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Policy in Practice
and LSE

Combining survey and
administrative data
to create representative
real-time poverty estimates

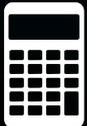# Policy in Practice: What we do

Policy

A team of professionals with extensive knowledge of the welfare system. We're passionate about making social policy work

Analytics

We help over 100 local authorities use their household level data to identify vulnerable households, target support and track their interventions

Software

Our benefit calculator engages over 10,000 people each day. We identify the steps people can take to increase their income, lower their costs and build their financial resilience

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We believe in the power of technology and data to change lives

Objective

Can we combine survey and benefits administration data to create representative, near-real time estimates of poverty and deprivation?

If so, what does this tell us about how poverty in London has changed over the past year?

Working with different data sets

Survey data gives us:

- Detailed demographics
- Representative sample
- Annual or less frequent
- Lag from data collection to data release

Admin data gives us:

- Detailed demographics
- Not representative - selected coverage
- Available in near real-time
- Large sample/population sizes

Why do we want near real-time estimates?

- Central policy making - e.g. £20 uplift
- Local policy making - e.g. targeting discretionary housing payments

Alternative data sources
- COVID-19 Understanding Society surveys (ending soon)
- DWP totals on Stat-Xplore

Why use CTS data?
- Allows for detailed, local-level analysis; this knowledge helps Local Authorities to target support

This is work in progress!

Agenda

1. About the data
2. Weighting method
3. Results
4. Pros and cons of each dataset
5. Conclusions and next steps

About the data

Administrative records from the Council Tax Reduction Scheme (CTR)
- Coverage: all households receiving CTR
- Variables include: household income, other benefit receipt, demographics, household composition
- Note: council tax reduction is not the same as discounts or exemptions (e.g. for single-person households or students - those are not assessed based on income).

I use data from 15/32 London boroughs, part of a project with Trust for London
- Policy in Practice has permission to use this data (in anonymised and aggregated form) for research purposes. Please get in touch with questions about this.
- 15-28% of households receive CTS, depending on the borough
- About 300,000 households/month

Council tax support in London

% of households, based on 2019 population estimates
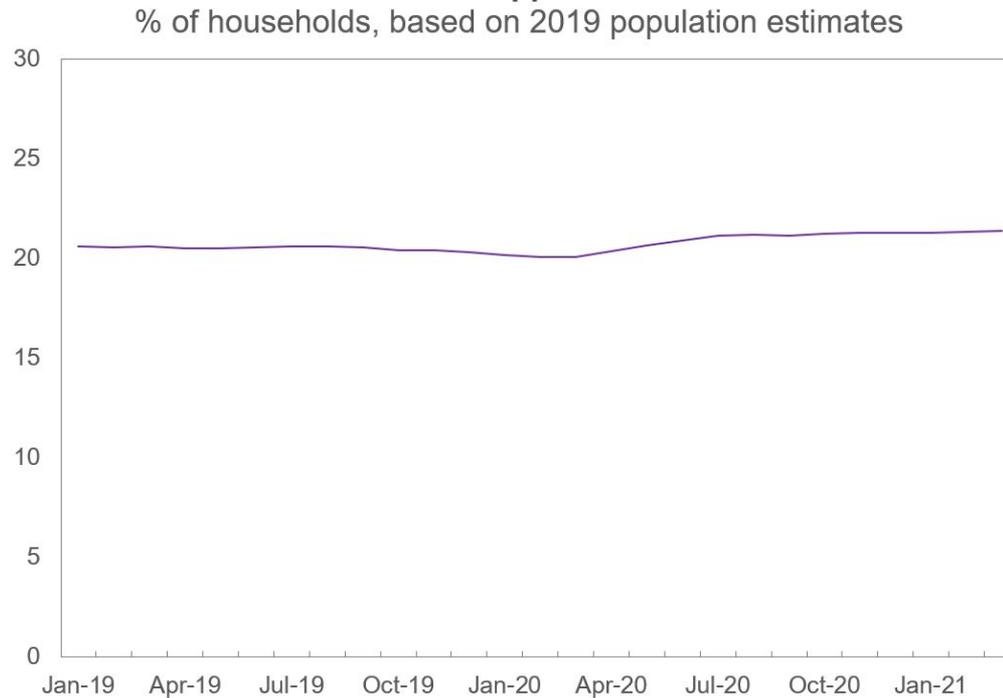
	Households with no CT reduction	Households receiving CTS	Households receiving other CT discount/waiver
Adults per household	2.3	1.53	1.16
Dependent children per household	0.65	0.8	0.21
Number of adults with disability	0.22	0.63	0.3
Renting (%)	46	85	43
Equivalised household income (£/week)	1,176.88	464.84	958.59
In absolute poverty (%)	8	13	16
Absolute poverty gap if in poverty (£/week)	10.85	8.24	17.78
In relative poverty (%)	16	38	27
Relative poverty gap if in poverty (£/week)	23.31	33.44	39.31
Receiving other benefits (%)	40	94	45
Benefit income (£/week excl CTS)	53.02	258.7	72.12
Employment earnings (£/week)	1,068.43	90.44	385.67
Number of households	2,271,578	507,806	746,131
Share of London population	64.4	14.4	21.2

