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# **A review of the current business rates scheme in Wales and the effects of a potential local retention**

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## **Abstract**

The shape of local government finance in the United Kingdom (UK) is changing. The UK Government has been promoting fiscal devolution in the context of austerity following the 2007 global economic crisis. Consequently, local government finance is becoming an increasingly important issue. According to the current regulation, the revenues from business rates, a local tax on non-domestic properties, are pooled to the Welsh Government and then redistributed to the councils, based on their adult population. In the context of fiscal devolution, and following England and Scotland, which adopted retention of business rates income, the discussion for the local retention of business rates revenues in Wales is topical. This paper looks at the organisation of the current business rates system in Wales and the impacts of a potential local retention. It provides a rigorous review of the current state of business rates scheme and the features of the councils according to the net difference between business rates, settlements and contributions. The findings suggest that the current system financially backs the economically disadvantaged Welsh councils, whereas a local retention of business rates income would possibly polarise the uneven allocation of local funding.

**Keywords:** local taxation, Wales, business rates, local finance, public services

## Introduction

In the context of austerity applied by the United Kingdom (UK) Government in the aftermath of the 2007 global economic crisis (Jones, 2011; MacKinnon, 2015) and the evolving devolution, the scheme of Business Rates or Non-Domestic Rates (NDR), a tax on non-domestic properties, is of great importance in Wales, since these taxes constitute a crucial source of local government income. Broadly, local authority revenue in Wales stems from three main sources: central government grants, council tax, and NDR. According to the current regulation, the NDR revenues are collected by the Local Authorities (LAs), pooled to the Welsh Government and then redistributed to the councils alongside the Revenue Support Grant (RSG), based on their adult population.

Studies on trade-offs and scenario building for Welsh local government funding (Luchinskaya et al., 2017; Phillips and Simpson, 2016) have focused on potential changes in council tax rates and revenues, since these taxes are fully devolved to the councils. A report of HWB Cymru (2012) has put emphasis on NDR, examining variations of the revenues across Wales and possible reliefs. Although there has not been a fundamental shift in the approach to local government finance in Wales since devolution, various reviews and studies have discussed the issue (Business Rates Task and Finish Group, 2012; Independent Commission on Local Government Finance Wales, 2016; Welsh Government, 2012a). Specifically, the local retention of NDR revenues was proposed by the Business Rates Task and Finish Group (TFG) in 2012. In 2016, the Independent Commission on Local Government Finance Wales (ICLGFW), was established by the Welsh Local Government Association and the Chartered Institute for Public Finance and Accountancy suggesting 100% retention of NDR revenue. These reports refer generically to potential effects on local government funding, while their proposals were not specific. Overall, the operation of the existing NDR model and the impacts of a potential retention on Welsh councils' funding have not been analysed in depth.

The academic and policy inquiry has focused on England (Amin-Smith and Phillips, 2017; Greenhalgh et al., 2016; Muldoon-Smith and Greenhalgh, 2015), as local retention was adopted in 2013, thus initiating research related to the effects on local government finance. The approach in England, part of the far-reaching local financing agenda, started in 2012-13, with a 50% NDR retention scheme alongside tariffs or top-ups for councils' budgets, and has developed since, with several 100% retention pilots already in operation (Amin-Smith et al., 2017). The retention in effect breaks the link between business rates and the RSG. However, evidence shows that the English scheme has exposed the council budgets to additional variability on both the upside and the downside, leading to winners and losers (Greenhalgh et al., 2016; Muldoon-Smith and Greenhalgh, 2015). Moreover, since 2011, in practical terms, the councils in Scotland retain the whole amount of business rates income they generate. In 2012-13, the Scottish Government introduced an incentive scheme under which a local authority retains 50% of any business rates receipts above a set target. The Scottish Government meets any shortfall for councils which fail to reach their target through the RSG.

By examining the interrelationships among local governance, regional finance and public policy across space, and engaging with the councils' funding channels from the Welsh Government and the ways the local authorities raise finance locally, the goal of this article is to provide a rigorous review of the existing NDR scheme in Wales. It seeks to answer the

following research questions: first, to examine the winners and losers of the current NDR system and second, to analyse the implications of a possible retention of NDR by the councils.

The study of the existing business rates system in Wales and the potential impacts of possible changes could provide valuable insights and contribute in many cases to academic inquiry and policy-making. Primarily, it is the first in-depth investigation of the business rates system in Wales, which currently presents crucial differences with England and Scotland. Further, most studies in retention of business rates in the UK have sought to evaluate the impact of policy changes that have been already adopted (Amin-Smith and Phillips, 2017; Greenhalgh et al., 2016; Mor and Sandford, 2017; Muldoon-Smith and Greenhalgh, 2015). This paper adds to this literature by studying the potential impacts of a future retention of NDR by the Welsh councils, responding to calls of the National Audit Office (2017) for an ex-ante evaluation of the NDR system changes' implications. Additionally, considering that other studies on NDR flows in the UK have adopted case-study approach and descriptive statistics (Greenhalgh et al., 2016; Muldoon-Smith and Greenhalgh, 2015; Williams, 2011), the methodology that this paper adopts is unique, as it employs correlation and regression analysis. Correlation analysis captures the relation between specific features of the councils and NDR contributions and settlements. Regression analysis examines the interrelationships among all the independent variables-features of the councils and their wider effects. Finally, this paper interprets the results of NDR flows in Wales in order to highlight structural aspects of the Welsh economy and its differences with the English one.

This article is structured as follows. First, it presents the conceptual framework and, second, the empirical background in Wales, before, third, introducing the methodology employed. Fourth, this paper unpacks the geography of local finance in Wales, focusing on the NDR and the profile of the councils in terms of the net difference between NDR settlements (revenues), and contributions. Thereupon, this article sheds light on the potential effects of NDR local retention, before discussing the results. The final section concludes.

### **Local tax systems and the recent transition towards fiscal devolution**

The significance of local taxation as an income source for the local government to sustain social welfare has been highlighted in local government and public finance literature (Baldwin and Krugman, 2004; Greenhalgh et al., 2016; Sepulveda and Martinez-Vazquez, 2011). Local taxes are understood as the means of finance based on which residents of an area contribute to the expenditure for public services (Bahl and Martinez-Vazquez, 2008). Local taxes include taxation on property, business levies, and tourism taxes (Bird, 1999). Property taxation, specifically, constitutes the most important mode of local taxation (Sepulveda and Martinez-Vazquez, 2011). Bryson (1997) has shown that property taxation is reliant on the property value, size and type.

There is an accepted view that local taxation constitutes also an important incentive for local authorities to attract economic activity and households in their territory (Domanski, 2003; Kapitsinis, 2018a). Therefore, local taxation presents great spatial variability since tax policies competition at the local level is strong (Baldwin and Krugman, 2004; Janeba and Osterloh, 2013). Besides, local tax regulations have been frequently perceived as means for attracting households in an area and for influencing voters, as illustrated by Gemmell et al. (2002). On these grounds, local tax models are subject to changes by frequent reforms.

