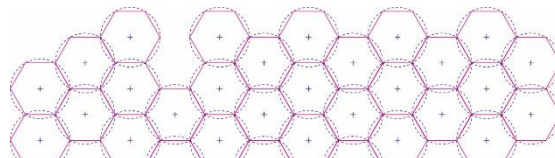


A pressing issue: local newspaper performance & local election turnout

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Local journalism has a key role to play in civil society, providing scrutiny of local institutions and providing access to the public to ensure they make informed decision in civic life. As part of a recent study into the dynamics of the press sector for the UK Department of Digital, Culture, Media & Sport (DCMS), we used econometric analysis to assess and quantify the relationship between local newspaper performance and local democratic participation – measured by local election turnout. This paper provides a summary of our approach and results, which indicates that local newspaper circulation and reach has a significant positive impact on local election turnout over time. In particular, there is evidence of a positive correlation indicating that areas with higher levels of local newspaper circulation also report higher local election turnout. We also find evidence to suggest that time invariant factors – such as specific geographic or demographic factors not captured in the dataset – are important determinants of local election turnout rate.

Local news sector performance in the UK

The UK news media market has faced considerable change in the past two decades. The shift to online news consumption has contributed to a decline in news publisher revenues and consumers are buying fewer newspapers due to the availability of free online news.

The commercial challenges facing news publishers are especially acute in the local and regional news market. There has been significant decline in local newspaper readership, impacting commercial viability. Plum's analysis of data from the Joint Industry Currency for Regional Media Research (JICREG) indicates that:

- There has been significant decline of daily and weekly local newspaper circulation from 2007 to 2019. We find that average daily print circulation across local authority districts (LADs) in 2019 is 31% of 2007 figures.
- The decline in daily local titles is substantial, with a reduction of 209 of 380 LADs covered by a local newspaper in 2007 to 142 LADs in 2019, meaning a closure of 67 daily local titles.
- The majority of areas in 2019 were served by a single publisher (223 of 380 LADs) – most commonly offering only one local newspaper (150 of 223 LADs). This may have implications for media plurality within local news reporting and beyond, especially as five media conglomerates¹ account for 80% of all regional titles.²

Local news publishers are generally smaller in scale than their national counterparts, making it more challenging to develop their digital propositions or competitive online advertising products. Local news holds a smaller audience share than national news; for example, on mobiles, general news sites generated 44.4 average monthly visits per visitor but local news

sites generated online 7.4 visits.³ These factors contribute to local news publishers struggling to capture audience attention and replace print (cover and advertising) revenues with equivalent online advertising revenues.

The local news market has found itself more vulnerable as impacts of the Covid-19 crisis has strongly exacerbated negative structural trends. As of May 2020, a number of regional and local newspaper groups had announced furlough of or pay cuts affecting staff and suspended print publications; the London Evening Standard temporarily suspended publication of its weekly magazine ES, and City AM, the London daily freesheet, ceased print publication and distribution on public transport.⁴

These factors have, to some extent, restricted commercial media's capacity to supply in-depth public-interest journalism and consequently limited journalism's democratic function at both national and local levels. The capacity of public-funded local journalism is also under threat. In July 2020, the BBC announced 450 job cuts within its English regional TV news and current affairs, local radio and online news divisions.⁵

The relationship between local reporting and democracy

Local journalism has a key role to play in civic society, providing scrutiny of local institutions and providing access to the public to ensure they make informed decisions in civic life.

The commercial pressures facing local news publishers, outlined above, can have a significant impact on local newspapers' ability to perform their civic role. The closure of local and regional news titles has led to underreporting and less scrutiny of democratic functions. Empirical studies – predominantly from the United States – have demonstrated that local journalism supports three aspects of democratic society: civic engagement (including electoral participation), community cohesion, and the use of public finance.⁶

Our analysis focuses on the relationship between local news performance and democratic participation in the UK. We developed an econometric model to establish and test the strength of the relationship between local election turnout and characteristics of local newspaper performance and relevant socioeconomic factors.

