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The impact of demographic trends on local government financial reserves: Evidence from England

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Abstract

Local government in England has experienced significant financial volatility in recent years due to large cuts in central government funding and increased demand for service provision. Using a panel data set of English local governments over the period 2005-2016, this study investigates the impact of demographic factors on the financial reserves held by different types of English local governments. Dissimilar effects are traced on local governments' saving capability of different grant funding mechanisms and whether LGs are involved in social care provision, and how they provide these services. In order to enhance financial resilience, many local governments have expanded their financial reserves, partly by increasing revenue generation through alternative sources such as capital investment. Findings show that local governments actively act upon financial uncertainty by expanding their reserves through implementing changes in both their income and expenditure structures. The potential, however, to expand reserves differs significantly between local governments and has reduced in recent years due to growing demand for social care services.

Introduction

Many local authorities in Europe face an ageing population, the impact of which presents both opportunities and challenges to local decisionmakers. One way in which demographic change affects local authorities is through their finances. The financial impact of an ageing population will be critically affected by the financial framework in which local authorities operate. In cases where the financial framework is more frequently subjected to reform, it is likely that local revenue uncertainty will be exacerbated in a context of changing local demographics. Subnational authorities may try to cope with revenue uncertainty following from demographic change by using reserves. As a so-called 'rainy day fund' (Grizzle, Stewart, and Phillips 2015), reserves can be critical to improve the resilience of public sector organisations to financial uncertainty. However, large volumes of reserves may also indicate public sector inefficiencies, or 'fiscal slack' (Ghosh Moulick and Taylor 2016). With changing demographics posing a challenge to the budgeting position of English LGs (CIPFA/IfG 2019; NAO 2020), reserves may fulfil an increasingly important role in maintaining local government financial stability. However, little is known about the relationship between local demography and local authorities' management of financial reserves.

A large stream of research has been published in recent years about austerity measures and their impact on English local governments (LGs) (Ferry, Coombs, and Eckersley 2017; Hastings et al. 2015; Rodríguez Bolívar et al. 2015). However, few studies analyse the impact

of the austerity measures on the financial position of English LGs or encompass the role of reserves. The few existing (policy) studies that cover English LG reserves strongly rely on case study evidence (Audit Commission 2012; Jones 2017), such as interviews, and, whilst this has generated valuable insight into the motivations behind reserves policies of particular LGs, it has resulted in a lack of knowledge as to how demographic and contextual factors have impacted on the financial resilience of the larger population of English LGs.

Notwithstanding limited scholarly attention, reserves held by LGs have made some headlines in England in recent years. During the Conservative-Liberal Democrat coalition government, Secretary for Communities and Local Government Eric Pickles criticized English LGs for building up their reserves which, in his view, invalidated the criticism from the local government sector on the bleak position that centrally enforced austerity measures would have put on the sector.[1] This article investigates the determinants behind recent trends in English LG reserves and the extent to which they have been affected by demographic structures and the services LGs provide. Special attention is paid to how differences between LGs in their involvement with social care provision affect their use of reserves.

The article draws upon a panel dataset including 394 LGs, covering the period 2005-2016. The selected timeframe enables analysing how, depending on their demographic profile, the recent austerity period has impacted upon the savings behaviour of English LGs. To corroborate findings, statistical analysis has been combined with a review of relevant policy documents. The paper is structured as follows. First, a review of the small but growing literature on austerity and LG reserves is provided, after which several hypotheses are formulated adjusted to features of the English system. The subsequent sections provide information on the demographic and institutional features of English LGs, including relevant regulations in relation to LG reserves. This is followed by a discussion of the dataset and model to analyse the impact of demographic variables on LG reserves, and a discussion of the empirical results. The article concludes with a summary of findings, a set of theoretical and policy implications and suggestions for further research.

Local government finances and demographic structures

[1] A few months after taking office in 2010, Pickles was quoted saying councils were "turning town hall vaults into Fort Knox" (Smulian 2015). Criticising the size of reserves was a favourite theme of Pickles but also his successor Greg Clark. In 2012, Pickles attacked councils for their reserves' levels and stated "people will be surprised that while councils are hoarding billions in their piggy banks some are pleading poverty and raising council tax" (Smulian 2015).

A rich literature has emerged in recent years studying the financial resilience of LGs. Scholars have looked at the different resilience capacities and strategies of LGs, with several studies drawing on a distinction originally made by Shaw (2012) between resilience as 'recovery' (bouncing back to an original state) and resilience as 'transformation' (bouncing forward) (e.g. Barbera et al. 2017; Fitzgerald and Lupton 2012). Many studies provide in depth analysis of individual LGs and focus on the role of organisational factors to explain LG responses to austerity (Maher and Deller 2007; Jones 2017). Ferry et al. (2017) look at the impact of culture on councils' strategic decision making in relation to austerity, whilst in a study of three London boroughs, Fitzgerald and Lupton (2015) distinguish between LG resilience in terms of their organisational response and capacity to support the needs of residents.

Relatively few studies investigate the impact of contextual factors on LGs' financial resilience and those that do predominantly apply a qualitative approach and limited time frame, making it difficult to generalise how different types of English LGs respond to austerity and how their reactions might change overtime. One prominent contextual factor that has been widely reported and discussed in the media, but received limited scholarly attention, is the impact of an ageing population. Whilst statistical studies are lacking, it can be expected that given the rising financial costs and uncertainties attached to adult social care in England, which is largely a local responsibility, LGs with a higher share of their population over 65 years old will put more effort into strengthening their financial resilience. This proactive local approach is highlighted in a comparative case study of four English LGs by Jones (2017), which shows that the investigated LGs all displayed a high level of 'anticipatory capacity' before UK central government reductions to English local government grants hit post-2010. As English LGs observed the wider economic impact of the 2008 global crisis, they recognised that there was going to be a significant impact on their central funding allocation, incentivising English LGs to develop a coping strategy early on. By planning and implementing this strategy prior to the arrival of central government cuts, Jones (2017) claims LGs were able to increase their resilience when the major funding reductions were introduced following the formation of the Cameron-Clegg coalition government in 2010.