A major change in tax systems of several Western countries has been recorded during the last 30 years, following a transition in the governance system. The decentralisation of power accompanied by fiscal devolution has changed the governance of finance systems in several countries (Bahl and Martinez-Vazquez, 2008; Harrison, 2012; Marks et al., 2008; Mor and Sandford, 2017). Fiscal devolution could be related to the financialisation of urban areas, decentralisation, and market reforms focusing on growth (Brenner, 2003; Cox, 2009; Pike and Pollard, 2010). However, the recent fiscal decentralisation could not be seen as a wave towards localisation, since it has been driven by the fiscal consolidation and austerity policies applied in the aftermath of the 2007 global economic crisis (MacKinnon, 2015; Muldoon-Smith and Greenhalgh, 2015). Policy changes have often implied the retention of local taxes, thus modifying redistributive systems (Greenhalgh et al., 2016). Focusing on the property taxes in a decentralised fiscal system, the local authorities will seek to boost growth in their finance by extracting value from the properties in two ways (Muldoon-Smith and Greenhalgh, 2015). First, by developing new buildings to generate new tax yields; second, by investing in existing properties to raise their value.

The decisions for tax devolution have been made, among other reasons, in order to provide incentives to local government to strengthen the prospects for economic growth, according to the advocates of fiscal decentralisation, as Muldoon-Smith and Greenhalgh have pointed out (2015). However, serious questions arise about the relation between local tax policy decisions and tax revenue increase and the correlation of a rise in local tax income with economic growth (Mor and Sandford, 2017). Indeed, evidence shows that local economic growth in England has not been strongly correlated with the increase in local property tax revenues (Muldoon-Smith and Greenhalgh, 2015; Sandford and Mor, 2017).

Decentralisation and fiscal devolution have emerged in the wider transition towards the entrepreneurial city (Muldoon-Smith and Greenhalgh, 2015). Entrepreneurial city's governance is significantly affected by the private sector, with a transition from managerialism to entrepreneurialism and a decreased focus on the provision of services (Harvey, 1989). Naturally, decentralising the property tax system and, thus, allowing the decision makers of the local authorities to alter local tax regulations could have two significant implications for the local government. First, it could strengthen the competition among councils for lower taxation and attraction of economic activity, either new premises or productive units (Schipper, 2014). Therefore, fiscal devolution might increase the risk of splitting the local authorities between locations that are more profitable for property investments and areas with less buoyant rental structures (Muldoon-Smith and Greenhalgh, 2015). Second, decentralisation, fiscal devolution, and urban financialisation could increase the unequal finance of local government and deepen the uneven geographical development (Aalbers, 2011; Gotham, 2016; Reuveny and Li, 2003).

## **Empirical background**

### *The existing NDR system in Wales*

NDR constitute a tax on non-domestic properties (NDPs), such as businesses, hotels, and other non-residential properties, and are an important source of local government funding in Wales. They constitute the means of taxation based on which non-domestic property users contribute to the expenditure for local public services (Local Government Finance Act, 1988). The Welsh Government collects the NDR income derived from NDPs in the central list, while the LAs collect the business rates revenue from the local lists and pass it onto the Welsh Government.

Total NDR revenues raised by a council are equal to the sum of the NDR that all the users of NDPs pay. The business rate for a property is calculated by multiplying its Rateable Value (RV) by the NDR multiplier ('poundage'), minus any reliefs for which the property is eligible (Local Government Finance Act, 1988). The RV is equal to 'the rent at which it is estimated the hereditament might reasonably be expected to let from year to year if the tenant undertook to pay all usual tenant's rates and taxes' (Local Government Finance Act, 1988, section 56.2). Williams (2011) has argued that offices and companies in wealthy councils have higher NDR per square meter than factories and businesses in poorer areas. The RV is revalued every five years. The poundage, which is the same for all of the 22 Welsh councils, is set by the Welsh Government each year in line with the Consumer Price Index according to its level in September of the previous financial year to which the poundage refers. The reliefs are funded by the Welsh Government and are set to reduce the business rates for small businesses, unoccupied properties, and charities.

Before 2015, NDR, after removing the appeals, used to be pooled with revenues generated in England. NDR were devolved to the Welsh Government in 2015, in the context of devolution of fiscal powers in the UK. The impact of decoupling Wales from the pool with England was significant, as it enhanced regional autonomy and provided greater freedom and more finance tools to the Welsh Government, thus allowing it to use the business rates in a strategic way to achieve wider economic goals. Since then, all NDR revenues are collected by the councils and are provided to the Welsh Government, paid into the NDR pool. Considering that the poundage records small fluctuations over time (Luchinskaya et al., 2017), the business rates collected by a council depend on the number and RV of NDPs. That is, a higher density of companies in a particular council entails more NDR revenues raised in its area. Moreover, low RV results in small amounts of NDR revenues collected. In this light, councils with relatively weak property market are likely to raise less NDR revenues than councils with vibrant rental structures, which record higher number and value of NDPs. Subsequently, a redistribution of NDR revenues is necessary to ensure a more equal allocation of resources and reduce inequalities among councils' budgets.

Indeed, the Welsh Government redistributes the NDR revenues to the councils based on their proportion of adult population (TFG, 2012). NDR revenues are pooled at Wales's level, with the grant from the UK Government being used to correct for the fluctuations in NDR revenue. The distributable amount of NDR revenues is used, alongside the RSG and council tax, to finance the Local Government budget. NDR revenues are non-hypothecated, being usually spent by the councils to finance their local services, such as schools, social care and cultural services.

#### *Proposals for reform*

In 2011, the Welsh Government tasked the TFG to examine the way the NDR scheme could be reconfigured to boost local economic growth. The report recommended the devolution and retention of NDR revenues and the adjustment of RSG to each council, in such a way that total funds available for each LA would not change (TFG, 2012). The Group proposed 100% retention of NDR revenues for two years, which would then drop to 50%. However, the proposal was not specific in the sense that it did not describe the scheme in a systematic way and did not give any formulae for the proposed system.

The TFG came up with this recommendation after considering the opinions of more than 70 respondents, including corporations, political parties and representative groups. Only two of the 22 councils responded to the consultation. Both councils rejected the proposed retention, claiming that no further incentives for local growth were required (TFG, 2012: 17). Large companies and representative bodies, such as the Confederation of British Industry and the South East Wales Economic Forum, were the keenest supporters of a Non-Domestic Rates Retention Scheme (NDRRS). The response of the Welsh Government was unenthusiastic, postponing any decision about local retention of NDR revenues until the NDR devolution to Wales was realised (Welsh Government, 2012b).

In 2016, the ICLGFW made recommendations for the reform of local government funding, accounting for the evolving devolution settlement for Wales. The ICLGFW (2016) suggested 100% retention of NDR revenues by the councils to facilitate more flexibility in local decision-making and promote entrepreneurship. Alongside the retention, the Commission suggested adjusting the RSG for the initial year in such a way that total funds available for each council would not change. After Year 1, councils could either gain or lose revenues according to the level of NDR they raised.

With such a NDRRS, councils would be incentivised to grow their local tax base and achieve economic growth. Councils would invest funds to increase the number of the NDPs, through new developments, expansion of existing floor space, or by changes in floor use towards high-value usages. According to this argumentation, these actions would increase the local tax base and NDR, and thus the total income of councils. This proposal was not specific enough regarding its description of the proposed scheme and its impacts on local government funding. The response of the Welsh Government was again negative (Welsh Government, 2017).