Figure 1: What is econometric analysis?

Econometric analysis is a statistical method that estimates the relationships (or correlations) between sets of variables. An econometric regression model consists of a dependent variable (the variable of interest – i.e. local election turnout) and one or more explanatory variables. The model fits a best-fit trendline, determined by the underlying distribution of data values, and computes an equation for that trendline.

This allows the model to determine the relationship between the dependent variable and each explanatory variable, assessing the strength and direction of each relationship, and its statistical reliability. These relationships can then be used to predict the value of the dependent variable for a given set of inputs. This approach allows the model to isolate the impact of the individual explanatory factors on the dependent variable. This allows the impact of changing one particular factor to be analysed, holding all explanatory factors constant.

The econometric analysis technique, choice of variables and robustness of the results depends on the underlying data. Thus, sufficient and representative data is required for a valid outcome.

The data sources, methodology, and findings of the econometric analysis performed by Plum are set out below.

Local election and JICREG newspaper data

We have combined data from three sources.

- JICREG data on local newspaper performance by area, including newspaper circulation and, readership (and population) by demographic group. The data is for three years – 2007, 2012 and 2017.
- Local election turnout data by local authority district (LAD) for the year or nearest subsequent year.⁷ We exclude local election turnout from elections where local and general election ballots have been held together as general election turnout is higher and determined by non-local factors.
- Labour market data from the ONS annual population survey for corresponding years to JICREG data.

The JICREG newspaper data was adjusted to reflect local newspaper performance across LADs (as opposed to individual

newspaper performance within a specified location) and to create a common observation level with the local elections and labour market data which is reported at LAD level. Thresholds relating to circulation and household penetrations were also applied to exclude non-local newspapers captured within the data.⁸

Figure 2 describes the variables included within the combined dataset that were tested within the econometric analysis.

Figure 2: Variables considered in econometric analysis

Variable type (source)	Variables
Local election turnout (provided by DCMS)	Adjusted turnout at local election (variable of interest; dependent variable)
Newspaper variables (JICREG)	Total titles Daily circulation per issues and weekly circulation per issues* Daily and weekly average issue readership (AIR) by gender* Daily and weekly AIR by age group* Daily and weekly AIR by NRS occupational class*
Population controls (JICREG)	LAD adult population LAD adult population by demographic breakdown (by gender, by age group, by NRS occupational class)*
Labour market controls (ONS annual population survey)	Unemployment rate (amongst adults 16-64 years old) Qualification level: % adult population (16-64 years) with no qualifications and % adult population (16-64 years) with higher education (NVQ4+ level)

Notes: * variables are normalised by LAD adult population to allow like-for-like comparison of data points from different LADs.

Methodology

The main econometric technique applied is panel data regression, which exploits variations over time in order to determine the relationship between the various newspaper variables and the dependent variable, local democratic participation (*TURNOUT*).

A panel dataset consists of repeated measurements over time for each cross-sectional member in the data set. For example, we include a measure of local election turnout that corresponds with each year of the JICREG data (2007, 2012 and 2017). We denote by $TURNOUT_{it}$ the value of participation *TURNOUT* in LAD *i* and in year *t*. Similarly, each of the other explanatory variables is indexed by both the corresponding LAD and year; for example, $Total_Titles_{it}$.

Our baseline models to investigate impact of local newspaper performance on local democratic participation ($TURNOUT_{it}$) are based on the newspaper variables set out in Figure 2.

We implement a panel data regression for each set of newspaper variables. For example, we consider the baseline model with total titles.

$$TURNOUT_{it} = \beta_0 + \beta_1 Total_Titles_{it} + \alpha_i + u_{it},$$

where the coefficient of interest is β_1 . This coefficient measures the average impact of $Total_Titles_{it}$ in year t on the dependent variable $TURNOUT_{it}$. The baseline model is adapted to include other variables; for example, replacing titles with variables for average issue readership (AIR) by gender (male, female) variables and including a control for LAD adult population by gender. u_{it} is the idiosyncratic error; in other words, the unobserved factors that impact the dependent variable that changes across both LADs (i) and time (t).