Assuming the majority of the English LG sector demonstrated this high level of anticipatory capacity, a build-up of reserves can be expected in the period until central government austerity affected English local finances. This expectation is motivated by the fact that building up reserves is one way by which organisations may try to strengthen their resilience. After all, reserves provide a working balance to help cushion the impact of uneven cash flows but also provide a safeguard against economic downturns and unexpected

expenditures. The latter is particularly relevant for social care expenditure which constitutes a spending area that is difficult to forecast for LGs (Coe 2007; Wenzel et al. 2018), resulting in social care expenditure increasingly being perceived as a major risk factor to the financial sustainability of English LGs (CIPFA 2015). Given the challenging nature of social care expenditure, with adult social care being its main component, it can be expected that LGs with a larger share of their population above 65 years old will aim to increase their reserves. Hence, the following hypothesis is formulated:

Hypothesis 1: An ageing local population is positively related with LG reserves.

In addition to the type of expenditures being made, research also points at the way in which LGs are financed as being a relevant determinant of LG reserves. In England, LG social care expenditure is nearly completely financed through central government funding allocations. Several studies show that local authorities whose income position is more dependent upon intergovernmental grants are more likely to maintain higher reserve levels. A study by Vanyalos (2005) finds that New York school districts tend to build up large reserves when their grant funding increases, something the author explains as a local response to uncertainties connected to grant funding. In the English context, funding uncertainty regarding adult social care is significant due to the absence of a long-term central government funding strategy on how to deal with the rising demand for local social care facilities, a service which is critically impacted by England's ageing population (CIPFA/IfG 2019).

Another reason why English LGs may accumulate reserves is offered by scholarship on the 'flypaper effect'. This literature suggests that grant-receiving LGs do not share increased grant revenue with citizens in the form of tax cuts, but use it in 'budget-maximizing' or 'bureau-shaping' ways that suit them (Deller and Maher 2006; Gramlich 1977). It can be expected that part of a LGs internal allocation of grant funding will result in building up local reserves, especially in case LGs expect significant future funding uncertainty. However, grant dependency differs significantly amongst English LGs (De Widt 2016), which may result in different risk perceptions amongst LGs. Hence, for multiple reasons it can be expected that English LGs with a greater reliance on central government grant funding are more likely to increase their reserves. Consequently, the following hypothesis will be tested:

Hypotheses 2: LG reserves are positively related with intergovernmental grants.

One strategy to enhance local financial resilience, which is recommended by many policymakers, is revenue diversification. A jurisdiction with a diversified revenue structure will rely on a variety of revenue sources which positively impacts revenue stability and other fiscal performance indicators, such as debt capacity (Carroll 2005; Shon and Kim 2019). Although existing, mostly US based research has focused on tax and grant revenue diversification of LGs (Carroll, Eger, and Marlowe 2003), a small number of studies emphasise the increasing use of income sources other than taxes and grants as a way to achieve revenue diversification. In a study of Californian counties, Park (2017) shows that counties are likely to raise nontax revenue such as fees and fines when the economy worsens and their transfer-dependence increases. Given large differences between countries in what nontax revenues subnational governments can raise, the choice of the particular nontax revenue source will be influenced by the subnational and intergovernmental financial structures in place (Benton 2003).

In England, the council tax, which is a property tax and local government's only sole tax, is effectively capped as English LGs have to organise a referendum when they propose a council tax increase above a threshold that is determined by central government. LGs experiencing limited tax freedom and facing increasing social care expenditure due to an ageing local population, as is the case with English LGs, can be expected to put particular effort in developing alternative revenue sources. LG activities to generate additional income may partly result from deliberate attempts by higher government levels to make LGs more financially independent. In England, this is reflected in a central government policy focused on making LGs more entrepreneurial and a government policy aimed at transforming LGs into 'key drivers of local economic growth' (Hildreth and Bailey 2013). A study by Andrews et al. (2020) highlights increased corporatization in English local government and shows that during the period 2010-2016 LGs with higher levels of grant and debt dependence were more involved in the creation of companies.

Another prominent way via which English LGs have demonstrated a more entrepreneurial approach is by a rapid expansion of their activities on the commercial property market. In order to maintain local service levels and compensate for post-2010 central government budget cuts, many English LGs have used their access to cheap and flexible borrowing with the UK Treasury to buy property, either for sale or for the private rental market (NAO 2020). In 2016 alone, English LGs invested £1.2billion in total (FT 2017) to purchase property and these investments have increased English LGs' income from fixed assets. Given growing funding pressures in the social care domain, it can be expected that LGs with social care responsibilities put more effort into diversifying their revenue structure compared to LGs

without such responsibilities, and this revenue diversification is likely to positively affect reserve levels held by LGs with social care responsibilities. Hence, the following hypothesis is formulated:

> *Hypothesis 3:* reserves held by LGs with adult social care responsibilities are positively related with revenue diversification.

The extent to which LGs are able to apply discretion in the provision of services differs substantially between countries, and these differences are relevant when analysing LG finances. In a study of local authorities in Texas, Grubb (1984) shows that partly due to utilizing their policy discretion the investigated local authorities differ substantially in their spending on welfare programs. In the context of social care provision, LGs may try to utilize their discretionary space, if present, to omit financial risks attached to social care obligations. In England, LGs traditionally have had significant discretion in relation to their social care provision, even though in recent years there has been a reduction in their discretion especially following the introduction of the Care Act 2014 (Amin Smith, Philips, and Simpson 2018). A major area where English LGs have kept a relatively high level of discretion is the extent by which they provide care for older residents either through residential/nursing homes, or home care. Given the higher costs associated with residential care, a growing number of English LGs have reduced residential care facilities in recent years, in favour of home care, in which case professional care is provided at a resident's home (Bottery, Ward, and Fenney 2019). Due to the different cost implications, it can be expected that English LGs that have continued to rely on residential care will have had less saving capability compared to LGs relying on home care. Hence, the following hypothesis will be tested:

> *Hypothesis 4:* LG reserves are negatively related with the provision of residential care arrangements.