## **Data and Methodology**

In order to draw a detailed picture of the existing NDR scheme in Wales this paper estimates the difference of NDR settlements minus contributions (from now on, this will be referred to as ‘difference’) for each council. Moreover, to study the features of the existing winners and losers, the characteristics of the councils are examined in relation to the NDR difference. Specifically, the author employs correlation analysis to look at the relationship between NDR difference and economic growth (GVA and GDP per head), property market (rateable value and number of NDPs), unemployment rate, population, population density and average earnings, at the council level. The correlations with GVA and GDP per head are examined at the NUTS<sup>1</sup> 3 level. The reason is that data for these indexes is available only at this level. All data refers to the financial year 2014-15. This year is selected because it is the base year that the data for all the independent variables is available. Data sources include Stats Wales, Eurostat and the Welsh Government.

Apart from the correlations, this paper expands the analysis and runs a cross-sectional multiple regression model, which adds to the analysis by examining the interrelationships among all the independent variables (Wooldridge, 2012). Thus, it adopts a novel methodological strategy that captures the wider picture of NDR flows in Wales, considering that most studies on NDR in the UK have employed descriptive statistics and case study approach (Greenhalgh et al., 2016;

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<sup>1</sup> NUTS is a standard that references the regions of the European Union countries, used by Eurostat.

Muldoon-Smith and Greenhalgh, 2015; Williams, 2011). Indeed, while correlation analysis indicates the relationship between a specific variable and the NDR difference, the regression analysis provides the broader picture by capturing the interrelationships among all the independent variables and their impact on the NDR difference, accounting for these interrelationships.

Moreover, this paper adds to the literature of tax generation by examining it through the lens of the Weighted Least Squares (WLS) model. WLS overcomes an important disadvantage of the Ordinary Least Square (OLS) method in regional economics. OLS treats all observations as equal, although observations may have different relative importance depending on their population (Artelaris et al., 2010; Kallioras and Petrakos, 2010). By contrast, WLS weights all the observations of the variables by weights based on their respective populations (Akita and Miyata, 2010). It is worth noting that this issue has been largely ignored in the regional economics literature before the 2000s. Some more recent studies have, however, adopted a WLS method (Fedorov, 2002; Kallioras and Petrakos, 2010; Petrakos and Artelaris, 2009).

The model that is used takes the following form:

$$Y_r = \sum_{\lambda=1}^n (\alpha_{\lambda} X_{\lambda,r}) + \varepsilon_r$$

$Y_r$  is the dependent variable, which is the difference of NDR settlements minus contributions per head for region  $r$  in 2014-15. The dependent variable is ‘the variable to be explained in a multiple regression model’ (Wooldridge, 2012: 847).

$X_{\lambda,r}$  is the set of  $\lambda$  independent variables for region  $r$  under consideration. The independent variables are ‘used to explain the variation in the dependent variable’ (Wooldridge, 2012: 848).

$\alpha_{\lambda}$  is the set of the coefficients of the  $\lambda$  independent variables

$\varepsilon_r$  is the error term that accounts for unobserved factors, i.e. ‘the variable in a simple or multiple regression model that contains unobserved factors that affect the dependent variable’ (Wooldridge, 2012: 848).

All variables were estimated at NUTS 3 level, since it is the only territorial level of analysis that data for GDP and GVA is available. While the correlations focus on the council level, the regression model examines the statistical association at the NUTS 3 region level, thus providing a comprehensive picture of the NDR system in Wales. The model seeks to analyse the correlation between the features of councils and NDR difference, using cross sectional data for 2014-15. The author does not examine the change over time, for which panel data studies would be better suited (Wooldridge, 2012).

The main hypothesis is that, due to the redistributive mechanism of the existing NDR system, regions that are more economically advantaged are expected to demonstrate negative difference, i.e. lower NDR settlements than contributions. After reviewing the relevant literature and considering that the economic position of a region is influenced by its growth, income, property value, and unemployment levels, the following independent variables were chosen.



### *Economic growth variables*

GVA and GDP per head: GVA (Stats Wales data) and GDP (Eurostat data) are used as indexes of economic growth of a region, as estimated in 2015. Studies have shown that economic growth has a positive impact on tax revenue, since the income (Fenochietto and Pessino, 2013; Gupta, 2007; Le et al., 2012), and, thus, the property value that are taxed rise significantly (D'Arcy et al., 1999; De Wit and Van Dijk, 2003; Udoekanem et al., 2014). Therefore, it is hypothesised that regions with lower GVA and GDP per capita demonstrate higher NDR settlements than contributions.

Unemployment rate: It is used as estimated by Stats Wales in 2015 and is expected to be positively correlated with the dependent variable, as regions with higher unemployment are overall less advantageous (Armstrong and Taylor, 2000; Pike et al., 2006). In fact, unemployment was found to have a negative impact on commercial property value (De Wit and Van Dijk, 2003; Tsolacos et al., 1998). Therefore, the regions with low unemployment rate are predicted to record higher NDR contributions than settlements.

Average weekly earnings per head: It is estimated from 2011 to 2017 (Stats Wales data), as an indicator of income. The literature findings suggest a positive correlation between income and tax revenue (Fenochietto and Pessino, 2013; Gupta, 2007), as it is an index of the aggregate level of prosperity in a territory. Thus, it is expected that councils with lower average weekly earnings will record positive difference.

### *Property market variables*

Total RV per capita: It is used as an index of property value, as valid in 2010 (UK Government, 2017). The Total RV per capita was calculated as the sum of the rateable values of all the non-domestic properties in a region divided by its total population. Business rates income depends on the total RV of a region (Williams, 2011). Amin-Smith et al. (2016) and Greenhalgh et al. (2016) have shown that councils with lower RV per capita have more possibilities to raise lower NDR revenues. The LAs with high RV per head are predicted to record negative difference.

Average RV per head: It is used as an index of the number and value of NDPs in a region, as valid in 2010. The Average RV per head was estimated as the sum of the rateable values of all the non-domestic properties in a region divided by the total number of non-domestic properties and then divided by the total population of the region. It is predicted to be negatively correlated with the dependent variable (Greenhalgh et al., 2016; Muldoon-Smith and Greenhalgh, 2015). This index introduces the number of NDPs in a region, which is of great significance for total business rates revenues. Regions with lower average RV are likely to receive more NDR income than they contribute (Williams, 2011).

### *Urbanisation variables*

Population density: It is used as an index of urbanisation. This paper uses the 2015 estimates (Stats Wales data). The population of a region affects the density and the level of urbanisation of an area (Armstrong and Taylor, 2000; McDonald and McMillen, 2007; O' Sullivan, 2011). Urbanised regions are expected to present higher value and number of NDPs (Greenhalgh et al., 2016; Muldoon-Smith and Greenhalgh, 2015). A negative relation of population density with the dependent variable is predicted.

The model has four different versions in order to capture the aggregate impact of the independent variables on the NDR difference. The first version looks at the impact of earnings per head, GVA per capita and RV per head. The second version adds the average RV per capita to account for the variation of RV across regions. The third version of the model controls earnings per head, RV per capita, GDP per head and the population density. The last version of the model adds unemployment rate and the average RV per capita and replaces the GDP with the GVA per capita.