A key component of our approach is that it captures ‘fixed effects’, denoted by α_i . This captures unobserved specific characteristics of LADs that do not vary over time. It incorporates the fact that measurements for each individual LAD are very unlikely to be independent over time. For example, certain geographic, demographic or local cultural features may persist over time and may differ across LADs. Although these are not included in our data, they may be relevant for explaining local democratic participation, and are accounted for by the panel data approach.

We also used an alternative econometric technique, quantile regression, which is used to examine if the newspaper variables have a different impact (the size of β_1) for LADs with different levels of local election turnout for each individual year (i.e. *variation over areas*). However, the quantile regression results appear to be substantially less reliable than the panel data results reflect *variation over time*. This suggests that time invariant factors (such as specific geographic or demographic factors not captured in the data) are important determinants of a LAD’s local election turnout rate. Thus, we do not present the findings of these results below.

Findings from the panel data regression

We find that local newspaper circulation and reach has a positive and significant effect on local election turnout. In particular, the positive correlation between circulation and turnout remains present across our analysis – in other words, areas with higher levels of local newspaper circulation also report higher local election turnout. Our key findings are outlined in Figure 3.

Our analysis indicated that daily newspaper circulation – closely correlated with reach – is a stronger determinant of local election turnout than the number local newspaper titles or weekly newspaper circulation. Increasing daily local newspaper circulation within LAD adult population by 1 percentage point is

associated with a 0.37 percentage point increase in local election turnout, and an equivalent increase in weekly local newspaper circulation leads to a 0.10 percentage point increase in turnout. Introducing an additional newspaper title increases local election turnout by 1.27 percentage points; however, the number of local newspaper titles is no longer an important factor in determining local election turnout the circulation variables is included in the regression.

Figure 3: Summary of baseline model results

Local newspaper measure	Change in newspaper performance	Impact on turnout rate
Daily circulation	A 1 percentage point increase in daily circulation amongst adult population	0.37 percentage point increase
Weekly circulation	A 1 percentage point increase in weekly circulation amongst adult population	0.10 percentage point increase
Local newspaper title	An additional daily or weekly local newspaper title	1.27 percentage point increase
Daily AIR amongst over-65s	A 1 percentage point increase of daily average issue readership by over-65s in terms of adult population	0.50 percentage point increase
Weekly AIR across all age groups	A 1 percentage point increase of weekly average issue readership across all age groups in terms of adult population	Direction (positive or negative) and strength of correlation varies across age groups
AIR amongst C2DE readers	A 1 percentage point increase in daily or weekly average issue readership by C2DE readers (working class occupations and state pensioner) in terms of adult population	0.31 percentage point increase for daily newspapers, and 0.09 percentage point increase for weekly newspapers

Notes: the results from the panel data analysis, which allows for variation over LADs and over time, are presented above.

We also find that reach – measured by AIR – and its impact on local election turnout varies across age groups and occupational class. Readership of daily and weekly local newspapers amongst the over-65s had the strongest, positive impact on overall local election turnout. Daily readership from other age groups is not a key determinant of observed turnout, though weekly readership by 35-44 year olds also had a significant and positive correlation with overall turnout.

We also identified that increasing daily and weekly newspaper AIR by C2DE readers (working class occupations and state

pensioners) has a strong effect to increase turnout; increasing AIR by 1 percentage point increases turnout by 0.31 percentage points for daily newspapers and 0.09 percentage points for weekly newspapers. However, increased turnout is not observed when AIR by ABC1 (middle class occupations) readers increases. Our analysis indicates that increased readership by men or by women did not have any significant impact on observed turnout. Note that the AIR analysis also controls for adult population within the demographic group of interest.

To assess the robustness of our results, we introduced labour market controls (unemployment and education level), and the inclusion of general election turnout in the data (where general elections took place on the same day as local elections).

