**Econometric base cost models for PR24**

**Consultation response**

## 1. Introduction

1.1. We welcome the collaborative approach Ofwat has taken to cost modelling for PR24. Getting the right cost allowances is critical for companies, customers, and the long term sustainability of the sector overall in terms of continued investment and resilience of this essential service.

1.2. There are four key areas that this response focusses on:

a) The inclusion of average pumping head for wholesale models.
b) The impact of recent significant increases in wholesale input costs.
c) Our comments on the retail cost models.
d) The impact of inflationary cost pressure in retail input costs.

## 2. Part A – the inclusion of average pumping head for wholesale models

**Rationale for the APH cost driver:**

1.1. We strongly welcome the inclusion of average pumping head (APH) in the cost models. APH is one of the most fundamental sector cost drivers. It represents topography which has a direct bearing on energy use and therefore power costs, which make up a material proportion of the sectors' cost base. It is highly correlated with actual power costs, and it is also broadly symmetrical across companies. The rationale for APH has been supported by Ofwat, CMA and most companies.

1.2. We remain of the view that the number of booster pumping stations per length of main (BPL) does not fundamentally measure topography, and we are disappointed that Ofwat appears unable to move away from this position in its latest consultation, given the evidence that has been given to support this over the past few years, by us and others. For example:

- power costs are not correlated to BPL at all, whereas APH has a strong correlation;
- BPL and APH are not correlated to each other, when a correlation would be expected if both were representing topography; and
- fundamental engineering rationale arguments are against BPL, given it is an asset count and therefore does not at all measure the installation size or power capacity of any pumping installation, which would be directly correlated to a requirement to pump to a higher pressure (after accounting for volume scale).

We have included some supporting data in appendix 1 which demonstrates the above points.

1.3. There is a strong rationale to suggest that the BPL cost driver is instead reflecting the size of the asset base in some form, a view we have expressed previously and which CEPA also concludes in its report for Ofwat, commenting on page 60 that "As APH is likely to control for energy costs, it is possible that the inclusion of a booster stations per length variable is more likely to provide a measure of the asset intensity of a network". CEPA also advise that "the engineering rationale for these results should be explored further".

**Data quality of APH:**

1.4. At PR19 Ofwat was concerned about the data quality of APH. We welcome the efforts made by Ofwat and companies to resolve these data issues and in our view the APH data is now consistently reported and demonstrating strong statistical performance, both on the basis of standalone correlations with relevant costs, and within econometric models. Whilst we recognise that APH is a complex variable to derive, relying on a wide range of company data, this is not a reason to exclude such an important variable from the modelling process. In the past, the Ofwat power model was one of the most reliable and consistent models used by Ofwat to assess opex cost efficiency, and had high explanatory power.

**Impacts of not including APH fully in the models:**

1.5. The consultation appears to be proposing to include APH in only a subset of models and to triangulate across models which include APH and models which include BPL. We do not support this approach given that we do not agree that BPL is a suitable driver to represent topography. Any model that includes relevant costs but which does not include APH will mischaracterise historic efficiency and not provide for the right cost allowance going forward, and the impact of the proposed triangulation is to dilute the genuine impact of APH on efficiency and cost allowances in the final output.

1.6. If, for example, Ofwat adopts 50% of models with APH and 50% of models with BPL, and triangulates them equally, then only 50% of the impact of topography is included in the final output. This would require a further correction of cost allowance to account for the remaining gap. In such a model selection, we believe we would still need to put forward a cost adjustment claim, as the models would be incompletely accounting for the topography issue.

1.7. The long term impacts of not fully accounting for topography are clear, in that the underfunding would result in inevitable trade-offs on other types of investment for some companies in order to meet those genuinely higher power costs. It also means that those customers of the companies who are overcompensated for their topography pay more than is required.

**Model quality:**

1.8. We note that in the latest models, APH appears to work slightly better than BPL. The low significance of APH was a key point made by the CMA in PR19 and this issue has been completely resolved with the improvement in data quality.

