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EXPLORING WATER POVERTY AND THE DISTRIBUTIONAL IMPACT OF SOCIAL TARIFFS[2]

CONTEXT

Since water was privatised by Margaret Thatcher's Conservative government in 1989, household water bills have risen faster than the rate of inflation. Despite this, the regional water companies have been pressing the regulator OFWAT to raise their charges. OFWAT initially rejected the water companies' demands for an increase of 40 per cent above inflation over the next five years, and proposed an increase of 21 per cent.[3] On 19 December OFWAT announced an average increase in charges of 36 per cent above inflation over the next five years, with considerable variations between companies ranging from a 53 per cent increase for Southern Water customers to 21 per cent for customers of Northumbrian Water and Wessex Water.[4] Across England and Wales, water bills will rise by an average of £123 a year from April.[5]

There is a lot wrong with the water industry. The most salient is its failure to mitigate the pollution of sewage in our lakes, rivers and seas. The tariff structure has also been criticised because, whether you pay by water and sewerage rates or a meter, the standing charge makes bills regressive. There are few mitigations for low-income consumers. The last Labour government reduced bills for South-West Water consumers and there is the Watersure policy for consumers on income-related benefits, but little evidence on take-up and usefulness. Some regional water companies have their own schemes, which vary in levels of support. There are criticisms of OFWAT for not controlling anything effectively, especially executive bonuses and pollution.

There have been a number of calls to make water charges more progressive. The report by the Water Consumer Council suggested four ways by which this might happen,[6] and the purpose of this analysis is to explore how these might affect households.

METHODS

We use the Households Below Average Income (HBAI) data set for the latest available year 2022/23, derived from the annual Family Resources Survey (FRS). The FRS is a large household survey covering the whole UK with very good socio-economic data. The data is weighted to represent the population and adjust for non-response. Our analysis is restricted to England and Wales because Scotland and Northern Ireland have different regulatory

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[2] This analysis was commissioned by Independent Age who were mainly interested in the impact on pensioners. This paper is focussed on all households.
[3] https://www.ofwat.gov.uk/wp-content/uploads/2024/07/PR24-DD-sector-summary.pdf
[4] https://www.ofwat.gov.uk/wp-content/uploads/2024/12/PR24-FD-sector-summary.pdf
[5] https://www.bbc.co.uk/news/articles/cmm26e1qpzgo
[6] https://www.ccw.org.uk/app/uploads/2023/03/Independent-review-of-water-affordability.pdf

frameworks for charging for water. As with our previous research on this topic[7] [8] we have defined water poverty at two thresholds: households spending more than 3 per cent and more than 5 per cent of their equivalised net disposable income after housing costs on water. This is the conventional definition and can be varied (see for example[9]). The analysis also presents the water poverty gap which represents how much more than the 3 per cent and 5 per cent thresholds households spend on water. There are a number of limitations with this analysis:

1. While we can analyse water poverty by standard regions, these do not coincide with water companies' regions. So, we have been unable to take account of the regional variations in the price increases mentioned above.
2. The analysis is based on expenditure and income data in 2022/23 and the new charges begin in 2025 – so we have had to estimate how prices and incomes will have moved between 2022/23 and 2025 and, much more uncertainly, how much more or less than water prices household incomes will increase between 2025 and 2030. We have estimated that real income was increased by 7 per cent between 2022/23 and 2029/30; while water charges were increased by 0.6 per cent between 2022/23 and 2024/2025, and a further 36 per cent up to 2029/30. We have made no assumptions about how much more or less income will rise relative to prices.

The analysis is in three sections

- First, we present water poverty rates and gaps as they were in 2022/23.
- Second, we update these estimates by the expected increases in prices and incomes in five years' time.
- Third, we model the four options for social tariffs and assess their impact.