Source: FRS 2018-19

The basic idea

1. Create weights from Family Resources Survey data to account for biases in CTS data coverage:
   a. **Boroughs:** We don't have data on all London boroughs
   b. **Non-benefit households:** We don't have data on households not eligible for benefits
   c. **Benefit take-up**: we don't have data on households eligible for benefits but not claiming them

2. Households in the CTS data that look similar to the missing households/boroughs will be weighed up

3. Count (weighted) number of household in poverty as a share of all households in the 15 London boroughs

Weighting method

- Inverse proportional fitting algorithm (svycal in Stata) - this is a 'raking' algorithm, which iterates until the weighted sample is close to the population targets that I specified
- I used weighting variables same as used in FRS survey's grossing weights, with some changes for data availability. I calculate the appropriate targets for London using (weighted) FRS data:
  - Population: children aged 0-9 and 10-19 by gender; household head's age in 5/10 year intervals
  - Number of dependent children in household
  - Tenure (social/LA renter)
  - Council tax band
- Generate cross-sectional weights for each quarter

But… it doesn't work!

Why?

- The CTS households who look like non-CTS households on some margins are different in unobserved ways. E.g. overall, households in the highest council tax bands are less likely to be in poverty. But households that are in the highest council tax bands *and* get CTS are more likely than the average CTS recipient to be in poverty.
- **If we weight up these households, we're over-estimating poverty rates.**

Population and poverty rates by council tax band in London

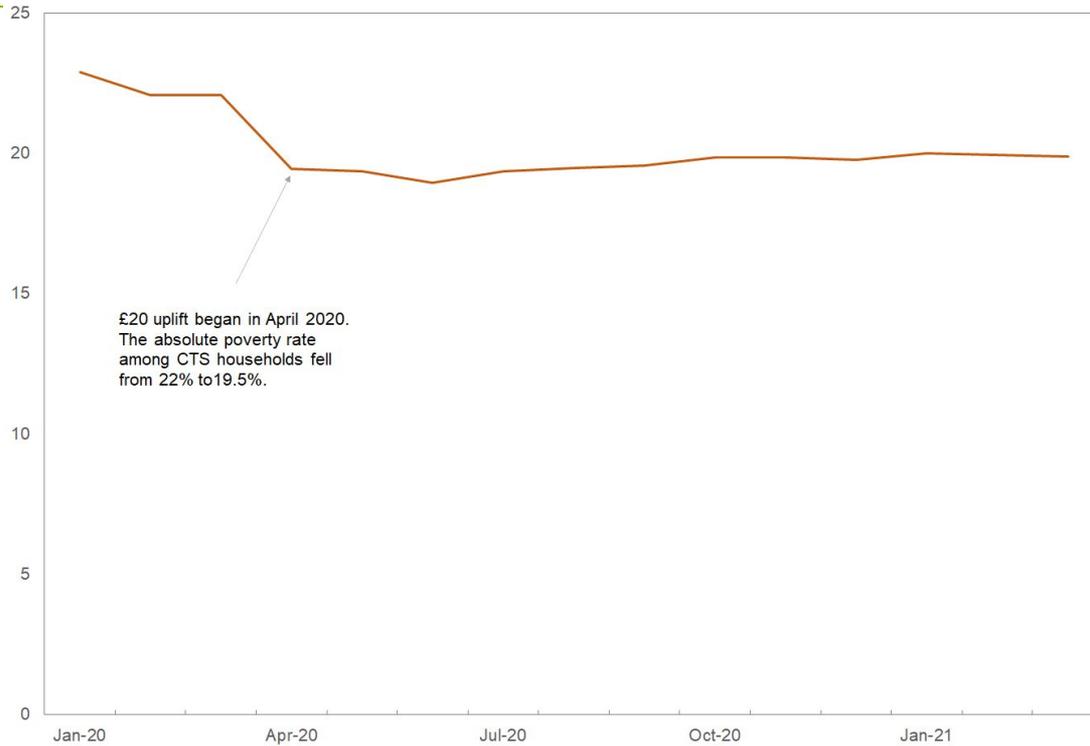| | % in relative poverty | | % of London | |
	FRS 2018-19	CTS data	population (FRS)	% of CTS recipients
Band A	39	35	5	9
Band B	33	32	12	24
Band C-D	20	36	55	55
Band E+	15	40	28	11