1.9. One of CEPA's main observations for APH when used standalone or in conjunction with BPL, is the movement it is creating in efficiency scores. This clearly demonstrates the importance of APH within the cost modelling process. These movements should not be considered undesirable, or wrong. Instead, they are simply correcting the efficiency scores to a position of better representation of the industry and individual companies within it, when the right cost drivers are modelled.

**Summary and conclusion:**

1.10. In summary and conclusion:

- APH has a long history of use in setting cost allowances, and its rationale as a measure of topography is accepted by Ofwat, CMA and companies.
- BPL is not an equivalent variable, there is strong evidence to demonstrate it does not represent topography and is instead representing asset intensity.
- The CMA rejected APH at PR19 on the basis of data quality confidence. The latest models perform statistically very well and show that the data quality progress that the sector has made has solved the issues that were previously present at PR19.
- APH should be included in every model which includes those relevant costs, to do otherwise leads to mischaracterised efficiency scores and inappropriate future cost allowances for all companies.
- We therefore support those models which include APH and we do not support the models which use only BPL, as they do not account for topography.

## 3. Part B - the impact of recent significant increases in wholesale input costs

3.1. Ofwat's models rely on the data collected between 2011/12 and 2021/22 at the moment. Prior to business plan submission, the 2022/23 year will have been reported and can be added in to the dataset. Beyond this, it is likely that the 2023/24 year will also be able to be included prior to final determinations.

3.2. During a period of general economic and input cost stability, an historic data set is reasonably reflective of future costs, notwithstanding any company or sector circumstances that may require a step change (such as an increase in investment or new obligation). Price controls are uplifted each year by inflation, which in the round has been assumed to cover increasing costs in normal circumstances.

3.3. For power costs in AMP7, we took a reasonably risk averse view of power costs in our hedging strategy. As shown below, we procured a contract which included a high fixed price component initially for 90% of our usage, reducing in later years to 60% fixed and 40% floating:

| | **2021/22** | **2022/23** | **2023/24** | **2024/25** |
|---|---|---|---|---|
| **Fixed** | 90% | 80% | 70% | 60% |
| **Floating** | 10% | 20% | 30% | 40% |

3.4. The procurement process we went through to secure this contract was robust, efficient, and considered at the time to be a reasonable balance of risk over the period of the contract. Clearly, external circumstances rapidly changed, leading to a huge increase in the market price of energy. We are lucky to be substantially protected via this contract, as clearly we could not have foreseen a war in Ukraine causing a Europe-wide energy crisis. If it was not for this protection, or if our contracted supplier had gone into administration (as many companies in the domestic market did), we would have been directly exposed to market rates for energy. This is a level that would have been materially damaging to our ability to run the business. Thankfully this scenario did not occur.

3.5. However, as the above table shows, in this period we are still not fully isolated from the market rates as part of our contract is floating. We have recently entered into a secondary contract to fix more of the floating 30% for year 2023/24, to protect ourselves against further short term price volatility. However there is a considerable cost premium for doing this further out, so we have not yet fixed any more costs for year 2024/25 or beyond. There is a risk that if we fix too soon and prices fall in future, we would be locked in to higher price contracts, clearly not a good outcome either. At the root cause of these difficult factors is the volatility in the energy market, which we cannot control.

3.6. Our cost allowance is uplifted each year by CPI-H inflation, however the input cost increases we will incur over the five year period, even with our level of energy price hedging, means that these input cost increases will exceed the uplift in cost allowance from inflation over the period. This impact is mostly still to come, in years 2023/24 and 2024/25 of the period. To stay within our cost allowance, this means that to fund these increases we have to make expenditure trade-offs in other areas of investment.

3.7. Based on current projections from Cornwall Insight, we are expecting to see a material increase in energy costs when we exit our current contract at the end of 2024/25. It is not possible, at the present time, to bring costs back to a level comparable with the data history that will be used to assess industry cost allowances via the modelling process. This creates a significant gap between the costs suggested by the models based on history, and the costs which we are facing going forward. We expect these issues to impact all companies at PR24, perhaps to varying degrees.