[7] J Bradshaw and M Huby, Water poverty in England and Wales, *Journal of Poverty and Social Justice*, 21, 2, 2013, pp137-148

[8] J Bradshaw and G Main, *Water Poverty in England and Wales: an update*, 2014 http://spruyork.blogspot.co.uk/2014/09/water-poverty-in-england-and-wales.html
J Bradshaw and A Keung, *Water poverty in England and Wales*, Water Consumer Council, 2021 https://www.ccw.org.uk/app/uploads/2023/03/1.Jonathan-Bradshaw.pdf

[9] J Bradshaw and A Keung, *Exploring some options for reducing water poverty: Analysis for the Water Consumer Council Inquiry into water affordability*, 2021

ANALYSIS

1. Water poverty in 2022/23

Overall, 15.6 per cent of households lived in water poverty in England and Wales in 2022/23 at the 3 per cent threshold, and 7 per cent of households at the 5 per cent threshold. London has the highest rate of water poverty, followed by Wales. The water poverty gap is highest in the South West.

Table 1. People living in water poverty at 3% and 5% thresholds for England and Wales, and by region, 2022/23

	Water poverty based on the 3% threshold			Water poverty based on the 5% threshold		
	N	Percent	Gap (£s) for water poor, Median (P_{25}-P_{75})	N	Percent	Gap (£s) for water poor, Median (P_{25}-P_{75})
England and Wales	3,938,218	15.6%	3.73 (1.56-7.39)	1,770,714	7.0%	5.48 (2.2-11.27)
North East	133,015	11.2%	2.22 (1-3.83)	46,837	3.9%	3.31 (1.45-6.78)
North West	513,488	16.0%	3.44 (1.41-6.69)	202,450	6.3%	5.01 (2.03-9.68)
Yorkshire and The Humber	387,558	16.4%	3.17 (1.32-6.84)	158,964	6.7%	5.46 (2.08-10.51)
East Midlands	247,610	11.9%	3.37 (1.38-6.7)	108,436	5.2%	5.75 (1.67-8.88)
West Midlands	389,108	15.7%	4.11 (1.53-6.92)	181,047	7.3%	5.11 (1.99-9.66)
East of England	378,096	14.3%	3.93 (1.68-7.27)	162,250	6.2%	5.45 (1.79-9.82)
London	739,579	20.5%	4.27 (1.8-8.31)	369,383	10.3%	5.73 (2.41-14.47)
South East	531,641	13.8%	4.31 (1.71-8.68)	267,634	6.9%	6.29 (3.37-13.16)
South West	354,867	14.3%	4.8 (1.83-8.81)	164,970	6.6%	6.38 (3.03-12.14)
Wales	263,256	19.0%	3.16 (1.34-6.63)	108,743	7.8%	4.59 (2.06-9.56)

Table 2 shows that households with one adult and a child or multiple children; those self-identified as Black / African / Caribbean or Black British; and households in relative poverty have the highest rates of water poverty.

Table 2. Characteristics of people in water poverty at 3% and 5% thresholds at 2022/23 prices

	Water poverty based on a 3% threshold		Water poverty based on a 5% threshold	
	N	Percent	N	Percent
Ethnicity of head of household				
White	3,039,846	13.9%	1,306,089	6.0%
Mixed / Multiple ethnic groups	77,706	21.9%	46,919	13.3%
Asian / Asian British	487,423	26.8%	222,555	12.2%
Black / African / Caribbean / Black British	216,989	27.2%	130,902	16.4%
Other ethnic group	108,892	26.5%	59,582	14.5%
Not declared	7,362	43.0%	4,667	27.3%
Low household income flag for 60% of net relative median household income (AHC)				
Yes	3,062,751	57.3%	1,628,171	30.5%
No	875,467	4.4%	142,543	0.7%
Means tested benefits received by the family				
Yes	1,532,858	23.5%	554,017	8.5%
No	2,405,360	12.8%	1,216,697	6.5%
Household composition				
One adult over pension age	304,946	9.4%	127,013	3.9%
One adult under pension age	750,202	18.5%	484,778	12.0%
Two adults, no children, both over pension age	232,995	9.0%	51,926	2.0%
Two adults, no children, one over pension age	170,124	16.0%	62,114	5.9%
Two adults, no children, both under pension age	606,031	11.8%	313,955	6.1%
Three or more adults, no children	333,797	14.9%	150,966	6.8%
One adult with a child/ren	407,114	30.8%	151,870	11.5%
Two adults with a child/ren	913,856	19.1%	357,904	7.5%
Three adults with a child/ren	219,153	25.1%	70,188	8.1%
Disability within the family (benefit unit)				
Yes	1,718,601	16.6%	678,199	6.6%
No	2,219,617	14.9%	1,092,515	7.3%
Whether water charges are metered				
Yes	1,737,429	13.0%	854,848	6.4%
No	1,759,246	17.2%	683,206	6.7%
Whether receive water rebate				
Yes	44,635	13.9%	23,687	7.4%
No	1,687,409	13.0%	828,575	6.4%

2. Projections of water poverty in 2029/30

Table 3 shows that overall water poverty rates are projected to increase to 22.8 per cent at the 3 per cent threshold and 9.9 per cent at the 5 per cent threshold. Water poverty gaps will also increase.