A simpler approach

1. Calculate poverty rate by borough by month in CTS data
2. Calculate poverty rate for non-CTS households in 2018-19 FRS
3. Calculate weighted average of boroughs' poverty rates, holding poverty constant for non-CTS households

Note: I calculate the % of households in poverty, while most other estimates calculate the % of people.
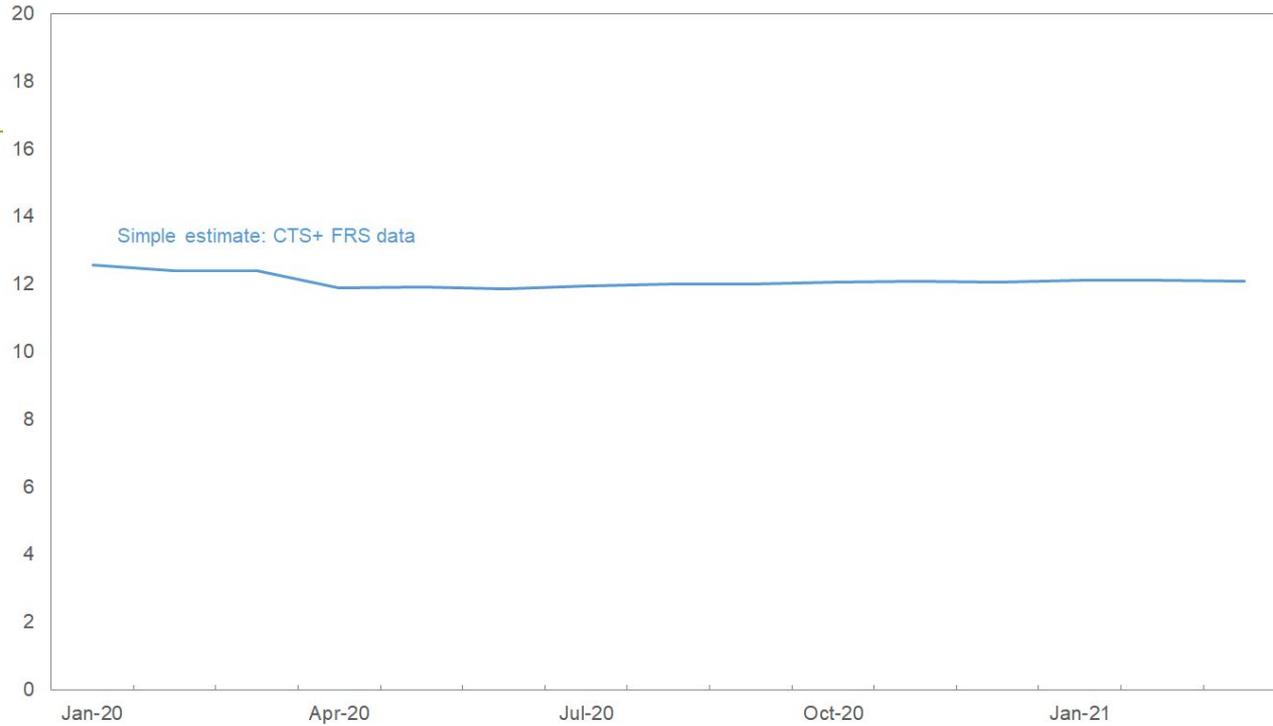
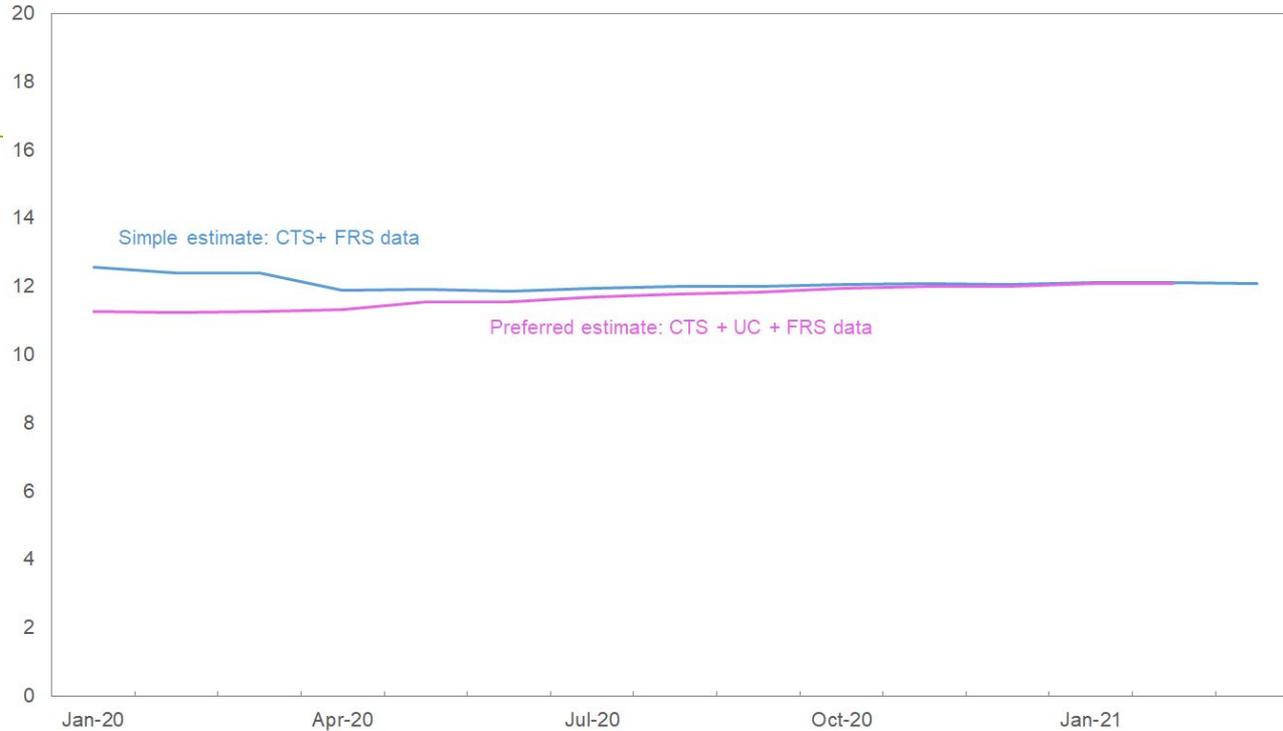**Absolute Poverty Rate BHC**
% of households receiving CTS

£20 uplift began in April 2020. The absolute poverty rate among CTS households fell from 22% to 19.5%.

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Estimated Absolute Poverty Rate BHC
% of households in 15 London boroughs

Simple estimate: CTS+ FRS data

Estimated Absolute Poverty Rate BHC
% of households in 15 London boroughs

Simple estimate: CTS+ FRS data

Preferred estimate: CTS + UC + FRS data

Note: Blue line calculated as % households receiving CTS x poverty rate among CTS households + % households not receiving CTS x FRS poverty rate among non-CTS households. The poverty rate among non-CTS households is based on the 2018-19 FRS, and is held constant over time at 10%.
Pink line is similar but accounts for increase in Universal Credit claimants who are not claiming CTS: % households receiving CTS x poverty rate among CTS households + % households receiving UC but not CTS x poverty rate among those households assumed to be 2ppts below among CTS households + % households not receiving CTS or UC x FRS poverty rate among those households. Poverty rate for non-UC non-CTS households hend constant at 9.9%, as in

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Pros and cons of CTS vs FRS data

The FRS data may be undercounting CTS receipt. Households receiving legacy benefits may be unaware that they receive CTS at all.