3.8. For materials, particularly chemicals, we have already seen significant rises in cost. This is driven by cost of production, particularly for chemicals as their production is energy intensive. However we do not have any material hedging arrangements in place as with power, so we believe that we are already seeing the bulk of the cost step changes in 2022/23 and 2023/24. Nevertheless, these are also significant cost increases that were not envisaged within this period which are higher than inflation. Again we expect all companies to be affected to varying degrees.

3.9. It is critically important that Ofwat considers how to deal with this issue in the cost allowance setting process. The current modelled data period from 2011/12 to 2021/22 does not include any of the recent price increases, especially given companies' likely hedging arrangements. It is possible that inclusion of the 2022/23 and 2023/24 data will start to reveal some of these impacts, but this would still only represent two years data out of a full thirteen-year data set by 2023/24, so the impact is still significantly diluted, and the models would not be capable of representing the scale of these future cost changes in their current form.

3.10. We are currently participating in two collaborative research studies with other companies looking at this issue and how RPE mechanisms could be designed to deal with it. These will help inform our views when the projects complete and we would welcome further sector wide dialogue, including Ofwat, to come to a workable solution on this issue.

3.11. Given this is an industry wide issue, we are asking Ofwat for further guidance on how it intends to deal with this. Is Ofwat planning to look at the issue collectively for the sector, recognising the step change that has occurred and likely to persist (based on independent forecasts) at least until 2030? Or does Ofwat want each company to individually set out its specific circumstances and funding gap to the likely models, either as a cost adjustment claim by the June deadline or as a real price effects claim in the October business plan submission?

## 4. Part C – our comments on the retail cost models

### Average bill size cost driver

4.1. We appreciate Ofwat confirming the rationale for the average bill size cost driver in the consultation. Ofwat confirms that this cost driver is primarily related to the amount of revenue at risk if a customer defaults. But also, Ofwat also states that the coefficient of above one also indicates that there is a component of it which relates to propensity to default. We agree this component may be small, but reiterate our view that for those companies collecting charges on behalf of another company, as we do for wastewater charges, that this cost driver could be misrepresenting this issue as the bill is not seen as two separate components by customers.

4.2. In our January submission we argued that the average bill size cost driver was picking up a structural difference between WOCs and WASCs, which was rejected by Ofwat in the consultation. We have undertaken further analysis on this argument to demonstrate this. Our analysis, shown in appendix 2, normalises both bad debt per household and average bill size by the average number of services. This gets WOCs and WASCs on a close to equivalent footing by normalising out the effect of dual services. It is clear from this analysis that there is a difference between WOCs and WASCs. The correlation for WASCs is present, but still very weak in statistical terms. But for WOCs, there is almost no correlation at all. We note that the correlations improve slightly when excluding the Covid years from the analysis, but they are still very weak especially for WOCs. We have verified our analysis with Oxera who concur with our findings.

4.3. There is clearly a structural difference between WOCs and WASCs in this area that is not being appropriately measured by the current cost drivers. It is not appropriate to use models with average bill size under an assumption that there is no structural difference between the two types of company when that is clearly present.

4.4. It is more difficult to understand why this structural difference may be present through an operational rationale. Obviously WOCs only supply for water services, and also are far smaller than the WASCs in terms of area served and typical revenue/expenditure levels. It is also true that most WOCs operate in relatively more affluent areas, with almost all WOCs now being based in the South East of the country. We are an exception to this – with a low average bill but high levels of deprivation in our Midlands region. We do not think the models are accounting appropriately for these differences. The cost drivers currently used are not capable of measuring the likely different debt collection policies of different companies and in our view, these policy choices are likely to have a material impact on bad debt levels with greater influence than the cost drivers currently proposed.

4.5. A partial solution for this structural issue is to include a dummy variable to differentiate WOCs and WASCs within the retail models. We have tested this approach and found that whilst the variable is not statistically significant at the 10% level, it does have the right sign and appears to be more significant than some of Ofwat's other cost drivers such as the average number of County Court Judgements/Partial Insight Accounts, or even the weighted average treatment complexity used in water models.