Institutional framework of English local government

As in most developed countries, the population in England is ageing. Whilst in 2011, 10.4 million UK residents, or 16% of the UK population, were aged 65 years and over; by 2035 this is expected to increase to 17.3 million, representing 24% of the population (CPC 2015). As it is the local level in England that is responsible for adult social care, these demographic changes offer a particular challenge to LGs, the urgency of which became epitomized by the Barnet

Graph of Doom, which refers to a PowerPoint slide showing that by the 2030s, unless things change dramatically, the north London council of Barnet would be unable to provide any services except adult social care and children's services (Brindle 2012). English LGs, however, have different degrees of involvement in social care provision.

The English system of local government is highly heterogeneous and includes many different types of LGs. Despite the variety of labels, there is a clear main distinction among LGs. On the one hand, there are single-tier LGs that are (largely) responsible for all public services provided in their area. These are the English Unitary Authorities, and, largely in practice, the English metropolitan districts and London boroughs. The London boroughs are largely similar to Unitary Authorities since the most important executive tasks of the Greater London Authority (GLA) – , transport, police and fire services – are also delivered by separate authorities outside the London area (Wilson and Game 2011). On the other hand, there are two-tier LGs in which services are split between the county and the authorities below them, i.e. the districts. The most important functional distinction between counties and districts is that within the two-tier areas, counties are the main provider of social care services, including to the elderly.

Regarding its intergovernmental position, English local government is subject to a powerful political executive that dominates parliament and can abolish or reform councils to an extent unparalleled elsewhere in Europe (John and Copus 2012). This dependence on the centre has also been reflected by the income structure of English LGs, which traditionally has mainly been comprised of central government grants. It is only since 2017-18 that central government grants no longer make up the majority of English LG income, the latter being the result of a series of cuts implemented by central government to LG grants since 2010-11 (in 2017-18 grant income constituted 48% of LG income, with the other major income source being council tax and various other sources of income including non-domestic rates, and sales fees and charges (DCLG 2019)).

The 2008 financial crisis and its consequences on the wider economy have put significant pressure on UK public finances and LGs have taken a large cut in central government-imposed austerity. The Conservative-led coalition government (2010–15) cut council expenditure by 27%, exceeding the 19% central departmental average (De Widt and Laffin 2018). The subsequent Conservative governments have mostly continued these austerity measures, which according to some observers provides a core explanation as to why growing numbers of English LGs are at risk of failing their statutory duty to set a balanced budget (Davies 2018). Simultaneous with largescale reductions in central government funding,

English LGs have faced greater financial uncertainty due to structural changes in funding mechanisms, such as business rates reform.

The financial challenges have not been equal amongst English LGs. Most of central government cuts have been implemented through a reduction of the Revenue Support Grant (RSG), known also as the block grant, traditionally the primary source of central government funding for English LGs. As a general grant, the RSG allows a high degree of local spending discretion, which contrasts with specific grants which must be allocated to spending aims prescribed by central government. Compared to the RSG, specific grants, many of which relate to adult social care provision, remained initially protected from the budget cuts implemented post-2010 (NAO 2018). However, in more recent years these budgets have also increasingly been affected by cuts, reflected in a 2.1% reduction in real terms of local government expenditure on adult social care provision between 2009/10 and 2018/19 (CIPFA/IfG 2019).

Regulatory framework for local government reserves

Despite its subordinate intergovernmental political position, English LGs demonstrate a large degree of discretion regarding their decision making on reserves. Applicable regulations are mostly of a procedural nature. The Government Finance Act 1992 requires local authorities in England and Wales 'to have regard to the level of reserves' needed for meeting estimated future expenditure when setting their budgets. The Local Government Act 2003 gave central government a general power to set minimum levels of reserves for LGs. Hitherto this power has only been used in case of individual LGs whose budgeting practice the government perceived not prudent. The limited use of the power reflects the dominant view held amongst English finance professionals and policymakers at all government levels, that, given the unique local circumstances of individual LGs, it is inappropriate to impose any generally applicable minimum reserve levels on the local sector. Instead, a tailored approach is perceived most suitable to enable an adequate local reserves policy (e.g. Audit Commission 2012; CIPFA 2014). In addition to a local authority's duty 'to have regard to the level of reserves', the Local Government Act 2003 put the duty on local authority chief financial officers (CFOs) to report on the robustness and adequacy of the authority's reserves. As the applicable statutory reporting regime for English local government, the IFRS-based Code of Practice on Local Authority Accounting in the United Kingdom (the Code) sets the framework as to how LGs shall report on their reserves. Most importantly it distinguishes between usable reserves, i.e. those reserves that the authority may use to provide services, and unusable reserves, i.e. those

reserves that the authority is not able to use to provide services (e.g. the Revaluation Reserve).[2] Given the spending freedom provided by usable reserves, the focus in this paper is on usable reserves.

The budgetary and regulatory framework applying to English LGs influences their reserves policies, and three aspects are highlighted. First, the English framework puts strong emphasis on LGs setting a balanced budget, and several preventive mechanisms are in place in case a LG is at risk of setting an unbalanced budget, the most severe being central government intervention. The pressure to set a balanced budget provides an incentive for LGs to hold a significant level of reserves, which they could use to balance spending and income in case outgoings exceed expected income. Second, the availability of external funds in case of emergency also impacts upon LGs need for reserves. In England, the Bellwin Scheme is available for emergency financial assistance, especially in case of natural disasters, however the Scheme's terms and references are formulated in such a way that LGs do not have an automatic entitlement to it if facing financial emergency (DCLG 2013). In addition, the Bellwin Scheme compensates spending only retroactively and, where financial assistance is given it will not cover all the costs even in exceptional circumstances (CIPFA 2014). Hence uncertainties regarding LGs' entitlement and timing of payment from the Scheme incentivise LGs to keep reserves.