- The benefits system is complex. Admin data doesn't rely on respondents remembering or having documentation to hand with all the details of what benefits they claim.
- Relative to a survey, we get more accurate (and longitudinal) information on which benefits are claimed and what they are worth.

My method assumes the poverty rate is constant among households not receiving CTS or UC, and is close to that of CTS for UC households not receiving CTS. But with the increase in UC caseloads over the past year, the composition of households receiving UC may be changing.

- UC caseload increased from 10.5% households in Q1 2020 to 25.5% in Q1 2021.
- Many of these households are likely also eligible for CTS, but we don't know how many.

Summary

- **Objective:** Track current economic conditions, combining the strengths of survey data (representativeness) and admin data (large, higher-frequency sample)
- **Application**: estimate poverty rates, using data for CTS recipients in 15 London boroughs
- **Challenge:** households in the CTS data are not a random selection. Standard weighting methods do not work.
- **Method:** Estimate time-varying poverty rate in the CTS data, building in UC claimants not receiving CTS. Assume poverty rate of non-CTS and non-UC recipients is constant.
- **Conclusion:** Poverty rates among households claiming CTS fell, coinciding with the £20 uplift. But this was likely offset by many more households falling below or close to the poverty line, and who are not claiming CTS. Overall, it is likely that both absolute and relative poverty rates in London have increased.

Conclusions

- CTS data tells us a lot about current conditions for households receiving benefits.
- Applying weights to create population-level estimates is challenging - for the CTS data, it does not give meaningful results.
- I conclude it is best to analyse FRS and CTS data separately, instead of trying to combine the two.
- But there is a lot we can learn from admin data without extrapolating, complementing what we know from the less-frequent survey data. The CTS dataset allow us to ask and answer important questions - for instance, on the impact of the £20 uplift on poverty among benefit recipients.

Next steps for this analysis

1. We can't create weights for households but may be able to do so for boroughs. Refine estimates to account for differences between 15 boroughs in this dataset vs other boroughs
2. Analyse features of the UC caseload, to decide whether it is reasonable to assume poverty rates among UC households are similar to CTS households

Longer-term:
3. We are applying for funding to make these datasets available for research.
4. Incorporating information from Universal Credit (UC) claims for CTS recipients will give a more detailed picture of households' financial situation. In addition, many households in poverty are not receiving CTS. Ideally LAs would also have UC data for non-CTS recipients, to improve their visibility of households in need, and targeting of support.
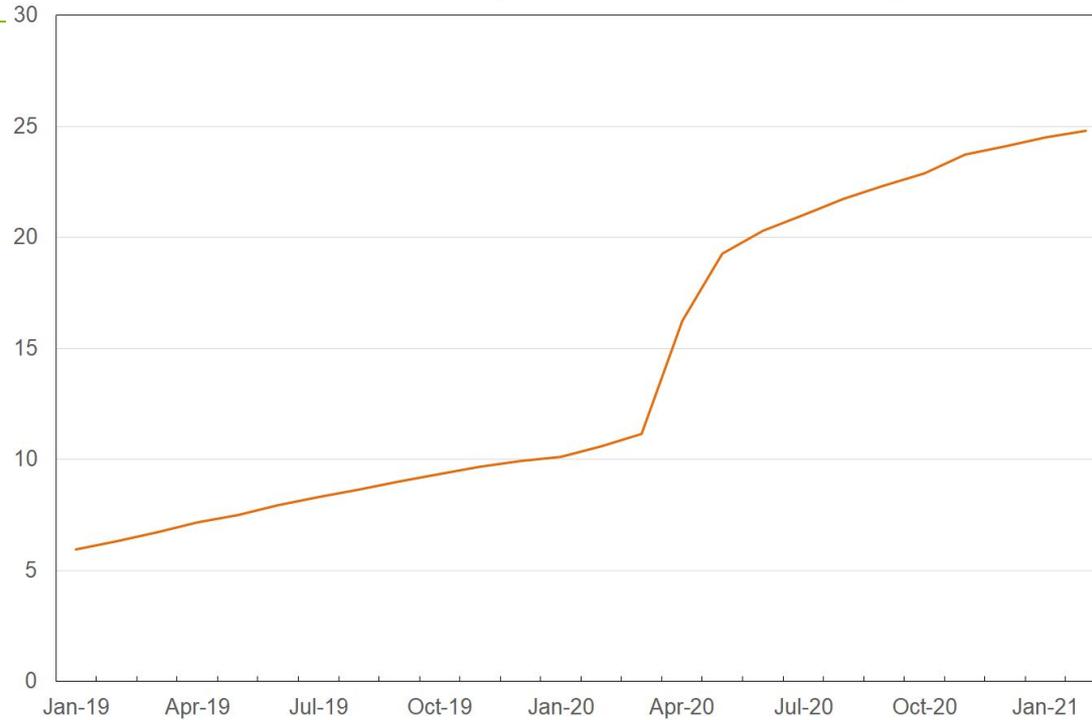
Thank you