**Deprivation cost drivers:**

4.6. There is no or very weak correlation between bad debt (normalised by customer numbers and average number of services to remove the scale effects) and any of the deprivation cost drivers (see charts in appendix 2). This is extremely concerning, as it suggests to us that whilst the deprivation cost drivers should in theory be genuine measures that link to costs (we fully support the rationale of them), in practice there are likely to be other factors, particularly management choices on debt collection policy, that are far more materially influencing the data. If this is true, then the efficiency scores and cost allowances produced by the models are not reflecting the way individual companies deal with debt management. This is a similar problem to that expressed in 4.4 above regarding the average bill size cost driver.

4.7. As an example of this effect, SSC performs well in the 'other' retail cost models, which are the models which include all costs except bad debt. But due primarily to the impact of the average bill size cost driver we do not show as efficient in bad debt models. It does not make logical sense that we would be a strong and efficient company on customer service costs, but be weak on bad debt collection, given that these services are not undertaken in isolation of each other but wrapped up in a collective retail service delivery package. Indeed, our analysis shows that we are in the best performing quadrant (higher regional deprivation but lower debt per household per service) of debt collection performance within the sector, which the current form of the models clearly do not detect given a position of relative inefficiency is portrayed for us in the debt models. Appendix 2 chart 3 shows this analysis.

**Covid dummy variables:**

4.8. We largely agree with the inclusion of Covid dummy variables to control for the volatility in data for those years. It is a reasonable short term solution to that isolated issue.

4.9. However, as we pick up in more detail in part D of this response, we think it likely that more material effects will become apparent in the data due to the recent cost of living crisis, which is ongoing. It may mean more data controls are required in future to make models work, and this is not a sustainable solution. Continued economic issues means that a genuine step change in costs needs to be dealt with properly, not excluded as a short-term fix.

## 5. Part D - the impact of cost pressure in retail input costs

5.1. Retail costs are currently not indexed for inflation in-period. This represents an implicit in-period efficiency challenge.

5.2. At PR19, the inflation rate assumed was c.2% per annum, however in the past year inflation has been far higher than this and is expected to continue to be higher in the short term. The bulk of retail costs are labour costs from our direct customer facing operations and back-office support functions.

5.3. The impact of this is that the implicit efficiency challenge envisaged at PR19, of c.2% per annum, is in reality far higher than can be accommodated without damaging service quality. The fact that most companies are exceeding retail cost allowances indicates this is a sector wide issue.

5.4. It is imperative that inflation pressure in retail is recognised at PR24 as there is considerable future uncertainty in this at a national level. We propose that there are two workable options for ensuring inflation is reflected correctly in retail allowances:

- Follow the wholesale approach of in-period inflation adjustments with a separate, independent frontier shift efficiency challenge based on evidence of scope for efficiency improvement in the sector. A labour cost RPE could be implemented alongside this to correct for any wedge between CPI-H and labour costs.
- Build in a fixed inflation assumption into the retail cost allowances, along with implementing a separate, independent frontier shift efficiency challenge. Along with a fixed assumption there would need to be an RPE to correct for the difference between actual inflation and the PR24 assumption.

5.5. We consider it vital that Ofwat considers this issue properly. We completely accept that forward looking efficiency challenges are an important part of setting future cost allowances, but as a company and sector we must retain and attract experienced and competent employees to meet the high service standards demanded by customers and that we all want to see for the sector. Input cost pressures risk damaging this if they are materially above assumptions and presenting an undeliverable efficiency challenge or cost allowance in practice.