We found that labour market characteristics alone are important determinants of observed turnout. The explanatory effect of the labour market factors in determining turnout when combined with the newspaper variables lowered the correlation between newspaper circulation or AIR by demographic group and local turnout. Total titles and daily circulation only remain significant explanatory variables when unemployment rate – not education level – is included in the baseline model. Only weekly newspaper circulation continues to have a significant (though modest) effect on turnout when both unemployment and education controls are added. However, this analysis is restricted to non-metropolitan areas due to data restrictions; there is insufficient data to estimate the effect of including unemployment and education controls in metropolitan areas.

When we expand the data set to include local election turnout from elections held alongside the general election ballot, we find that turnout increases by at least 27.5 percentage points. This is captured by the inclusion of a 'general election' dummy alongside the newspaper variables tested in the baseline model.

Limitations of the analysis

There are several limitations and caveats to acknowledge when interpreting Plum's econometric results.

- The analysis does not control for alternate sources of local news consumption, such as online or local radio.

These are substitutes to local newspapers and will be an important factor in determining local democratic participation – and the impact attributed to local newspapers alone.

- The analysis does not control for distribution type (paid, free or mixed) due to a lack of information.
- The JICREG data also does not include hyper-local news publishers and the thresholds applied to help determine localness of a title to a LAD may further exclude small papers.

Despite these limitations, our analysis provides evidence that an increase local newspaper circulation results in higher local election turnout. Increased turnout is also linked to additional local titles and increased readership amongst particular demographic groups.

About the study

This paper is based on Plum's study (co-authored with Dr Gordon Ramsay, Dr Sami Stouli and Stephen Adshead) for the DCMS which examined the recent dynamics of the press sector in the UK and globally. The full study is now published on the UK Government DCMS website, and can be accessed via: <https://www.gov.uk/government/publications/research-into-recent-dynamics-of-the-press-sector-in-the-uk-and-globally>

Plum's econometrics capabilities

We are a leading independent consulting firm, focused on the telecommunications, media, technology, and adjacent sectors. Our strong theoretical and applied understanding of econometrics allows us to identify and quantify relationships between inter-related factors, and to provide an evidence-based approach to media and digital policy research.

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¹ The five media conglomerates within the local newspaper market are: Gannett UK (Newsquest), JPIMedia, Trinity Mirror Regionals (Reach), Tindle Newspapers Limited, and Archart. There were 57 other publishers in 2019, who accounted for 19.7% share of regional and local titles.

² Media Reform Coalition, *Who owns the media?*, March 2019: <https://www.mediareform.org.uk/wp-content/uploads/2019/03/FINALOnline2.pdf>

³ Comscore, *Beyond reach: News engagement in the UK*, November 2019.

⁴ <https://www.theguardian.com/media/2020/apr/01/evening-standard-announces-pay-cuts-and-furloughs-after-ad-slump>, <https://www.theguardian.com/world/2020/mar/25/uk-towns-lose-local-newspapers-as-impact-of-coronavirus-deepens>

⁵ 'BBC announced cuts to English regional TV, radio and online output', BBC News, 2 July 2020: <https://www.bbc.co.uk/news/entertainment-arts-53263793>

⁶ For example: Gentzkow, Matthew, Jesse M. Shapiro and Michael Sinkinson (2009) 'The Effect of Newspaper Entry and Exit on Electoral Politics,' *American Economic Review*, 101, pp.2980-3018

⁷ Local elections do not happen every year. Therefore, for each LAD and each year in the JICREG newspaper data, we use the corresponding local election turnout of the same year or nearest subsequent year if not election was held (up to three years and not after the next year of JICREG newspaper data).

⁸ Newspapers were excluded from the data set if they failed to meet one of the two thresholds, which differ for daily and weekly newspapers. For daily newspapers, a title is retained if it attains 5% or higher household penetration (circulation per household in LAD) or if 10% of the newspaper's total circulation occurs in the LAD. For weekly newspapers, a title is retained if it attains 5% of higher household penetration or if 20% of the newspaper's total weekly circulation occurs in the LAD.