Table 3: Estimations of water poverty at 3 and 5% threshold for 2029/30. Water gaps are shown in weekly £s

	Water poverty based on a 3% threshold - projection			Water poverty based on a 5% threshold - projection		
	N	Percent	Gap (£s) for water poor, Median (P_{25}-P_{75})	N	Percent	Gap (£s) for water poor, Median (P_{25}-P_{75})
England and Wales	5,760,763	22.8%	4.71 (2.17-9.04)	2,502,190	9.9%	6.01 (2.52-12.05)
North East	207,099	17.4%	3.26 (1.42-5.67)	70,376	5.9%	3.3 (1.63-6.77)
North West	777,112	24.3%	4.34 (2.02-8.19)	316,745	9.9%	5.2 (2.04-10.77)
Yorkshire and The Humber	554,181	23.5%	4.71 (2.19-8.75)	221,595	9.4%	6.3 (2.35-13.19)
East Midlands	406,061	19.5%	3.76 (1.61-8.37)	158,248	7.6%	5.53 (2.15-10.13)
West Midlands	576,119	23.2%	4.67 (2.11-8.81)	245,826	9.9%	6.51 (2.91-10.8)
East	538,759	20.4%	5.35 (2.62-8.99)	234,673	8.9%	5.34 (2.78-11.38)
London	979,966	27.2%	5.27 (2.63-10.31)	501,584	13.9%	6.08 (3.06-13.85)
South East	776,199	20.1%	5.1 (2-10.58)	360,771	9.3%	7.52 (2.88-14.13)
South West	557,831	22.4%	4.87 (2.19-10.48)	239,174	9.6%	6.6 (3.03-14.31)
Wales	387,436	28.0%	4.62 (2.11-8.7)	153,198	11.1%	5.49 (2.21-11.07)

Table 4 shows the water poverty rates in 2029/30. Households with one adult and a child or multiple children; those self-identified as other ethnic group; and households in relative poverty will have the highest rates of water poverty.

Table 4: Characteristics of people in England and Wales who will fall into water poverty at 3% and 5% thresholds based on our 2029/30 projections

	Water poverty based on a 3% threshold		Water poverty based on a 5% threshold	
	N	Percent	N	Percent
Ethnicity of head of household				
White	4,583,977	21.0%	1,872,885	8.60%
Mixed / Multiple ethnic groups	86,869	24.5%	60,123	17.00%
Asian / Asian British	646,451	35.5%	321,671	17.70%
Black / African / Caribbean / Black British	268,638	33.6%	158,847	19.90%
Other ethnic group	165,416	40.2%	81,302	19.80%
Not declared	9,412	55.0%	7,362	43.00%
Low household income flag for 60% of net relative median household income (AHC)				
Yes	3,727,108	69.8%	2,196,243	41.10%
No	2,033,655	10.2%	305,947	1.50%
Means-tested benefits received by the family				
Yes	2,261,889	34.7%	914,094	14.00%
No	3,498,874	18.7%	1,588,096	8.50%
Household composition				
One adult over pension age	495,897	15.3%	191,597	5.90%
One adult under pension age	948,150	23.4%	573,809	14.20%
Two adults, no children, both over pension age	440,676	17.0%	100,372	3.90%
Two adults, no children, one over pension age	259,122	24.4%	86,732	8.20%
Two adults, no children, both under pension age	837,610	16.3%	407,033	7.90%
Three or more adults, no children	493,403	22.1%	210,904	9.40%
One adult with a child/ren	540,938	41.0%	227,851	17.20%
Two adults with a child/ren	1,397,997	29.2%	577,917	12.10%
Three adults with a child/ren	346,970	39.8%	125,975	14.50%
Disability within the family (benefit unit)				
Yes	2,563,651	24.8%	1,053,880	10.20%
No	3,197,112	21.4%	1,448,310	9.70%
Whether water charges are metered				
Yes	2,528,622	18.9%	1,182,317	8.80%
No	2,634,343	25.7%	1,021,949	10.00%
Whether receive water rebate				
Yes	65,497	20.4%	26,706	8.30%
No	2,456,711	18.9%	1,151,692	8.80%