Please get in touch if you have suggestions or would like to learn more about this dataset.
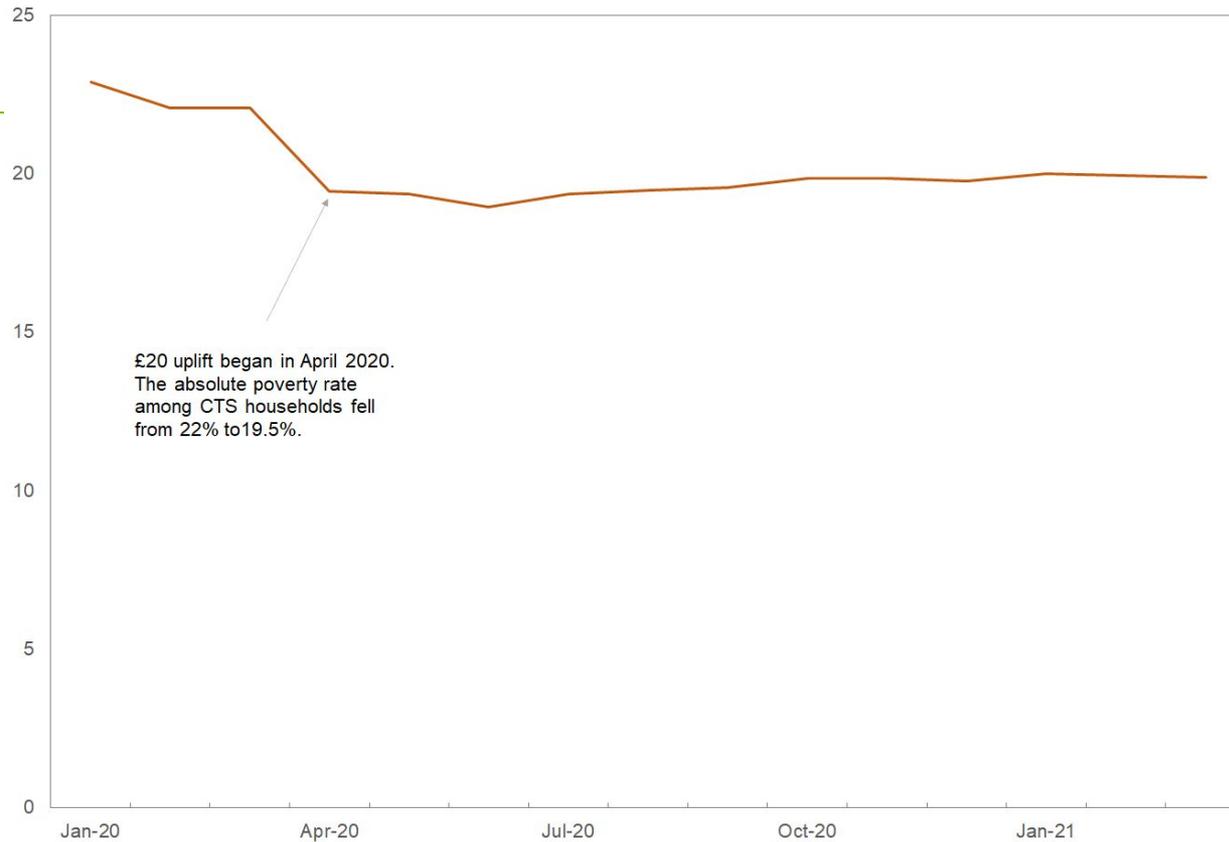
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% of households in greater London claiming UC