## **Empirical analysis**

### *The flow of NDR funds across Wales*

Almost three quarters of the Local Government budget is funded by the Welsh Government through the RSG and specific grants, while the rest is financed by locally raised taxes (Ogle et al., 2017). The significance of the NDR in Wales has grown since 2009-10 in the context of the budget cuts implemented by the UK Government to resolve the 2007 global economic crisis. In a similar way to that of England (Phillips and Simpson, 2016), the Welsh Local Government has experienced significant cuts of 16% (£805 million) in the RSG provided by the Welsh Government, from 2009-10 to 2016-17 (Ogle et al., 2017). NDR revenue contribution to the Welsh Local Government annual budgeted income has increased from 10.9% in 2011-12 to 12% in 2016-17, at a value of around £1 billion (Luchinskaya et al., 2017).

The net difference between the NDR revenues distributed to each LA from the Welsh Government pool and the contribution each LA made to the pool was estimated in the period between 2000-01 and 2015-16<sup>2</sup>, using outturn data (Table I). The councils with the highest NDR generation, in absolute terms, include Cardiff, Swansea, Flintshire, Newport, and Rhondda Cynon Taf. These five LAs contribute on average the 46% of total NDR and receive 36% of the NDR pool. Some LAs receive more business rates income than they contribute (positive difference), whereas for other councils the contributions exceed the settlements (negative difference). In particular, Rhondda Cynon Taf, Caerphilly, Powys, Carmarthenshire, and Blaenau Gwent record the biggest, and positive, average difference, while Swansea, Pembrokeshire, Flintshire, Newport, and Cardiff demonstrate the smallest average difference, which is negative. Looking closer at this data, the reader is specifically struck by the fact that four out of these five LAs are in the five councils with the largest NDR contributors. Therefore, the largest contributors record in average much lower NDR settlements than contributions, highlighting the complexities of local government finance (Bahl and Martinez-Vazquez, 2008). Overall, ten LAs have never contributed more NDR revenues than they received, whereas five councils have received more NDR revenue than they contributed for more than half of the 16 financial years between 2000-01 and 2015-16.

Table I Approximately here

The author calculated also the NDR difference at the NUTS 3 and NUTS 2 level. At the NUTS 3 level, between 2000-01 and 2015-16, there were four regions with positive difference in all

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<sup>2</sup> The 2015-16 financial year was chosen since it was the latest year that all data for NDR generation was available.

the financial years, three with negative and five with a mixed picture, which means that they recorded financial years with both positive and negative NDR difference. Additionally, when the difference is calculated at the NUTS 2 level, the East Wales region records a negative difference, whereas the West Wales and the Valleys demonstrates a positive difference throughout the whole period. This is an expected result as West Wales and the Valleys region has a higher prevalence of relative deprivation, and additionally, was more affected by budget cuts compared to East Wales (Ogle et al., 2017).

Moreover, within the quite heterogeneous NUTS 2 region of the West Wales and the Valleys, two different set of councils exist: on the one hand, the West Wales rural areas with low population and RV, and, on the other hand, the Valleys with higher population and RV. However, both groups of councils record a positive NDR difference. West Wales generates in average £160 million NDR and records an average difference of £30 million, in the period of reference. The Valleys contribute £234 million in average and record an average NDR difference of £41 million. These results provide evidence that measuring the difference between NDR settlements and contributions produces a comparable result with comparing the NDR generation.

#### *The profile of the councils in terms of the net difference between NDR settlements and contributions*

The results of the model (see Appendix A) demonstrate that the independent variables explain the variation in the dependent variable in all 4 versions of the model in a satisfactory way for two reasons. First, the adjusted  $R^2$  values are all higher than 0.9. The  $R^2$  indicates the level of the variation of the dependent variable that is explained by the independent variable (Wooldridge, 2012). Second, the models are statistically significant since the F Statistic values are all lower than 0.1. If F Statistic values are lower than 0.1, the independent variables explain the variation in the dependent variable at the 10% statistical significance level. While some of the coefficient values are quite small, the aim of the regression is to focus on the direction of the association, i.e. positive or negative relationship, and whether it is significant, rather than on the magnitude of the effect.

According to the results of the correlations (see Appendix B) and the WLS, the NDR revenue contribution is positively associated with the economic growth of the Welsh NUTS 3 regions, whereas the difference is negatively correlated with GVA and GDP per head, thus verifying the hypothesis. Wealthy Welsh region generate more NDR than poorer regions and are more likely to receive less NDR settlement than they contribute, as they have higher property values and, thus, higher property tax revenue (D' Arcy et al., 1999; Udoekanem et al., 2014). In other words, the councils with positive difference tend to be the economically disadvantageous and less developed areas, with low levels of GDP and GVA per head.

The regions with positive difference tend to have low number of companies and property values. It is, therefore, very likely to have relatively weak property markets and small commercial tax base, and thus greater settlements than contributions. This finding confirms evidence from England, according to which the property structure of a council is closely correlated with the generation of business rates income (Amin-Smith et al., 2016; Greenhalgh et al., 2016). By contrast, the regions with negative difference demonstrate big commercial tax base, on the grounds of high business population and property values. Indeed, areas with high average RV per head contribute more NDR income than they receive (Williams, 2011). It

should be noted that Cardiff sometimes appears as an outlier that may be driving some of the results. However, Cardiff is included in the analysis to give a complete picture of the current NDR system.

According to the correlation results, there is no clear association between the unemployment rate and the NDR settlements and difference, since the statistical significance is low. However, it is worth noting that four out of the five councils with the highest unemployment rate demonstrate a positive difference. The WLS model indicated that the unemployment rate is positively related to the NDR difference, thus verifying the expectations. That is, the regions with high unemployment rate are more likely to receive more NDR income than they contribute, since areas with higher unemployment are economically disadvantaged and tend to record lower commercial property values (De Wit and Van Dijk, 2003; Tsolacos et al., 1998).

The average weekly earnings per head were found negatively correlated with the difference, as expected, since they are an indicator of local income and prosperity (Fenochietto and Pessino, 2013; Gupta, 2007). The model unsurprisingly indicated that the regions with the highest earnings per head receive less NDR income than they contribute. Councils such as Cardiff, Flintshire, and Bridgend, which record the highest weekly average earnings, have all contributed more funds to the NDR pool than they received. By contrast, the regions with the lowest levels of weekly earnings, such as Blaenau Gwent, Powys, and Ceredigion, tend to receive great amounts of the redistributed NDR settlements and are more likely to record a higher and positive difference.

Population density, indicating the level of urbanisation of the regions (O' Sullivan, 2011), was found to be negatively correlated with the dependent variable. The most urbanised areas demonstrate a big local tax base and high property values (Pike et al., 2006). That is, the most densely populated areas contribute more funds to the NDR pool than they receive, as predicted. By contrast, less urbanised regions benefit from the existing NDR model, thus receiving more NDR income than they contribute.