A third relevant feature of the English system relates to LGs' ability to borrow which is limited to capital expenditure. The introduction of the Prudential Borrowing Framework (PBF) in the Local Government Act of 2003 has significantly increased local borrowing autonomy for capital investments. The Act removed previously centrally set capital borrowing limitations, which were replaced by an obligation put on individual LGs to 'determine and keep under review how much money it can afford to borrow' (Local Government Act 2003, Section 3, 1). Over the past decade, total borrowing for capital expenditure by the English local sector has increased significantly from £53.3 billion in 2008 to £86 billion in 2018 (DCLG 2019). The direct risk to the local level of this increase in debt appears limited, not only because of the long maturity of the majority of the loans and the generally low interest rates LGs achieve on them, but also because the UK Treasury, through its arm's length body the Public Work Loans Board, acts as lender of last resort for all LG borrowing (DCLG 2012). Due to this, an increase of debt held by an English LG is unlikely to result in a major change of its reserves policy.

[2] The Local Authorities (Capital Financing and Accounting) (England) Regulations 2003.

In sum, the budgetary and regulatory framework of English LGs can be expected to exert a mixed impact regarding holding reserves, with the budget balance requirement and, to a lesser extent, the Bellwin Scheme incentivising LGs to keep reserves, but the framework for LG borrowing likely to have little impact.

Descriptive analysis

Total usable reserves held by English LGs have grown significantly over the period 2004-2016, from £6.3 billion to £16.8 billion.[3] Using index numbers, figure 1 shows the development of English LG reserves over the period 2004-2016 by LG type. The graph shows that single-tier authorities and counties strongly increased their reserves, with a marked increase since 2010. Reserves for counties and single-tier authorities tripled: for single-tier LGs from £3.3 billion in 2004 to £10.2 billion in 2016, and for counties from £1.2 billion in 2004 to £3.5 in 2016. The increase in reserves for districts has been steady since 2010, even though at a significantly slower pace than single-tier LGs and counties. In 2015-16, English LGs drew down on their reserves for the first time since 2009-10, with total stock of reserves reducing by £0.4 billion. This reduction of reserves, which has continued post-2016, has particularly affected counties.

Table 1 provides descriptive statistics for averages of reserves held by English LGs and separated by LG type. All figures are for 2016 and show that, measured in per capita (p/c) terms, single-tier LGs held most reserves, followed by counties, with districts having the lowest levels of reserves. These figures are in line with the variability in total expenditure p/c between these different LG types. Table 1 also shows the top five of LGs with the highest levels of reserves, both in absolute and p/c terms. With the exception of the counties Hampshire and Lancashire, all listed LGs are single-tier LGs.

Data and method

The empirical analysis is based on panel dataset of English LGs, covering the period from 2005 to 2016, including 394 LGs. Due to a number of local territorial amalgamations in England, some English LGs are split in the dataset into a separate pre- and post-amalgamation observation. Territorial amalgamations also explain the lower number of LGs (354) in case of the regressions that were conducted for the 2011-2016 period only. LGs with missing data for more than four years were deleted from the dataset. Table 2 provides an overview of the sources

[3] This excludes reserves of fire authorities, schools, national parks, the Greater London Authority (GLA) and combined authorities, which would bring up the figure of total reserves to £23 billion. Reserves of the before mentioned entities have been excluded as individual councils have limited control over them.

and measurements of the variables. Data for English LGs derives from the Ministry of Housing, Communities and Local Government (MHCLG), the home care and residential care spending variables are from NHS Digital, the political variables based upon BBC council election results, and data for the demographic variables derives from the Office for National Statistics (ONS). Table 3 reports the summary statistics of the key variables used in the regression whilst table 4 reports the correlation matrix of the key variables. All variables show coefficients not exceeding the critical level of 0.7.

The main dependent variable used in this study is total usable reserves, which, in order to control for differences in LG financial size, has been expressed as percentage of total expenditure. LGs commonly divide their reserves into earmarked reserves, which are held in relation to specific projects, and non-earmarked or general reserves, which function as a security against unforeseen expenditure. In England, around 80% of LG reserves were earmarked in 2017, with the rest being unallocated. Although guidelines have been issued on how to distinguish between reserves types, significant inter-local differences have been observed in practice regarding how reserves are labelled. Some LGs earmark the vast majority of their reserves, whilst others tend to keep their objectives undefined. In addition, earmarking does not always mean there is a plan for spending the funds (Audit Commission 2012, 3). Due to the high level of discretion and subsequent cross-local variation in the labelling of reserves, as well as inconsistencies in their reporting within single authorities, the decision was taken to use aggregate reserve figures as the main dependent variable.

Model specification

In line with the hypotheses formulated, independent variables are related to the financial, demographic and institutional features of LGs. The following empirical model has been formulated to identify the effect of the regressors on the dependent variable reserves:

$$\begin{aligned} reserves_{i,t} = \propto + \beta_1(generalgrants) + \beta_2(specificgrants) + \beta_3(counciltax) \\ + \beta_4(incomefixedassets) + \beta_5(capital\ expenditure) + \\ + \beta_6(social\ care\ expenditure) + \beta_7(totaldebt) + \beta_8(populationover65) \\ + \beta_9(populationunder18) + \beta_{10}(ideology) + \varepsilon_{i,t} \end{aligned}$$

In line with the empirical literature on local finances (e.g. Sacchi and Salotti 2016), the independent variables have been log-transformed in order to control for skewed and wide

distribution among data. In relation to grants, independent variables are used for both general grants and specific grants. Although the literature generally aggregates different types of grants, the few studies that have separated these grants have identified important differences (e.g. De Widt 2016; Worthington and Dollery 1998). Over the period of the panel dataset utilised in this study, grants made up around 70 percent of English LGs' total income. In addition to grants, council tax and income from fixed assets are used as income variables. To incorporate the impact of ageing, we include variables for the population share 'above 65 years old' and a social care expenditure variable which incorporates all councils' adult social care expenditure. We also conduct separate regressions for councils that carry the main adult social care responsibilities, that is single-tier LGs and districts. In these cases, we use more granular adult social care data, related to councils' expenditure on home care and residential care for older residents. Residential and home care are the main categories of English councils' spending on adult social care, adding up to £21.3 billion in total during 2017-18. In recent years, these costs have generally increased at more than the rate of inflation (Bottery, Ward and Fenney 2019). In addition, a capital expenditure variable is included, which encompasses local authorities' total expenditure on capital investment. Finally, variables are included for total debt and ideology, the latter representing the political orientation of the council and being measured as a dummy variable.

