value tax' is a more appropriate term than 'land value tax'.
6. Land valuation in Wales should attempt to simulate the value at which a comparable but empty site would transact in an arm's length transaction in which the parties had each acted knowledgeably, prudently and without compulsion. Such a valuation would automatically include any appropriate 'hope value'.
7. There are strong arguments in favour of using capital value and in favour of using rental value of the base for an LVT. Further work should be done to assess the relative merits of these arguments.
8. Consideration should be paid in the design of an LVT to ensure that there is no incentive for owners or occupiers to degrade their land.
9. For reasons of transparency, the financial liability for LVT should fall on the owner, rather than the occupier, of the land. Legislation must clearly define ownership for the purposes of the tax.
10. Collection and assessment of liability do not need to be carried out at the same level of government as policy powers. Indeed, there are benefits to independence. As recommended earlier in this report, the assessment of land values has primacy and should be carried out by a single agency.
11. An effective appeals system is a key issue for a new local tax regime. This should be a major consideration when determining the valuation process.
12. Exemptions, reliefs and limitations should be avoided. Government support for particular sectors, activities or characteristics are better done outside of the tax system (e.g. via subsidy payments) so as to avoid unintended consequences. Where necessary, payment difficulties relating to an LVT should be dealt with via deferrals or charges on the land rather than through exemptions, provided that a cost-effective scheme could be designed.
13. There is no overwhelming economic rationale for exempting agricultural land from LVT. However, there are clear political obstacles to ending a century old exemption.
14. Agricultural land should be included in a comprehensive cadastre for Wales in order to provide clarity on the costs and benefits of any potential exemption from an LVT.
15. Concern for the impact of LVT (and property taxes more generally) on asset-rich, cash-poor individuals represents a significant political obstacle to their implementation.
16. LVT could have a significant impact on owners of properties currently subject to charitable relief.
17. Implementation of LVT does not require an overhaul of the planning system. Whilst LVT should provide a general incentive for more appropriate development of land, it is a blunt tool and does not remove the need for an effective planning regime.

18. Thought should be given as to how land earmarked for development might be treated under an LVT regime. For example, there may be grounds for phasing in LVT liabilities over time or providing a deferral mechanism for land when initially included in an LDP or granted planning permission.
19. LVT could have an impact on revenues raised from other taxes, as well as on some forms of public expenditure.
20. There are numerous options for a gradual transition from the existing local tax regime to a potential LVT regime. Which of these options is best will depend on the specific nature of the LVT regime.
21. Data on property characteristics and property transactions are currently collected by different government agencies and these data sources do not have a common unique way of identifying properties. This can lead to a loss of significant amounts of data when merging datasets.
22. Information on the characteristics of non-residential data in Wales is not publicly available and is difficult to source.
23. The OS Land Use database provides detailed mapping of property boundaries in Wales. The data appears consistent at the aggregate level with the CORINE Land Cover database.
24. There is currently no straightforward way of linking the geographical information in the OS land use database to Land Registry or VOA data.
25. Mapping for the purposes of taxation would require more precision than the mapping data currently available for Wales. However, the data available provides a comprehensive starting point on which mapping for the purposes of an LVT could be founded.
26. Wales should learn from the examples of good practice reviewed in section 12 in developing similar data processes.
27. The evidence from Montana and Northern Ireland suggests that the benefits of combining cadastral functions in a single agency are likely to outweigh the costs. A comprehensive cadastral database should be developed under a single agency in Wales, to ensure that the various aspects of geographical data can be used compatibly.
28. Section 0 presents the results of a beta model for estimating residential land prices. This approach is consistent with what is seen in the literature. While the current beta model gives specific attention to location, the approach is costly for degrees of freedom (i.e. the number of ways by which the independent variables can move).
29. The total value of residential land in Wales is £113.4 billion, representing 48% of total residential property values.
30. The value of residential land varies significantly across the country, but there are also stark differences at the local level.
31. An LVT rate of 1.41% of capital value would raise the same revenues as CT in 2018/19.
32. A change from CT to LVT would shift the tax base away from more deprived areas towards more affluent areas. Correspondingly, the distribution of household tax liabilities would broaden.
33. The total value of land underlying properties which currently pay NDR is £27.6 billion.
34. An LVT rate of 3.90% of capital value would raise the same revenues as NDR in 2018/19.

Recommendations for further work:

1. An assessment should be made of the extent to which local government in Wales has policy control over its various elements of expenditure.
2. An assessment should be made of the existing skills and competencies within local government to exercise fiscal autonomy, and the potential for developing these in the future.
3. A detailed assessment carried out to determine the most appropriate method for valuing land values in Wales.
4. Gather evidence on the relative liquidity of capital and rental markets for land in Wales.
5. Gather evidence on the definition of ownership used in similar contexts internationally.
6. Assess whether switching liability to owners would have any impact on collection rates.
7. Gather further evidence on the use of alternative collection regimes.
8. Gather further evidence on the use of deferral schemes or charges on land. Consider how best to design such a scheme, taking account of expected take-up and administrative costs.
9. Gather further evidence on the extent of the role of Welsh agricultural land and forestry in tax avoidance.
10. Model the effect of an LVT on agricultural land prices, and rents for agricultural land.
11. Gather evidence on the prevalence of asset-rich, cash-poor households in Wales.
12. Model the impact of an LVT on these individuals.
13. Gather evidence on the prevalence of landowning charities in Wales.
14. Model the impact of an LVT on these institutions.
15. Model the impact of an LVT on other taxes and payments.
16. There is a strong case to be made to link the geographical information in the OS land use database with Land Registry or VOA data to form a comprehensive cadastre for Wales, and this should be investigated further.
17. The beta model could be developed further using a (fixed effect) panel regression approach for modelling land prices. This should produce a more statistically robust model. Such an approach would also allow dynamic analysis of the local property markets in Wales (through threshold estimations). However, applying this advanced statistical methodology would require additional data cleansing given the sensitivity of the approach to errors in the data. Given current data availability the (fixed effect) panel regression approach could not be used to determine non-residential land prices.