According to the correlation results, highly populated councils are expected to record a negative difference. Moreover, the proportion of the population aged above 16 years old is also negatively correlated with the difference. Therefore, the highly populated regions generate more NDR than they receive, although according to the existing legislation, the NDR pooled income is redistributed based on the level of adult population in a local authority (TFG, 2012). The impact of the population dynamics on the NDR flow is greater in the generation of business rates than in NDR settlements, as higher population often implies a higher number and value of NDPs (McDonald and McMillen, 2007). This highlights that the size of a territorial economy, which affects critical issues related to a region, including prosperity, production, and wage level (Armstrong and Taylor, 2000; Pike et al., 2006), matters for local tax base and local government finance.

#### *Towards a typology of the Welsh councils*

The analysis confirmed the main hypothesis of this paper, suggesting that councils which tend to receive more NDR revenue than they contribute (the 'winners') are likely to be the least economically developed, sparsely populated and rural councils, with relatively weak property markets. It is likely that these councils have a small tax base and low property prices, recording high unemployment, as well as low average earnings of citizens. In contrast, the councils that have a negative average NDR difference (the 'losers') are likely to be the more economically

developed, highly populated and urbanised councils. They are expected to have a buoyant property market, comparatively large tax base and high property values, lower unemployment, as well as higher average earnings, compared to councils with a positive NDR difference. On balance, the analysis indicates that the existing NDR scheme financially supports the councils which are economically disadvantaged (Table II).

Table II Approximately here

Expanding this analysis, it is important to mention that NDR revenue as a proportion of the councils' income is geographically variegated (Figure I). In 2014-15, the NDR settlements accounted for the 12.4% on average of total income for the 22 councils in Wales (Stats Wales, 2018). Monmouthshire (14.9%), Flintshire (13.7%) and Isle of Anglesey (13.2%) recorded the highest proportion, while Merthyr Tydfil (11.2%), Rhondda Cynon Taf (11.5%) and Neath Port Talbot (11.5%) recorded the lowest. Seven out of the ten councils with the highest NDR income contribution to their total revenues are among the councils with positive NDR difference. Therefore, the total income of the less economically advantaged councils is more dependent on the redistributed NDR revenues.

Figure I Approximately here

These results are of great importance for the discussion on a potential deeper decentralisation in Wales, which is often related to fiscal devolution (Harrison, 2012; Marks et al., 2008). The findings provide crucial insights to a possible NDR retention and its projected implications on regional inequalities. The economically disadvantaged regions are likely to lose from a scheme of business rates retention, thus deepening the regional disparity.

#### *The effects of a potential NDR retention*

To analyse the impact of local retention, the author computed as a benchmark a hypothetical 100% retention of NDR without RSG adjustment, similar to the suggestion of ICLGFW (2016) after Year 1. Bearing in mind that the multiplier is not subject to important changes and is the same for all the 22 LAs, attention should be paid to the number of dwellings and the RV in order to understand the changes in local government finance if the business rates income is retained locally. Table III illustrates evidence for the number of rateable properties (2017) and the average RV of the Welsh councils in 2010 and 2017, after the revaluation of 2016. The reader is struck by the extent of the variation of rateable properties' population and average RV among the 22 Welsh LAs. For instance, the number of rateable properties in Cardiff was 7 times bigger than the one in Merthyr Tydfil, while the average RV in Cardiff was 3.5 bigger than the average RV in Powys in 2010 and 3 times bigger in 2017. The geographical variegation is verified by the high value of the coefficient of variation, which underscores a high variance of the number of rateable properties and the average RV among the Welsh councils.

Table III Approximately here

The illustrated crucial differences could have a great impact on councils' budgets under a local NDR retention scheme due to the different number of dwellings and the great variance of RV. On one hand, the LAs with big cities (Cardiff and Swansea), demonstrate the highest levels of rateable properties and RV, thus generating high NDR income. Correlation analysis highlights that councils with a high number of rateable properties, strongly related to the agglomeration size, are likely to record higher average RV. In fact, according to the urban economic theory and the theory of land value, a big number of business properties in an area is positively related to the size of the agglomeration, often entailing a rise in commercial property value (McDonald and McMillen, 2007; O' Sullivan, 2011). By contrast, councils with small cities, such as Blaenau Gwent and Isle of Anglesey, far away from the urban centres, record low levels of rateable properties and RV, thereby resulting in low levels of locally-raised NDR revenue.

The above analysis suggests that if a local NDR retention scheme were introduced, councils' budgets could diverge further. The dependence of NDR generation on new floor space development entails the NDRRS benefiting the councils with buoyant property markets. The type and location of new developments are reliant on the rental structure and the motivation of investment interests (Bryson, 1997). Thus, the NDRRS in Wales could potentially foster the spatial differentiation between 'premium', 'stranded' and 'redundant' locations (Muldoon-Smith and Greenhalgh, 2015). Premium areas have buoyant rental structures and are more profitable for property investments than the redundant areas which record less developed property markets. Moreover, stranded locations demonstrate strong property markets but face obstacles to utilise growth incentivisation schemes due to space availability restrictions. Especially in the context of recession, economic restructuring and weakening of the Welfare State, the policies to boost local economic growth based on the development of new commercial property could polarise spatial inequalities (Greenhalgh et al., 2016), as urban financialisation fosters geographical inequality (Aalbers, 2011; Gotham, 2016). NDRRS without RSG adjustment is a zero-sum game for local finance since premium locations are likely to outperform underdeveloped and non-favourable areas.

The potential impact on the Welsh councils' budgets is likely to be magnified due to the revaluation procedure, as well as the reliefs' and appeals' liability. First, the revaluation procedure could imply diverse changes by virtue of the geographical variation of revalued RV. For instance, in England in the 2017 revaluation, RV recorded an impressive increase of 28.4% in Inner London while it declined by -0.9% in the North East (Amin-Smith and Phillips, 2017). Second, the number of NDPs which are eligible for appeals and reliefs from NDR varies substantially across the 22 Welsh LAs (TFG, 2012). Therefore, the councils with the biggest numbers of small companies, unoccupied properties, and charities are likely to raise less NDR if the liability for reliefs is devolved to each council. At the moment, the liability for appeals and mandatory reliefs is pooled by the Welsh Government, thus minimising the impact on the budgets of individual councils.

The impact of a simple 100% NDR retention scheme can be summarised as follows. Based on the average annual difference between the revenues under a simple 100% NDR retention and the NDR settlements under the existing scheme for each council between 2009-10 and 2015-16, eighteen councils would have seen their revenue falling, while only four would have seen a rise in their income (Table IV).

#### Table IV Approximately here

If the NDRRS had been applied since 2009-10, eleven councils would have seen their revenues falling drastically in all financial years (the average annual fall per capita in these councils would be £79), seven LAs would have had mixed results (some years with positive and some years with negative difference) and only four councils would have recorded increased revenues at each year over the period. Figure II compares LA incomes under the existing NDR regime with the estimated income under 100% NDR retention for each LA in 2015-16. It is important to note that all these estimations do not account any tariffs or top-ups, as the English system does (Amin-Smith and Phillips, 2017), or RSG adjustment. The aim of the calculation is to highlight the redistributive mechanism of the current NDR system.