Source: DWP Stat-Xplore, 2019 ONS population estimate for London

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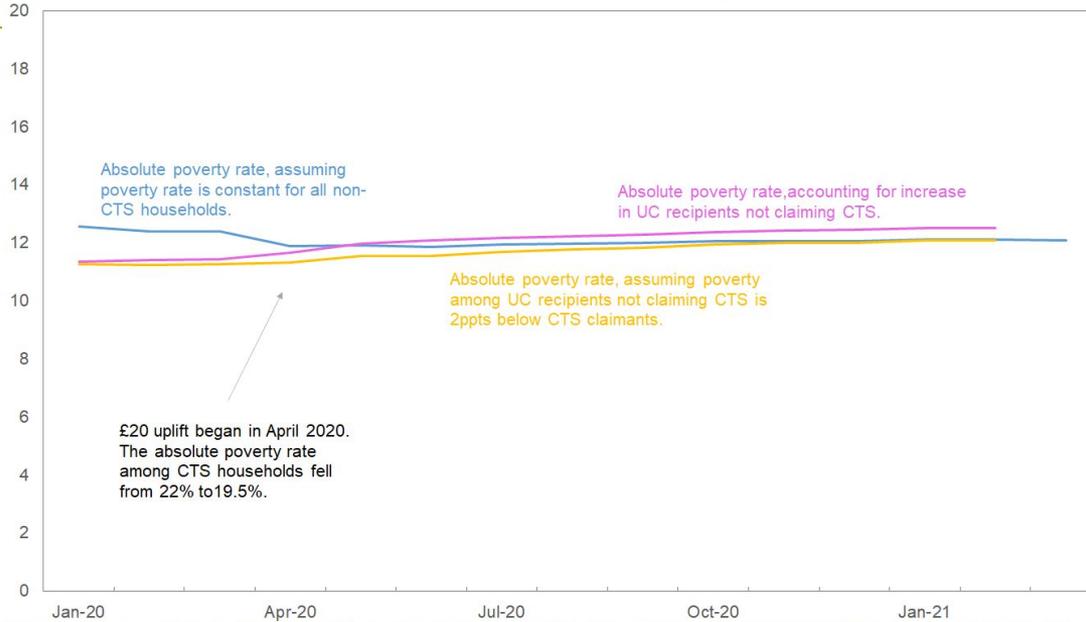**Absolute Poverty Rate BHC**
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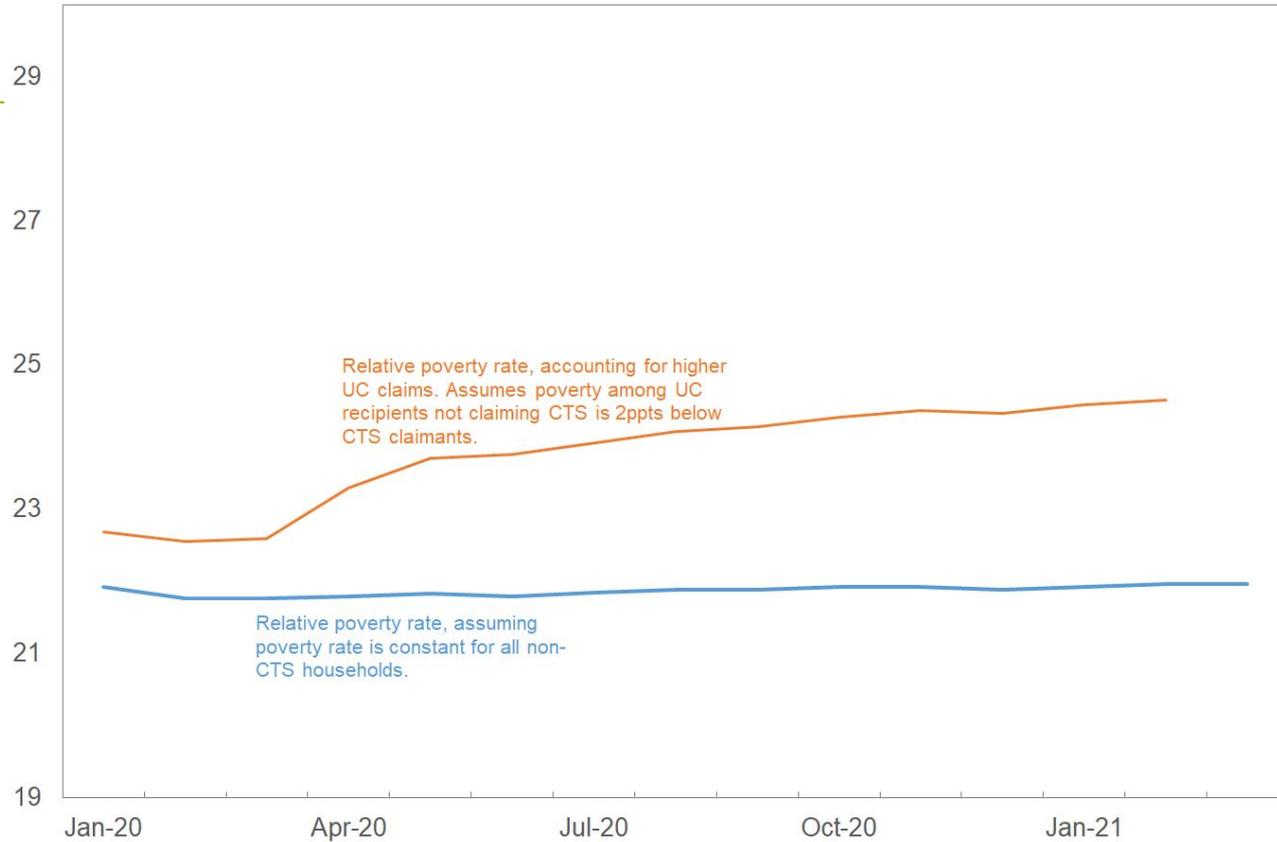
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Estimated Absolute Poverty Rate BHC
% of households in 15 London boroughs