Results

To determine the correct estimation procedure, a Hausman test has been conducted to determine if there are fixed effects for each LG and whether these can be modelled as random effect. With a p-value significant at the 0.001 level, the Hausman test indicates that H0 can be resoundingly rejected and the fixed effect method is appropriate to estimate the parameters (cf. Wooldridge 2010, 329).

Table 5 shows the results of the fixed effects estimations for the full panel, with the first column showing the results for the period 2005-16. To identify the impact of the 2008 financial crisis and the austerity measures implemented post-2010, separate regressions have been conducted for the periods 2005-10 and 2011-16, results of which are shown in the second respectively third column of table 5. The results for the full panel demonstrate that, in line with hypothesis 1, LGs with a larger share of residents over 65 years old held higher levels of reserves. However, when looking at the time periods separately, the effect is only significant for the period 2011-16, which may reflect that it is only after the 2008 financial crisis that LGs with a higher proportion of residents above 65 years old have started to enhance their financial

resilience by expanding reserves. Table 5 further shows that several financial variables have a significant impact on reserves. A significant positive effect is traced for general grants, indicating that LGs with higher levels of general grant funding accumulate more reserves, which confirms hypothesis 2 (coefficient ß=0.456, P<0.01). In addition, specific grants, whilst lacking significance in the regressions of the full panel, exert a significant and positive impact on reserves during the 2005-10 period which might reflect the presence of fiscal slack in both grant categories, at least during the 2005-10 period. For the panel 2011-16, the effect of specific grants on reserves turns negative, demonstrating that during the latter period LGs relying more strongly on specific grants have drawdown their reserves more significantly compared to LGs less reliant on specific grants. These estimation results are in line with macro level observations of English LG reserves made elsewhere (OBR 2017), and likely reflect the impact of central government cuts on English LG grants which annulled any saving flexibility previously present in specific grant allocations.

Regarding the remaining income variables, the results in table 5 demonstrate that income from fixed assets is significant and positively related to reserves, which confirms hypothesis 3. Analysis of the separate time periods indicates that the result is only significant for the period 2011-16 (coefficients β=0.252, p<0.05). The significant estimate for the period 2011-16 reflects increased activity by English LGs on the commercial property market, whilst the positive sign indicates these new activities have exerted an expansionary effect on LG reserves. The significance of the variable for the 2011-16 period is in line with NAO (2020) findings which show that English LGs have become particularly active in commercial property investments to compensate for substantial falls in central government funding post-2010. Table 5 also shows that increased reliance on council tax positively affects reserves held by LGs. When looking at the periods separately the effect is only significant for 2011-16, which is according to expectations given the growing reliance of English LGs on council tax revenues in recent years (DCLG 2019).

LG expenditure has been analysed by including variables for both capital expenditure and social expenditure. LGs that spent more on capital expenditure held higher reserves, and, similar to income generated from fixed assets, the effect is only significant for the period 2011-16. Again, this resembles higher activity by LGs in property investment post-2010 with property acquisitions resulting in new revenues, and it is these LGs that have managed to increase their saving capability. In case of social expenditure, the estimates are negative, however p-values are only significant for the period 2005-10. The coefficient of the impact of total debt p/c is positive but the variable is only weakly significant (P<0.1) for the 2005-16

period, suggesting that, in line with expectations, LG decision making on borrowing does not directly impact upon their reserves' strategies. Finally, the variable ideology is significant and positively related with reserves, demonstrating that LGs with a politically left-wing oriented councils are more likely to have higher reserve levels. This positive effect may reflect the larger financial risks faced by urban LGs, who in most cases are governed by left-wing council majorities, and, as shown by the single-tier LGs depicted in figure 1, have most strongly increased their reserve levels over the period studied.

As not all English LGs provide social care, separate regressions have been conducted depending upon LG type. Table 6 shows the results by time period segregated for LGs that provide the majority of social care, i.e. single-tier and county councils, versus LGs which provide only limited social care, i.e. the districts. The impact of the variable 'population over 65' is significant, however, and hereby reflecting the results of table 5, opposite effects are traced for the two time periods. Whilst during 2005-10 'population over 65' is negatively related with reserves, the effect of the variable turns positive and highly significant post-2010. This indicates that post-2010 it has been especially LGs with an older population and those carrying social care responsibilities who have built up their reserves, which in light of the uncertainty surrounding adult social care funding may reflect a deliberate local strategy to strengthen LG financial resilience. For districts, in turn, an ageing local population is positively associated with a rise in local reserves for the period 2005-10, but the effect turns negative for 2011-16. The absence of a consistent effect of an ageing population on district reserves can be explained by districts not carrying any major adult social care responsibilities, which seemingly has reduced their perceived need to enhance their financial resilience.