#### Figure II Approximately here

Under the simple scheme of a hypothetical 100% retention of NDR without RSG adjustment, some councils would see their revenue falling relative to a fully pooled system while others would record higher revenues. Such a hypothetical system could result in an increasing divergence between councils in their relative income and spending (geographical impact), as fiscal devolution, closely related to decentralisation and urban financialisation, is likely to increase the unequal finance of local authorities, thus deepening the geographical unevenness (Brenner, 2003; Cox, 2009; Mor and Sandford, 2017). Councils with vibrant property markets and bigger increases in local tax base, would be more likely to secure higher income. By contrast, councils with less vibrant rental structures and smaller increases in local tax base, would likely experience reduced revenues. Similar to other cases in Europe (Gotham, 2016; Reuveny and Li, 2003), a decentralisation of local government spending, could reinforce the spatial disparities across Wales, since the fiscal devolution is associated with lower levels of income redistribution.

Moreover, the retention of property taxes in Wales could increase the tax policies competition (Schipper, 2014). Considering that this type of competition is particularly strong at the local level (Baldwin and Krugman, 2004; Janeba and Osterloh, 2013), and that taxation is among the crucial means for local authorities to attract economic activity<sup>3</sup> (Domanski, 2003; Kapitsinis, 2017), the councils would seek to rise their revenue by attracting new premises, on the grounds of a greater local autonomy and freedom for tax regulation. The risk of underfunding of social services delivered by the councils would rise, since under a decentralised scheme, the local authorities are able to apply their own funding policies following a 'self-rule' pathway (Elazar, 1987).

A simple 100% NDR retention scheme could increase the financial pressure on the councils with less vibrant property markets regarding the delivery of basic social services provided at

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<sup>3</sup> Labour cost, taxation, and transportation cost are among the most important factors that affect firms' location decisions (Kapitsinis, 2018b).

the local level across Wales (sectoral effect). Particularly, the funding for local services in the councils with reduced revenues would fall in the absence of the redistributed NDR income. Such councils might need to apply further cuts in local services, thus deteriorating their citizens' living standards. The sectoral impact could be interpreted as an increased risk of unequal provision of social services across the 22 councils in Wales.

Finally, the retention of NDR and the subsequent efforts to increase local income through new floor space development could result in overbuilding. Indeed, a building boom, which may occur in the locations with vibrant property markets that attract new developments, is likely to result in overbuilding in a form of capital-based growth (Greenhalgh et al., 2003). This is more possible when such a building boom is not accompanied by a rise in demand for properties (Weber, 2002). Therefore, it is worth thinking about the policy goal to achieve economic growth extensively based on new building developments. This discussion is connected with the relationship between the built environment and sustainable economic growth. Evidence shows that the increase in NDR revenues has not been strongly related to GVA growth in England from 2010 to 2015 (Muldoon-Smith and Greenhalgh, 2015; Sandford and Mor, 2017). Changes in NDR model could fall on landlords and could be capitalised into rents, especially when demand for property is more sensitive to changes in prices and the supply of property is less sensitive to price differentiations (TFG, 2012). Moreover, issues of non-predictability should be considered, as businesses move across regions (National Audit Office, 2017).

## **Discussion**

A reasonable interpretation of the results contributes to our knowledge about the Welsh economy. Its structural issues, and the comparison with the English economy, could be seen through the lenses of NDR contribution. Although the major differentiation in the UK economy occurs mainly between the North (West Midlands, Yorkshire–Humberside, North West, North East, Scotland, and Wales) and South (London, South East, East of England, South West and East Midlands), at NUTS 1 level (Gardiner et al., 2013), some valuable conclusions about the differences between Wales and England could be drawn when NDR generation is examined.

The five councils with the highest NDR generation are in (Cardiff, Swansea, Newport) or close (Rhondda Cynon Taf) to the three main urban centres of Wales, apart from Flintshire. The high NDR generation in this north council, which has common borders with England, is justified by the fact that several big multinational corporations are located in Flintshire, such as TATA, Airbus and Toyota, entailing high RVs. This is related to the great concentration of high-impact industries in North Wales which highlights that there is not such a significant division between North and South in Wales, relative to England (Gardiner et al., 2013). Wales records a deep division between East (the Eastern Wales and the Valleys) and West (West Wales, with rural areas), also reproducing a model of core-periphery division. North Wales has historically demonstrated significant inward investments (Thomas, 1996). Apart from Flintshire, Wrexham is home to big manufacturers, such as Kelloggs and Cadbury, financial services, with the Development Bank of Wales, and biopharmaceutical businesses, including Ipsen, highlighting the turn of this regional economy towards financial and biotechnology industries. Consequently, Flintshire is the council with the second highest GVA per head in Wales, while Wrexham is ranked 8<sup>th</sup>. On balance, the top ten councils in terms of GVA per head in Wales include six councils in South Wales, three in North Wales, and Powys.



By contrast, Blaenau Gwent, Isle of Anglesey, Merthyr Tydfil and Ceredigion are the councils with the lowest NDR generation. Isle of Anglesey and Ceredigion are mainly rural regions, and not close to the big urban centres, thus resulting in low NDR contributions. Although Blaenau Gwent and Merthyr Tydfil are close to the capital of Wales, the NDR generation is quite low, relative to other councils close to Cardiff, such as Rhondda Cynon Taf. This difference could be explained by two facts. First, Rhondda Cynon Taf is a secondary urban area, having common borders with the urban area of Cardiff. By contrast, Blaenau Gwent and Merthyr Tydfil do not have common borders with Cardiff council. Second, features of these regional economies are also important. Blaenau Gwent and Merthyr Tydfil record the lowest average GVA in Wales in 1997-2015, a fact that highlights that the low level of economic growth has a negative impact on tax generation (De Wit and Van Dijk, 2003; Udoekanem et al., 2014).

Therefore, and according to the results of the correlations and the regression, the three major cities (Cardiff, Swansea, and Newport) and councils in secondary urban areas, that border the urban centres (Rhondda Cynon Taf, Caerphilly, Vale of Glamorgan, Neath Port Talbot, Carmarthenshire) perform well in terms of economic growth and tax generation. By contrast, rural areas appear to record the lowest levels of NDR contribution and GVA. However, in England, there is a long list of underperforming urban areas that are redundant locations in terms of property tax generation: usually secondary urban areas in the North, like South and North Tyneside close to Newcastle, Bury and Oldham close to Manchester (Muldoon-Smith and Greenhalg, 2015). Moreover, South Tyneside demonstrates the lowest GVA per capita in 1997-2015 among the 326 English councils, North Tyneside is ranked 251<sup>st</sup>, Bury 284<sup>th</sup>, while Oldham 311<sup>th</sup> (ONS data). This could indicate a structural difference in the regional economy of Wales, compared to England. Considering in addition the abovementioned low inequality between North and South Wales, and the unequal levels of economic growth and financialisation, the Welsh and the English economies demonstrate significant differences (Thomas, 1996; Gardiner et al., 2013), which are also highlighted through the analysis of NDR flows.

## **Conclusion**

This paper has examined the operation of the existing NDR system in Wales and the possible impacts of a potential retention of business rates income by the councils. It enriched the literature on local property taxation and NDR in the UK, in the following ways.