Absolute poverty rate, assuming poverty rate is constant for all non-CTS households.

Absolute poverty rate, accounting for increase in UC recipients not claiming CTS.

Absolute poverty rate, assuming poverty among UC recipients not claiming CTS is 2ppts below CTS claimants.

£20 uplift began in April 2020. The absolute poverty rate among CTS households fell from 22% to 19.5%.

Note: Blue line calculated as % households receiving CTS x poverty rate among CTS households + % households not receiving CTS x FRS poverty rate among non-CTS households. The poverty rate among non-CTS households is based on the 2018-19 FRS, and is held constant over time at 10%.
Pink line is similar but accounts for increase in Universal Credit claimants who are not claiming CTS: % households receiving CTS x poverty rate among CTS households + % households receiving UC but not CTS x FRS poverty rate among those households + % households not receiving CTS or UC x FRS poverty rate among those households. Poverty rate among households receiving UC is held at 22% before April 2020 (from 2018-19 FRS), then reduced to 20% from April 2020 in line with a similar reducation among CTS households due to the £20 uplift. Poverty rate for non-UC non-CTS households hend constant at 9.9%, as in 2018-19 FRS.

Estimated Relative Poverty Rate BHC
% of households in 15 London boroughs

Relative poverty rate, accounting for higher UC claims. Assumes poverty among UC recipients not claiming CTS is 2ppts below CTS claimants.

Relative poverty rate, assuming poverty rate is constant for all non-CTS households.

Percent of households in poverty across 15 London boroughs

	Relative poverty	Absolute poverty
Q1 2020	22.6	11.3
Q1 2021	24.5	12.1
Change:	1.9	0.8

Source: estimates based on CTS data, DWP StatXplore and 2019 ONS estimates of households by borough.