Differences between LGs in financial resilience strategies are similarly reflected when analysing the impact of different income sources. Most importantly, estimates show that for the period 2011-16, income generated from fixed assets is significant and positively related with reserves held by single-tier LGs and counties, but results lack significance in case of districts. These results provide support for hypothesis 3, demonstrating that with regard to the investigated period it is LGs carrying social care responsibilities who have particularly focused on developing alternative revenue sources by expanding their commercial property portfolio. In relation to grants, general grants continue to exert a positive and significant effect on LG reserves, reflecting the results of table 5. Specific grants however only significantly impact upon the reserves held by single-tier LGs and counties, although with opposite results for the two periods. Whilst an increase in specific grant funding is related to an increase in LG reserves during 2005-10, LGs with a higher dependency on specific grant funding are more likely to

drawdown on their reserves during the post-2010 austerity period. Hence, mixed support is found for the positive impact of intergovernmental grants (hypothesis 2) when we consider the impact of main grant categories for LGs with and without adult social care responsibility. These findings are in line with results from other studies which illustrate that central government funding allocations are increasingly putting a strain on English LG finances, including higher levels of indebtedness (De Widt 2016; CIPFA/IfG 2019).

To closer identify the impact of different types of adult social care provision, table 7 shows estimations for LGs responsible for the majority of adult social care provision (single-tier LGs and counties) and analyses the impact of residential versus home care provision, which constitute two major categories of adult social care expenditure. The results show a highly significant and negative association between residential care provision and reserves over the period 2005-16 whilst expenditure on home care provision has no significant impact on reserves. Table 7 also identifies the impact of different types of care provision during the time periods separately. The estimations are in line with results for the period 2005-16, with residential care provision being negatively related to LG reserves during both 2005-10 and 2011-16, whilst home care expenditure remains insignificant during both time periods. These estimations confirm hypothesis 4 and suggest that LGs own policy choices in relation to the provision of adult social care significantly impact upon a local authority's financial position, with LGs more strongly relying on residential care being more likely to drawdown on their reserves.

Conclusion and policy implications

This article analyses how demographic structure and social care responsibilities affect the financial reserves held by English LGs. To account for the impact of the austerity policies implemented by the Conservative-Liberal Democrat coalition government, separate analyses are conducted for the pre- and post-2010 period. The empirical results show that LGs with social care responsibilities and an ageing local population have increased their financial reserves most substantially. This supports the theoretical expectation that LGs anticipating a larger degree of financial uncertainty put more effort into enhancing their financial resilience, a finding which for English LGs is similarly supported by anecdotal evidence (cf. Keeling 2013). criticisms, The build-up of English local reserves as a precautionary measure is unlike the use of reserves by subnational authorities in some other jurisdictions (e.g. Hendrick 2006), and is a rational response by local decisionmakers given the increasingly volatile intergovernmental financial framework in which English LGs operate. Hence, the findings of

this study demonstrate the need to widen current scholarship on local government austerity management beyond the dominant focus on organisational level factors and consider more carefully how interactions between different levels of government influence local financial strategy creation.

After a period of strong growth in their reserves' levels, aggregate figures demonstrate that English LGs have drawn down on their reserves in 2015-16 for the first time since 2009-10. In the period beyond the timeframe of the dataset utilised in this article, funding uncertainty in relation to English adult social care provision has further increased and it is only through temporary central government funding measures that a default of individual LGs has been averted so far. With demand for adult social care continuing to rise, LGs face a consistent need to maintain their financial resilience, which has incentivised many English LGs to focus on revenue diversification, leading to significant investments being made in commercial property. Whilst this has generated new revenue streams, it is too early to determine the effects of these strategies for the financial resilience of English LGs. With the majority of council acquisitions having been made on offices and retail property, including shopping centres, and the economic effects of the COVID-19 pandemic in its early stages, these alternative local income streams appear more vulnerable than anticipated, and may in fact cause a drain on reserves or cuts in services. The financial risks associated with the property investments are not limited to unitary authorities and councils. Since 2016-17 districts have become disproportionately active, relative to their size, in the acquisition of commercial property (NAO 2020). This shows that for the more recent period districts have also increasingly diversified their revenues, which could indicate that spending pressures are now spread amongst all English LG categories.

Although spending flexibility for English LGs in relation to social care has reduced post-2010 (Amin Smith et al. 2018), LG choices as to how they provide adult social care are likely to continue to influence the effect of adult social care spending on LG reserves. Since 2015, a net reduction has occurred in English LG reserves and authorities still being able to continue to increase their reserves deploy activities at a relatively high-risk level. It is ironic, therefore, that a strategy initially developed to increase alternative revenue sources and so aimed at increasing financial resilience, may in practice have the opposite effect.

The government has recently tightened the lending criteria used by the PWLB which now require local CFOs to confirm that their LG does not intend to borrow in order to buy investment assets primarily aimed at generating yield (UK DMO, 2020). Whilst these measures potentially signify a broader central government policy change regarding the role of English

LGs, it does not seem out of place for central government actors to be more clear on the level of financial risk it is willing for English LGs to be exposed to.

The findings of this article provide several directions for future research. First, the article identifies different levels of reserves held by different types of LGs, which partly reflects differences in risk levels in relation to LG' spending profiles. We know little however about how financial risks are being perceived by different local actors and how this feeds into determining long term local financial strategies. Second, whilst this study has identified a financial impact of the use of LGs' discretion in the provision of adult social care, there is a need for in-depth case studies to clarify the level of discretion LGs experience in practice whilst providing social care services, and explain how and when LGs decide to apply their discretion. Finally, country comparative studies would add valuable evidence to better understand how LGs' financial response to demographic challenges is affected by the specific institutional and funding context in which LGs operate.