**APPENDIX 1: SUPPORTING DATA FOR BPL NOT REPRESENTING TOPOGRAPHY**[1]

Chart 1: almost no correlation between BPL and APH, which would not be the case if both were topography drivers:

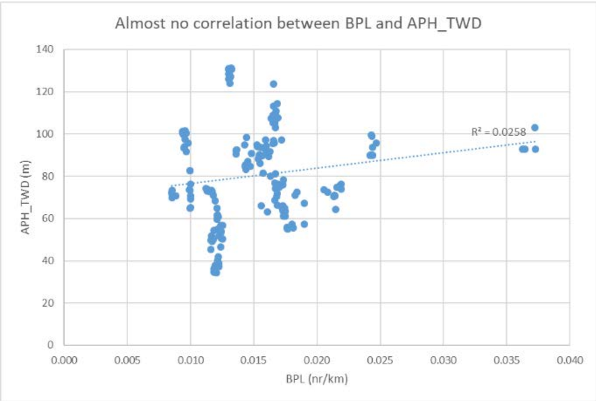
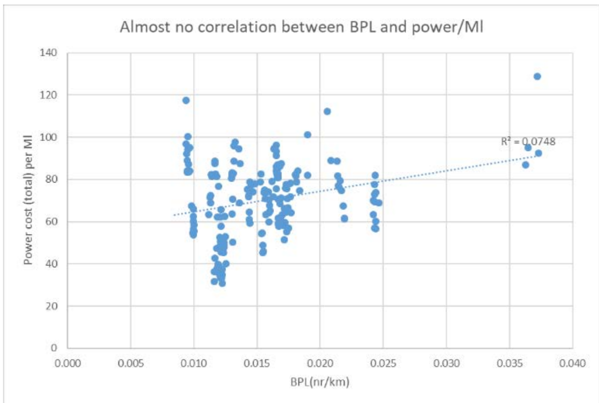



Chart 2: almost no correlation of BPL with power costs per Ml and energy use per Ml:



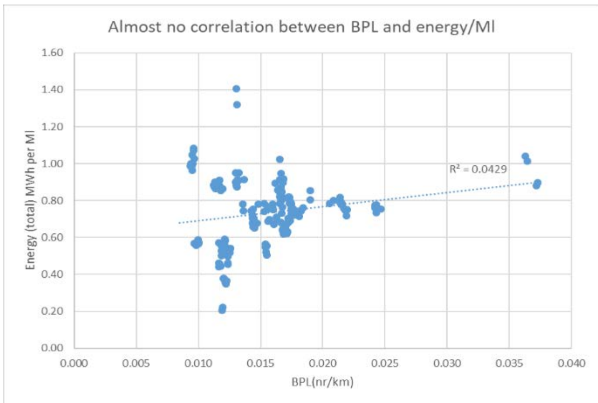
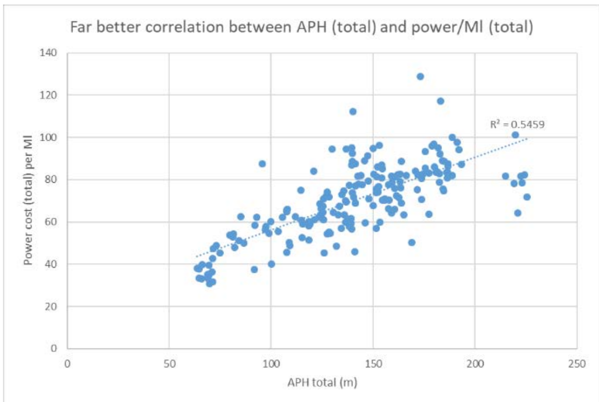
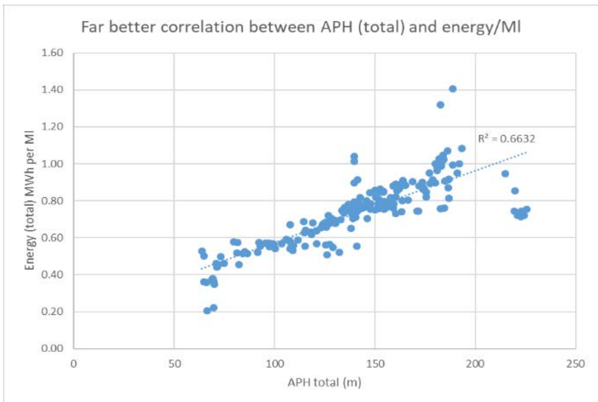




Chart 3: far better correlation of APH with power costs per Ml and energy use per Ml:




[1] Data source for all charts is the April 2023 published PR24-Cost-Assessment-Master-Dataset-Wholesale-Water-Base-Costs-v3.xlsx.