3. Social tariffs

We applied four different social tariffs to all households deemed as in water poverty at a 5 per cent threshold that had an estimated annual gross income in 2029/30 below £25,774 (equivalent to the upper threshold for the third income decile).

Table 5: Description of social tariffs used and their cost in 2029/30

Social Tariff	Type	Description	Number of beneficiary households	Yearly cost	Households lifted out of water poverty
Tariff 1	Fixed bill reduction	Discount equals the median gap for those water poor at 5%: £313.38 yearly	1,609,191	£494,515,595	367,855 households (1.46% of the sample)
Tariff 2	Fixed percentage discount	50% discount	1,609,191	£614,936,511	239,371 households (0.95% of the sample)
Tariff 3	Capped bill	Payment capped at median consumption minus median gap for those in water poverty at 5%=£217.16 yearly	1,488,056	£759,404,368	404,568 households (1.60% of the sample)
Tariff 4	Free block of water	Free block of water equal to median gap for those in water poverty at 5%=£245.75 yearly	1,609,191	£392,021,886	193,671 households (0.77% of the sample)

Option One: Fixed Bill Reduction for all customers

Results of modelling social tariff one

Option one would provide a bill reduction to 1,609,191 households, costing £9,483,834 per week or £494,515,595 per year. In terms of getting households out of water poverty, social tariff one would get 367,855 households (1.46 per cent of the sample) out of water poverty at a cost of £2,023,405 weekly or £105,506,407 yearly. Also, 365,491 households (1.45 per cent of the sample) would benefit by getting out of deep water poverty (above 5 per cent threshold) into shallow water poverty (above 3 per cent but lower than 5 per cent) at a cost of £2,196,601 per week or £114,537,366 per year. The water poverty rates at the 5 per cent threshold are summarized in Table 6.

Option Two: Fixed percentage bill reduction

Results of modelling social tariff two

Option two would benefit 1,609,191 households and would cost £11,793,270 per week or £614,936,511 per year. In terms of getting households out of water poverty, social tariff two would get 239,371 households (0.95 per cent of the sample) out of water poverty at a cost of £1,540,701 weekly or £80,336,772 yearly. Also, it would benefit 457,506 households (1.81 per cent of the sample) by moving them out of deep water poverty (above 5 per cent threshold) into shallow water poverty (above 3 per cent but lower than 5 per cent) at a cost of £3,323,209 per week or £173,282,087 per year. The water poverty rates at the 5 per cent threshold are summarized in Table 6.

Option Three: Bill cap linked to water poverty measure

Results of modelling social tariff three

Option three would benefit 1,488,056 households and would cost £14,563,879 per week or £759,404,368 per year. In terms of getting households out of water poverty, social tariff three would get 404,568 households (1.60 per cent of the sample) out of water poverty at a cost of £5,748,234 weekly or £299,730,165 yearly. Also, it would benefit 312,839 households (1.24 per cent of the sample) by moving them out of deep water poverty (above 5 per cent threshold) into shallow water poverty (above 3 per cent but lower than 5 per cent) at a cost of £2,547,182

per week or £132,817,711 per year. The water poverty rates at the 5 per cent threshold are summarized in Table 6.

Option Four: Free block of water

Results of modelling social tariff four

Option four would benefit 1,609,191 households and would cost £7,518,207 per week or £392,021,886 per year. Social tariff four would get 193,671 households (0.77 per cent of the sample) out of water poverty at a cost of £846,886 weekly or £44,159,125 yearly. Also, it would benefit 369,840 households (1.46 per cent of the sample) by moving them out of deep water poverty (above 5 per cent threshold) into shallow water poverty (above 3 per cent but lower than 5 per cent) at a cost of £1,743,050 per week or £90,887,856 per year. The water poverty rates at the 5 per cent threshold are summarized in Table 6.