Initially, this first in-depth investigation of the business rates system in Wales, indicated that, although the redistributive mechanism is based on population, the current NDR scheme is socially fair as the annual budgeted income of the economically disadvantaged councils is considerably supported by the redistributed amounts of NDR revenues, which are mainly raised in the wealthy areas. The poorer councils record a positive difference between NDR settlements and contributions, while NDR settlements represent an important proportion of these councils' total revenues, usually higher than for the councils with negative difference. On balance, the existing NDR model dampens the widening of regional spending and local public service provision disparities.

Second, the methodology that this paper adopted is original. While most studies on NDR flows in the UK have used descriptive statistics and case study approach (Greenhalgh et al., 2016; Muldoon-Smith and Greenhalgh, 2015; Williams, 2011), this paper employed correlation and

regression analysis. That is, it attempted to capture the relation between specific features of the councils and NDR contributions and settlements, and to study the interrelationships among all variables. Moreover, it employed a WLS regression model, beyond the simple OLS, thus accounting for the different population weight of each region, an issue that has been largely ignored in the regional economics literature (Artelaris et al., 2010; Kallioras and Petrakos, 2010).

Third, this paper interpreted the results in a way that they contribute to our knowledge about the Welsh economy and its differences with the English one. The examination of NDR flows indicated that there is not such a significant division between North and South in Wales, relative to England (Gardiner et al., 2013). By contrast, Wales records a deep division between East (the Eastern Wales and the Valleys) and West (West Wales, with rural areas). Moreover, the three major cities (Cardiff, Swansea, and Newport) and councils in secondary urban areas, that border these urban centres, perform well in terms of economic growth and tax generation, while rural regions appear to record the lowest levels of NDR contribution and GVA. By contrast, in England, there is a long list of underperforming urban regions, usually secondary urban areas in the North.

Finally, while most studies in retention of business rates in the UK have sought to evaluate the impact of policy changes that have been already adopted (Amin-Smith and Phillips, 2017; Greenhalgh et al., 2016; Mor and Sandford, 2017; Muldoon-Smith and Greenhalgh, 2015), this paper studied the potential impacts of a future retention of NDR by the Welsh councils. The findings reveal that in a possible 100% retention of NDR without RSG adjustment, the councils with less vibrant property markets would see their revenue falling relative to a fully pooled system while others, with buoyant rental structures, would record higher revenues. Such a hypothetical NDR model might lead to increasing divergence of councils' relative income and deeper regional inequalities. Therefore, careful strategies should be planned regarding any decentralisation of business rates income.

Turning to the policy recommendations, the decision of the Welsh Government to keep the existing NDR system unchanged, mentioning that it is a fair approach (Welsh Government, 2017), is supported by the evidence provided by this paper. A suggestion to financially support the delivery of public services by the councils could be to introduce a needs-based factor in the redistribution of the pooled NDR income, which would entail a further divergence of the NDR models between Wales and England. This factor would account for the needs of each council including, apart from the population, indexes such as unemployment, income per capita, and deprivation. In a potential application of NDR income retention, either the RSG should be adjusted or a mechanism of tariffs and top-ups should be established, towards the direction of backing the financial support of the economically disadvantaged councils.

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## Appendix A The results of the regression analysis

	1 <sup>st</sup> version of the model		2 <sup>nd</sup> version of the model		3 <sup>rd</sup> version of the model		4 <sup>th</sup> version of the model	
	Coefficient	P-value	Coefficient	P-value	Coefficient	P-value	Coefficient	P-value
C	0.6434	0.002	508.1329	0.038	0.5468	0.003	0.3461	0.001
Earnings per head	-0.0006*	0.055	-0.2993	0.501	-0.0004	0.131	-0.0001	0.176
GVA per capita	-6.99126E-06	0.197	-0.0132***	0.003			-1.89846E-06	0.383
RV per head	-0.1792*	0.087			-0.1557*	0.079	-0.2254***	0.001
Average RV per capita			-3.6493*	0.094			-529.2826**	0.011
GDP per head					-5.15145E-06*	0.092		
Density					-1.64483E-05*	0.061	-1.49355E-05***	0.007
Unemployment Rate							752.6378**	0.033
Adjusted R <sup>2</sup>	0.93		0.93		0.95		0.99	