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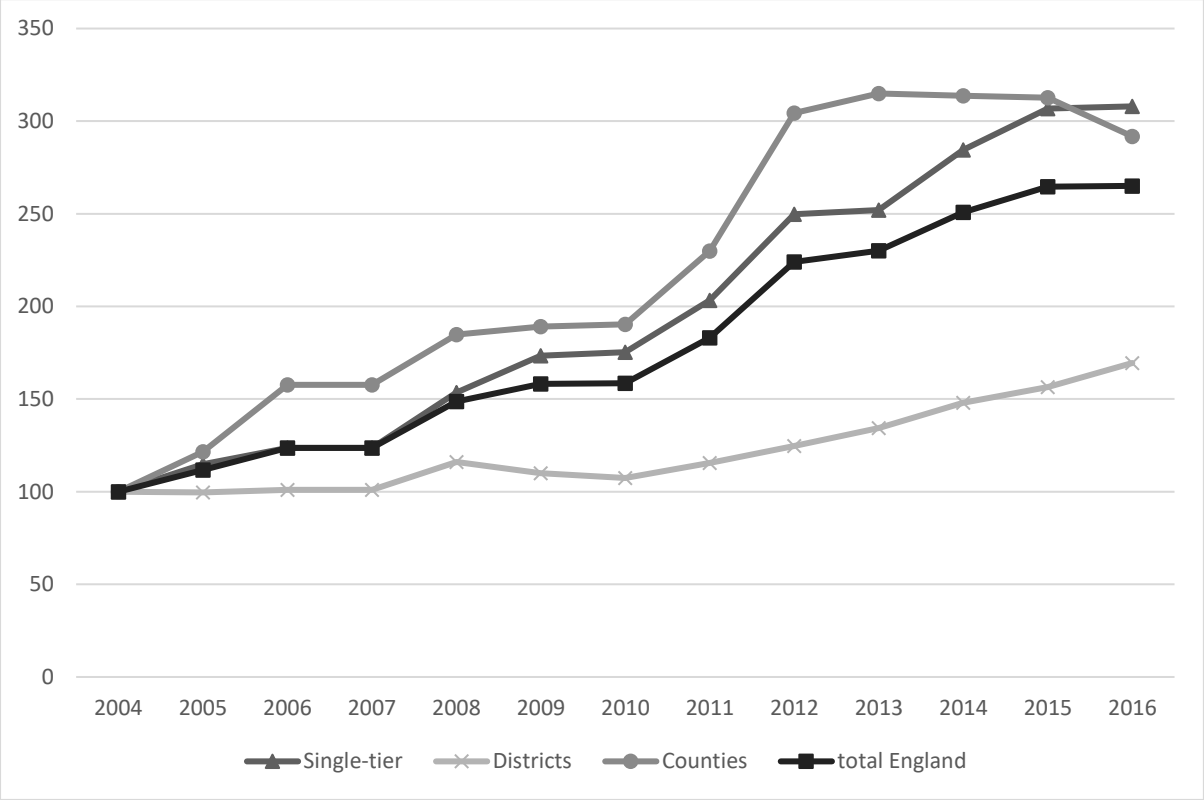
Figure 1. Graph English LG reserves 2004-2016 by LG type, using index numbers.



Source: own compilation, based on Ministry of Housing, Communities and Local Government (MHCLG) Local authority capital expenditure, receipts and financing statistics, multiple years.

Table 1. Reserves English LG, including LGs with highest levels of reserves (absolute and p/c), 2016.

Reserves all England £ (1,000s)		**Top 5 – reserves total £ (1,000s)**		**Top 5 – reserves p/c £**	
LG average	28,960	Birmingham	430,000	City of London	15,100
LG average p/c	183	Hampshire	360,000	Westminster	1,137
Single-tier authority average p/c	370	Lancashire	310,000	Kensington and Chelsea	908
Counties average p/c	110	Westminster	280,000	Tameside	898
Districts average p/c	88	County Durham UA	220,000	Hartlepool UA	748

Source: own compilation, based on MHCLG Local authority capital expenditure, receipts and financing statistics, 2016/17.

Table 2. Variable names panel dataset English LGs, 2005-2016.

Variable	Measurement	Source
general grants	Natural log of general grants p/c	MHCLG
specific grants	Natural log of specific grants p/c	MHCLG
council tax requirement	Natural log of council tax income p/c	MHCLG
income fixed assets	Natural log of income fixed assets p/c	MHCLG
capital expenditure	Natural log of total capital expenditure p/c	MHCLG
social care expenditure	Natural log of total social care expenditure p/c	MHCLG
residential care expenditure	Natural log of total expenditure p/c on residential care for older people	NHS Digital
home care expenditure	Natural log of total expenditure p/c on home care for older people	NHS Digital
total debt	Natural log of total debt p/c	MHCLG
population over 65	Residents above 65 years old as share of total population	ONS
population under 18	Residents below 18 years old as share of total population	ONS
ideology	Equal to 1 in case of a left-wing council majority, 0 otherwise	BBC council election results

Table 3. Summary statistics for the pooled panel dataset, English LGs, 2005-2016.

Variable	N	Mean	s.d	Min	0.25	Mdn	0.75	Max
reserves	394	0.68	0.40	0	0.69	0.89	0.92	0.98
general grants	394	1.44	0.60	0.09	1.06	1.35	1.83	2.83
specific grants	394	2.68	0.33	2.16	2.41	2.56	3.01	3.35
council tax	394	2.13	0.42	1.28	1.81	1.92	2.55	3.11
income fixed assets	394	1.12	0.63	0.63	0.78	1.16	1.53	2.48
capital expenditure	394	2.05	0.45	1.02	1.73	2.10	2.39	2.94
social care expenditure	394	1.05	1.32	1.40	2.10	2.32	2.54	2.79
residential care	154	4.15	0.42	3.05	3.89	4.15	4.41	4.76
home care	154	3.61	0.36	2.73	3.43	3.61	3.81	4.52
total debt	394	0.68	0.38	0	0.69	0.89	0.92	0.95
population over 65	394	17.92	4.10	8.30	15.37	17.71	20.39	29.13
population under 18	394	22.38	2.03	17.69	21.10	22.40	23.73	27.30
ideology	394	0.20	0.40	0	0	0	1	1

Table 4. Correlation coefficients for the pooled panel dataset, English LGs, 2005-2016.