**APPENDIX 2: SUPPORTING DATA FOR RETAIL MODEL CHALLENGES[2]**

Chart 1: structural difference between WOCs and WASCs in terms of bad debt vs average bill size, when properly normalised for scale and number of services.

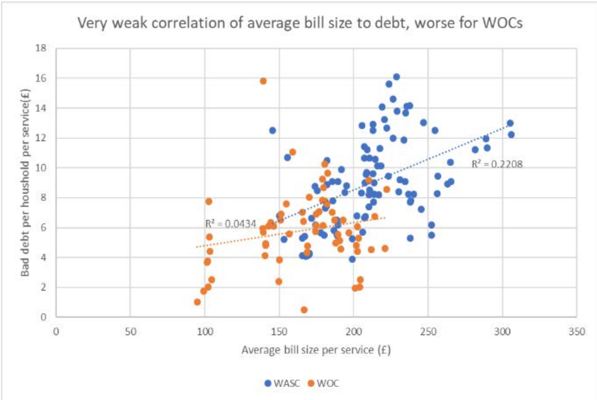
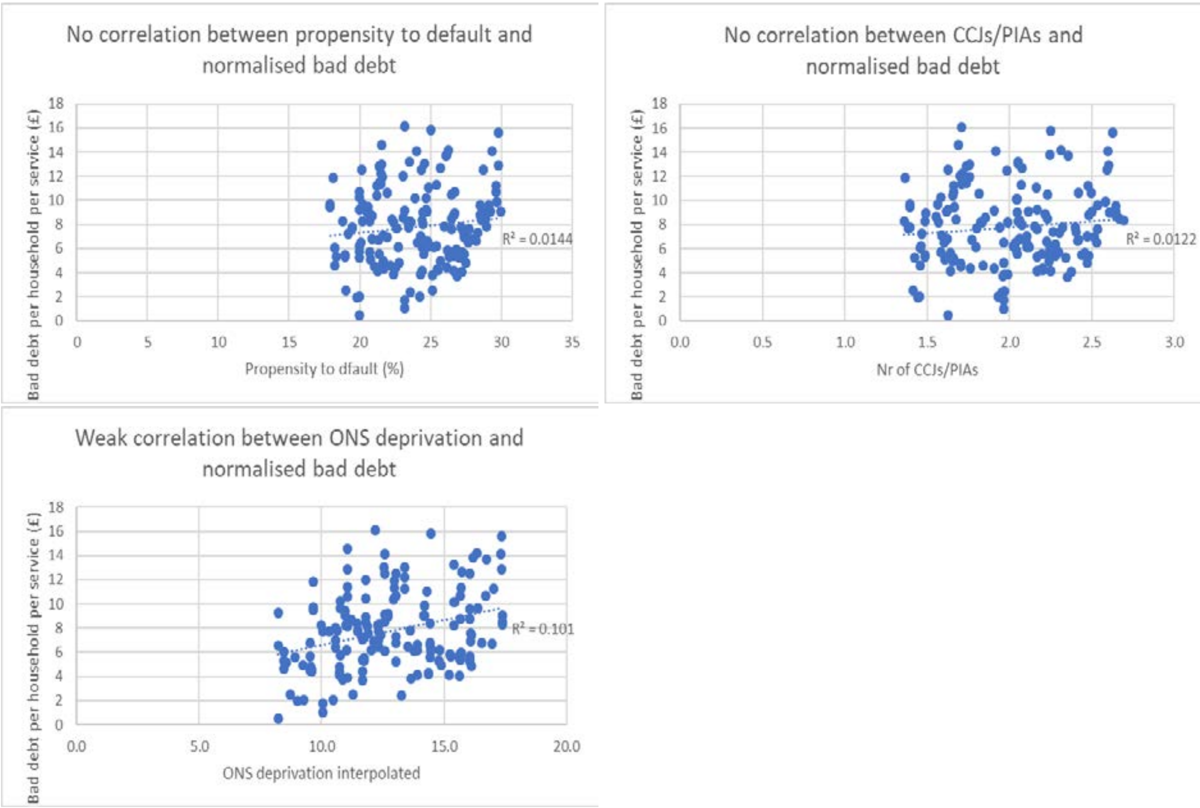
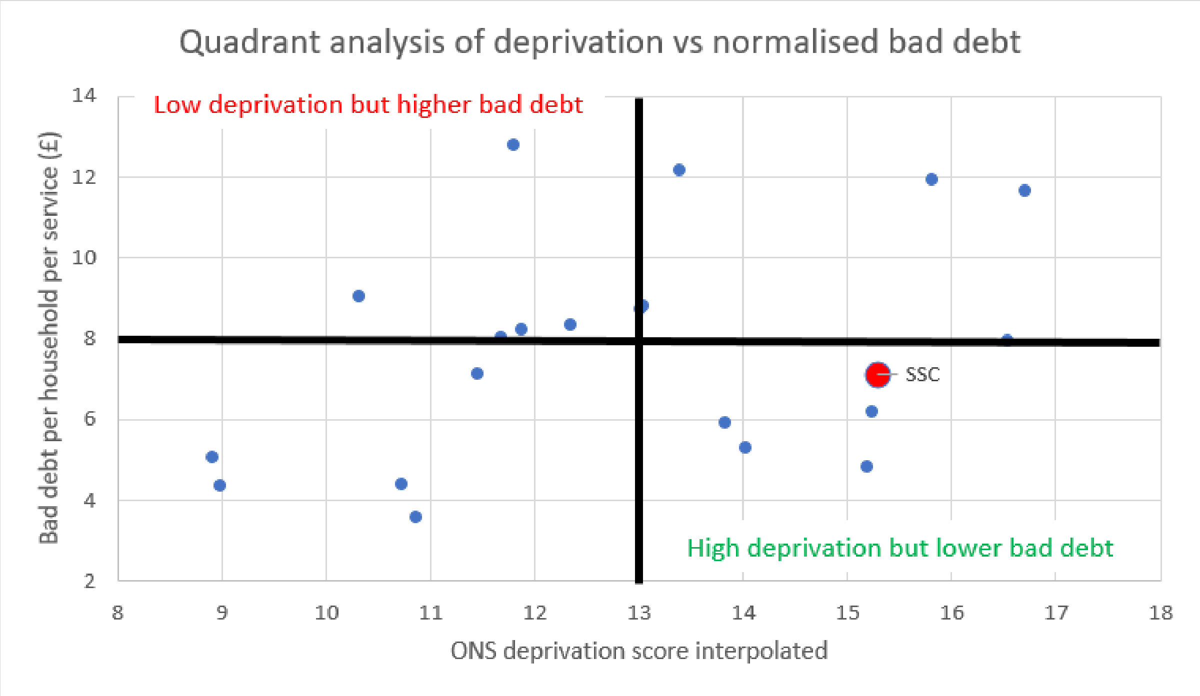



Chart 2: no or very weak correlations between deprivation measures and normalised bad debt.




[2] Data source for all charts shown in appendix 2 is the April 2023 published file PR24-Cost-Assessment-Master-Dataset-Residential-Retail-Base-Costs-v3.xlsx.

Chart 3[3]: quadrant analysis of deprivation against bad debt performance, showing how relatively high deprivation but relatively lower bad debt performance might be able to indicate debt collection effectiveness.




[3] To create this analysis we have normalised bad debt and debt management costs by number of households and average number of services to account for scale in full. Then we have taken the average for each company across all of the years within the data set, and plotted this against the ONS deprivation measure. The quadrants represent relative performance on bad debt levels against the level of deprivation. The quadrant boundaries have been set at the midpoint of the range for each axis.