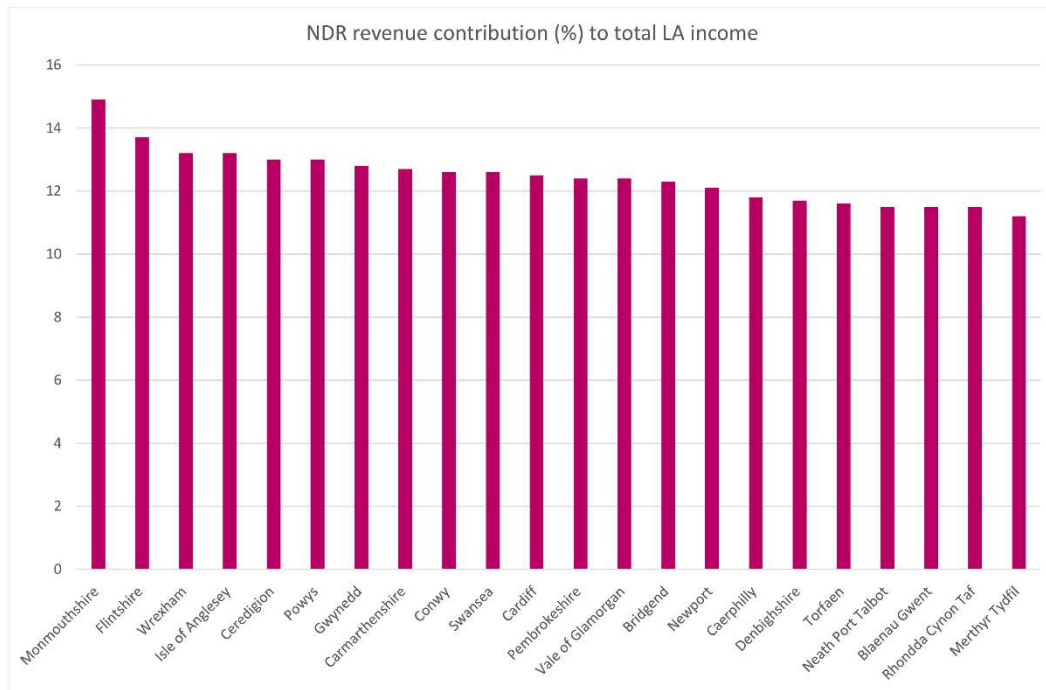
\*\*\*Statistically significant in 1%

\*\*Statistically significant in 5%

\*Statistically significant in 10%

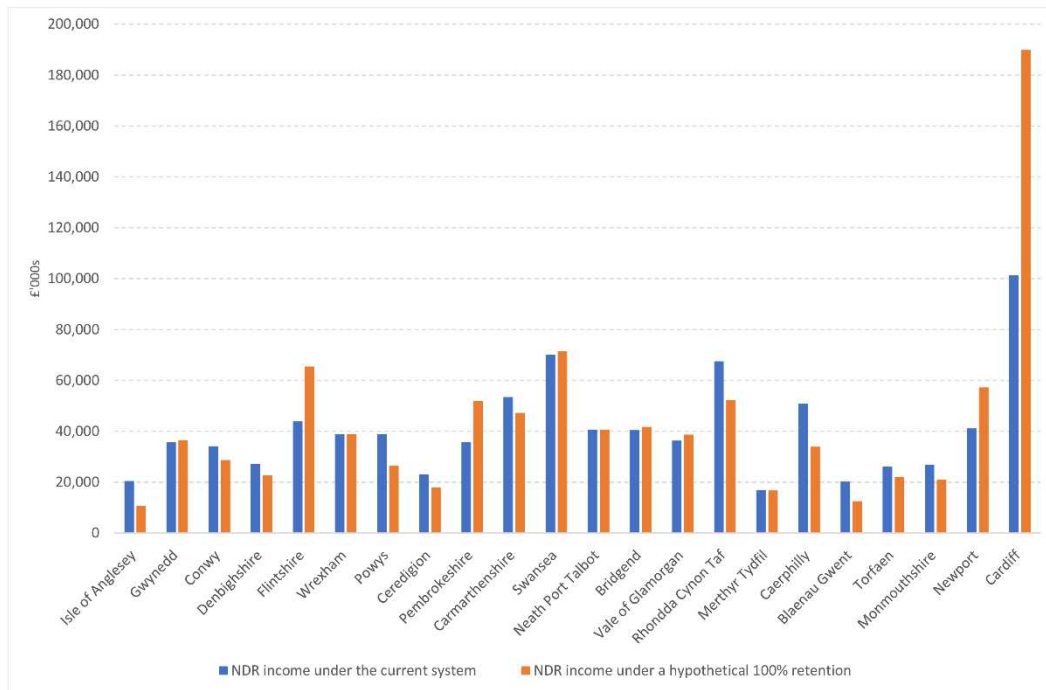
## Appendix B Correlation analysis

Independent variable	Dependent variable	Correlation coefficient	R <sup>2</sup>	P-value
GVA per head	NDR contributions per head	0.025	0.86	0.00
GVA per head	NDR difference per head	-0.023	0.85	0.00
GDP per head	NDR contributions per head	0.016	0.86	0.00
GDP per head	NDR difference per head	-0.015	0.84	0.00
Average RV	NDR difference	-2287	0.54	0.00
Number of rateable properties	NDR difference	-5.76	0.41	0.00
Unemployment rate	NDR settlements	1965	0.03	0.38
Unemployment rate	NDR difference	-724	0.00	0.77
Population	NDR difference	-0.188	0.36	0.00
Population 16+	NDR difference	-0.227	0.34	0.00
Population density	NDR difference	-12.24	0.64	0.00
Average weekly earnings	NDR settlements	328	0.27	0.01
Average weekly earnings	NDR difference	-370	0.28	0.01
Number of rateable properties	Average RV (2017)	1.01	0.15	0.06



**Figure I.** NDR revenue settlements' contribution (%) to total LA income, 2014-15.  
*Source:* ICLGFW (2016).





**Figure II.** NDR revenue with and without simple 100% retention for each council, 2015-16, £ thousands, cash terms.

*Source:* Stats Wales (2018) and author's calculations

**Table I.** Summary of the net difference settlements-contributions for each LA.

	No. of times NDR contributions exceeded settlements (2000-01 to 2015-16)	Average net difference in cash terms (£ million)	Average net difference per capita (£)
Isle of Anglesey	1	2.49	73.75
Gwynedd	8	0.04	0.36
Conwy	0	2.52	45.61
Denbighshire	0	2.82	61.70
Flintshire	16	-5.81	-78.93
Wrexham	10	0.05	0.64
Powys	0	5.28	82.93
Ceredigion	0	3.06	83.75
Pembrokeshire	6	-1.26	-20.49
Carmarthenshire	0	4.87	55.57
Swansea	9	-0.71	-6.24
Neath Port Talbot	2	1.32	19.71
Bridgend	11	-0.33	-5.09
Vale of Glamorgan	10	-0.65	-11.13
Rhondda Cynon Taf	0	7.33	64.33
Merthyr Tydfil	5	0.42	15.35
Caerphilly	0	6.71	78.48
Blaenau Gwent	0	3.34	99.04
Torfaen	0	1.81	40.83
Monmouthshire	0	2.01	45.87
Newport	16	-6.93	-99.7
Cardiff	16	-29.79	-182

*Notes:* Average net difference is calculated as average settlements less average contributions, 2000-01 to 2015-16. Figures are in cash terms. *Source:* Stats Wales (2018) and author's calculations.

**Table II.** A classification of the councils according to the NDR difference.

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	The winners: councils with positive NDR difference	The losers: councils with negative NDR difference
Features	Economically less strong	Economically more strong
	Weak property market	Vibrant property market
	Small tax base	Big tax base
	Rural councils	Urbanised councils
	Low property prices	High property prices
	Low populated	Highly populated
	Low average earnings	High average earnings
	High unemployment	Low unemployment

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**Table III.** Rateable properties and average RV across the 22 councils

	Number of rateable properties		Average RV (Mean) (£)
	2017	2010	2017
Isle of Anglesey	2,900	14,000	13,000
Gwynedd	7,490	14,000	15,000
Conwy	5,250	15,000	16,000
Denbighshire	4,150	14,000	15,000
Flintshire	5,320	29,000	28,000
Wrexham	4,300	24,000	23,000
Powys	6,840	11,000	12,000
Ceredigion	3,740	14,000	14,000
Pembrokeshire	6,610	19,000	19,000
Carmarthenshire	7,130	17,000	16,000
Swansea	7,730	25,000	24,000
Neath Port Talbot	4,060	25,000	22,000
Bridgend	4,290	25,000	23,000
The Vale of Glamorgan	3,570	26,000	23,000
Cardiff	12,420	38,000	37,000
Rhondda Cynon Taf	6,870	20,000	19,000
Merthyr Tydfil	1,780	24,000	22,000
Caerphilly	4,800	19,000	18,000
Blaenau Gwent	2,210	16,000	14,000
Torfaen	2,770	21,000	21,000
Monmouthshire	3,190	18,000	19,000
Newport	4,700	34,000	31,000
Mean	5,096	21,000	20,182
Coefficient of Variation	0.47	0.33	0.31

*Source:* UK Government (2017) and author's calculations

**Table IV.** Average difference between NDR income with retention and NDR income with the existing scheme, 2009-10 to 2015-16 (£ thousands).

Council	Difference (£ '000s)
Isle of Anglesey	-7,143
Gwynedd	-1,553
Conwy	-6,112
Denbighshire	-7,680
Flintshire	14,317
Wrexham	-1,133
Powys	-12,892
Ceredigion	-6,314
Pembrokeshire	9,116
Carmarthenshire	-9,644
Swansea	195
Neath Port Talbot	-2,372
Bridgend	-234
Vale of Glamorgan	-942
Rhondda Cynon Taf	-18,828
Merthyr Tydfil	-712
Caerphilly	-16,370
Blaenau Gwent	-8,094
Torfaen	-4,889
Monmouthshire	-6,127
Newport	15,381
Cardiff	73,448

*Source:* Stats Wales (2018) and author's calculations.