Table 6: Characteristics of households who will fall into water poverty at 5% threshold based on our 2029/30 projections after including social tariffs

	Social Tariff One	Social Tariff Two	Social Tariff Three	Social Tariff Four
Water poverty in England and Wales	7.0%	7.1%	7.1%	7.7%
Region of residence				
North East	2.6%	3.3%	3.5%	3.3%
North West	6.3%	6.1%	5.7%	7.1%
Yorkshire and The Humber	6.4%	6.3%	5.9%	7.0%
East Midlands	5.3%	5.2%	5.7%	5.7%
West Midlands	6.7%	6.9%	6.9%	7.3%
East	6.4%	6.8%	6.4%	7.0%
London	10.8%	12.0%	11.9%	11.9%
South East	7.4%	7.5%	7.1%	7.8%
South West	6.9%	7.1%	7.0%	7.7%
Wales	6.9%	7.1%	6.4%	7.6%
Ethnicity of Head of Household				
White	5.9%	6.1%	5.9%	6.5%
Mixed / Multiple ethnic groups	12.4%	13.4%	12.1%	13.9%
Asian / Asian British	13.8%	14.4%	14.0%	14.7%
Black / African / Caribbean / Black British	14.5%	16.1%	14.6%	16.5%
Other ethnic group	16.5%	17.9%	16.7%	17.8%
Not declared	8.1%	14.4%	18.4%	14.4%
Low household income flag for 60% of net relative median household income (AHC)				
Yes	27.9%	29.7%	28.4%	31.0%
No	1.4%	1.4%	1.3%	1.4%
Means-tested benefits received by the family				
Yes	9.0%	9.0%	8.4%	10.1%
No	6.3%	6.7%	6.6%	6.8%
Household composition				
One adult over pension age	2.2%	2.5%	2.6%	2.8%
One adult under pension age	9.0%	10.4%	10.5%	10.4%

Two adults, no children, both over pension age	1.7%	1.4%	1.2%	2.1%
Two adults, no children, one over pension age	5.0%	4.7%	4.3%	5.4%
Two adults, no children, both under pension age	5.8%	5.9%	5.6%	6.3%
Three or more adults, no children	7.5%	8.3%	8.0%	8.1%
One adult with a child/ren	11.4%	10.5%	9.5%	12.6%
Two adults with a child/ren	10.5%	10.6%	10.3%	10.9%
Three adults with a child/ren	13.6%	13.7%	13.1%	13.9%
Disability within the family (benefit unit)				
Yes	6.8%	7.0%	6.6%	7.6%
No	7.1%	7.5%	7.3%	7.7%
Whether water charges are metered				
Yes	6.6%	6.9%	6.8%	7.2%
No	6.6%	6.8%	6.4%	7.3%
Whether receive water rebate				
Yes	6.8%	7.2%	7.0%	7.1%
No	6.6%	6.9%	6.8%	7.2%

4. Summary

The prevalence and depth of water poverty is set to rise by 2029/30 as a result of OFWAT's decision to allow water companies to increase their charges by an average of 36 per cent over the next five years. Introducing a social tariff would reduce those rises. Of the options explored option two (a fixed percentage reduction in bills) would have the largest impact on both water poverty rates and gaps. It is also the second most expensive option, costing £615 million per year. Option one (a fixed bill reduction for all customers) and option three (a bill cap linked to water poverty measure) have very similar impacts on water poverty rates and gaps and at similar costs of £495 million and £760 million per year, respectively. Option four (a free block of water) would achieve slightly higher water poverty reduction rates and gaps than options one and three but at the lowest annual cost of £392 million per year. The results are summarized in Table 7.

Table 7: Summary of results

	2022/23	2029/30	Option 1	Option 2	Option 3	Option 4
Water poverty rate at 3% threshold	15.6	22.8	21.3	21.8	21.2	22.0
Water poverty rate at 5% threshold	7.0	9.9	7.0	7.1	7.1	7.7
Median water poverty gap at 3% threshold, £ per week	3.73	4.71	3.66	3. 48	3.57	3.79
Median poverty gap at 5% threshold, £ per week	5.48	6.01	5.49	5.25	5.31	5.60
Annual cost of social tariff, £ million per year			494.5	614.9	759.4	392.0