Variables		1	2	3	4	5	6	7	8	9	10	11	12	13
1	reserves	1.000												
2	general grants	0.276	1.000											
3	specific grants	0.507	0.107	1.000										
4	council tax	-0.047	-0.182	0.042	1.000									
5	income fixed assets	0.266	0.275	0.295	-0.087	1.000								
6	capital expenditure	0.434	0.285	0.531	0.113	0.432	1.000							
7	social care expenditure	0.172	0.289	0.376	0.015	0.031	0.144	1.000						
8	residential care expenditure	0.011	-0.234	-0.133	0.048	-0.185	-0.143	-0.259	1.000					
9	home care expenditure	0.042	-0.037	0.096	0.021	0.021	-0.013	-0.171	0.155	1.000				
10	total debt	-0.274	-0.063	-0.097	-0.050	-0.131	-0.258	0.002	0.052	0.006	1.000			
11	population over 65	-0.174	-0.152	-0.498	0.057	-0.394	-0.285	-0.084	0.479	-0.046	0.043	1.000		
12	population under 18	-0.263	-0.056	0.068	-0.052	-0.082	-0.147	-0.066	-0.186	-0.137	0.129	-0.283	1.000	
13	ideology	0.233	0.232	0.328	-0.116	0.211	0.153	0.026	0.060	0.077	0.083	-0.303	0.185	1.000

Table 5. Determinants of local government reserves England, panel data 2005-2016; 2005-2010; 2011-2016. Dependent variable: total reserves as % of total annual expenditure. Fixed effects.

	2005-2016	2005-2010	2011-2016
general grants	0.456***	0.460***	0.340***
	(0.083)	(0.139)	(0.084)
specific grants	-0.431	1.201***	-1.220*
	(0.512)	(0.407)	(0.155)
council tax requirement	0.539**	-0.332	0.266**
	(0.156)	(0.545)	(0.130)
income fixed assets	0.219***	-0.056	0.252**
	(0.080)	(0.043)	(0.152)
capital expenditure	0.818***	0.326	1.150***
	(0.292)	(0.256)	(0.365)
social care expenditure	-0.347	-0.432***	-0.121
	(0.272)	(0.162)	(0.270)
total debt	0.866*	0.105	0.473
	(0.506)	(0.316)	(0.814)
population over 65	1.140***	-0.013	1.570***
	(0.158)	(0.109)	(0.199)
population under 18	0.078	0.052*	-0.443
	(0.295)	(0.135)	(0.542)
ideology	0.649**	0.002	0.337
	(0.271)	(0.070)	(0.420)
constant	-2.064**	-0.808	-1.450
	(0.125)	(4.640)	(1.679)
Number of LGs	392	392	351
Adj. R^2	.28	.13	.27

*p≤0.1, **p≤0.05, ***p≤0.01; robust standard errors in parentheses.

Table 6. Determinants of local government reserves England, panel data 2005-2016. Dependent variable: total reserves as % of total annual expenditure. Results by LG category with and (largely) without adult social care responsibilities. Fixed effects.

	Single-tier LGs and Counties		Districts	
	2005-2010	2011-2016	2005-2010	2011-2016
general grants	0.358***	0.208***	0.515*	0.489***
	(0.133)	(0.054)	(0.295)	(0.105)
specific grants	1.043***	-0.728**	0.545	-0.468
	(0.370)	(0.340)	(0.152)	(0.323)
council tax requirement	0.004	-0.054	-0.541	-0.218*
	(0.305)	(0.061)	(0.414)	(0.128)
income fixed assets	-0.058	0.141**	-0.074	-0.025
	(0.036)	(0.067)	(0.086)	(0.119)
capital expenditure	0.003	-0.168	0.413	-0.861***
	(0.180)	(0.124)	(0.274)	(0.205)
social care expenditure	1.145	-1.050***	-0.514**	0.262*
	(0.677)	(0.297)	(0.218)	(0.133)
total debt	0.226	-0.334	-0.149	0.196
	(0.193)	(0.418)	(0.216)	(0.364)
population over 65	-0.166**	0.301***	0.358**	-0.121***
	(0.056)	(0.041)	(0.152)	(0.185)
population under 18	-0.016	-0.107	0.092	-0.164***
	(0.007)	(0.070)	(0.232)	(0.035)
ideology	0.059	0.285**	-0.389	0.195
	(0.081)	(0.140)	(0.503)	(0.482)
constant	-2.959	4.300**	5.010	7.594***
	(2.672)	(2.103)	(0.868)	(1.538)
Number of LGs	156	151	237	200
Adj. R^2	.14	.21	.08	.22

*p≤0.1, **p≤0.05, ***p≤0.01; robust standard errors in parentheses.

Table 7. Determinants of reserves of English local governments with adult social care responsibilities, panel data. Dependent variable: total reserves as % of total annual expenditure. Fixed effects.

	2005-2016	2005-2010	2011-2016
general grants	0.117**	0.070	0.109**
	(0.047)	(0.089)	(0.050)
specific grants	0.434**	0.359*	-0.127***
	(0.197)	(0.244)	(0.413)
council tax requirement	-0.176**	-0.033	-0.050
	(0.068)	(0.202)	(0.074)
income fixed assets	0.021	-0.098***	0.281***
	(0.043)	(0.024)	(0.083)
capital expenditure	-0.159	-0.351***	-0.055
	(0.134)	(0.124)	(0.180)
residential care expenditure	-0.372***	-0.313**	-0.425***
	(0.070)	(0.130)	(0.090)
home care expenditure	0.013	0.025	0.056
	(0.080)	(0.062)	(0.085)
total debt	0.437*	0.066	-0.160
	(0.241)	(0.138)	(0.503)
population over 65	0.254***	0.011	0.209***
	(0.022)	(0.038)	(0.051)
population under 18	0.045	-0.025	0.057
	(0.032)	(0.043)	(0.085)
ideology	0.578***	0.051	0.616***
	(0.068)	(0.054)	(0.165)
constant	-0.605***	0.027	-0.652
	(0.113)	(0.151)	(0.244)
Number of LGs	153	153	146
Adj. R^2	.21	.06	.18

*p≤0.1, **p≤0.05, ***p≤0.01; robust standard errors in parentheses.