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Evaluating the association between receipt of a winter fuel cash transfer and older people's care needs, quality of life, and housing quality: Evidence from England

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ABSTRACT

Background: Exposure to cold temperatures is known to be associated with deterioration of physical and mental health as well as poorer well-being in many countries. The Winter Fuel Payment, an unconditional direct cash transfer of value between £250-£300, was designed to help older people in England cover heating costs during the winter months, to counteract the particular vulnerability of older people to the effects of cold weather.

Aims: We evaluated the impact of the Winter Fuel Payment scheme on subsequent prevalence of care needs such as being unable to eat or shower independently, quality of life and the likelihood of having cold-related housing conditions. We also explored the potential effects of the Winter Fuel Payment across different sub-samples (poorer/richer individuals, those living in newer/older properties, and in the North/South of England) to explore whether its benefits (if any) are spread equally across the eligible population.

Data and methods: We used a regression discontinuity design approach with age as running variable to analyse seven waves of a nationally representative sample, the English Longitudinal Study of Ageing, covering the period 2002/2003 to 2016/2017, and consisting of 24,651 observations.

Results: The Winter Fuel Payment had no overall effect on the outcomes of interest (care needs, quality of life, and cold-related housing problems). However, the Payment increased quality of life for poorer individuals, for those living in Northern regions of England, and for those living in newer dwellings. The likelihood of living in a property with at least one cold-related housing problem also decreased for those living in newer properties.

Conclusions: Findings from this research provide important insights into the effectiveness of a winter cash transfer among the older population in England, and they are potentially relevant for other nations looking for strategies to deal with cold seasons and poorly insulated homes. In particular, this evaluation contributes to the 'universality versus targeting' policy debate and has implications for the development of energy-efficient policies.

1. Introduction

Cold conditions have been identified as a risk factor for mortality in many countries - including those generally with warmer weather and milder winter seasons (Zhao et al., 2021; Falagas et al., 2009; Gasparrini et al., 2015; Healy, 2003; Nguyen et al., 2023; Public Health England, 2014). Low temperatures have been linked not only to increased mortality, but also to respiratory and cardiovascular illnesses which themselves may also be directly or indirectly associated with a colder environment (Analitis et al., 2008). For instance, low temperatures may inflame lungs and worsen the symptoms of respiratory conditions - such as asthma and infections - and induce vasoconstriction associated with heart diseases and stroke (WHO, 2018). Contextual, socio-economic, and housing quality-related factors play important roles in determining whether a dwelling can shield its members and stay sufficiently warm. Among those factors are income, energy prices, energy needs and insulation levels (WHO, 2018). People who are not able to heat their homes to satisfactory levels face a higher risk of deterioration of physical and mental health and report lower well-being levels (Thomson et al., 2017; Liddell and Morris, 2010; Sharpe et al., 2022; Davillas et al., 2022). They are also at greater risk of developing long-term care needs (Authors, in submission).

In this context, studying the consequences of living in cold conditions becomes very relevant for development of public policy, particularly in

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the Global North (Daniel et al., 2021; Liddell et al., 2016). For instance, in England, the concept of 'affordable warmth' was placed firmly on the national policy agenda under the Warm Homes and Energy Conservation Act 1997–1998 (House of Commons, 1998), and programmes such as the Winter Fuel Payment (WFP) were designed to help older people to cover heating costs in winter. Older people are considered vulnerable to the effects of cold temperatures and nutritional deficit (Millyard et al., 2020).

The WFP is a direct and unconditional cash transfer that targets people above State Pension age in the UK - currently 66 years old (UK Government, 2023). It is universal for people in that age group and paid as a tax-free and non-means-tested lump sum between November and December each year, with the rate increasing since its introduction in 1997 (UK Government, 2023). Presently, depending on their date of birth and living circumstances (their partner's age and benefits received), an older person could receive between £250 and £300 per month (UK Government, 2023). Whilst the WFP is a labelled cash transfer and may meet its aim of reducing cold housing, it may alternatively, or additionally, operate to boost income or reduce poverty. Recipients are not obligated to spend this benefit on energy bills (Angelini et al., 2019) and it has been estimated that around half of the WFP is actually spent on fuel (Beatty et al., 2014).

The effect of WFP on health (self-rated health, and biomarkers such as blood pressure) and mortality has been studied in previous research (Angelini et al., 2019; Iparraguirre, 2015; Crossley and Zilio, 2018), but evidence of its effectiveness is mixed. One reason for inconclusive findings could be methodological, making comparisons difficult. For instance, Crossley and Zilio (2018) using the English Longitudinal Study of Ageing (ELSA) and performing a Regression Discontinuity Design (RDD) approach, found that the WFP was associated with higher levels of hypertension and biomarkers associated with infection and inflammation. On the other hand, Angelini et al. (2019) aimed to establish a link between the WFP and indoor temperatures, and between the latter and health outcomes such as blood pressure and blood clotting disorders using a Random Effects Model; they were unable to find enough evidence to support their hypothesis. In addition, while the universality of this benefit has been thought to avoid stigmatisation of recipients, and therefore supported its uptake, it has been criticised by some as not being sufficiently well-targeted on those living in fuel poverty and therefore not making good use of taxpayers' money (Lawton and Stanley, 2009; House of Commons Energy and Climate Change Committee, 2013).

Previous research has not explored the potential effects of WFP beyond mortality risk or physical health outcomes. Gaining a better understanding of the potentially wider effectiveness of a cash transfer is paramount for organising and providing a fairer welfare system. The potential consequences of WFP for reducing social care needs (and associated use of services), improving quality of life, and improving housing conditions are clearly relevant for the design and implementation of social policies, particularly given the expectation of a growing older population and more extreme weather conditions due to climate change.

Therefore, in this study, we aimed to i) investigate the effect of the WFP scheme on the prevalence of care needs among older people in England, measured as the proportion of individuals needing support with activities of daily living (ADLs), as well as explore its effect on quality of life; ii) explore the possibility that people may use this benefit to improve housing conditions associated with keeping more suitable indoor temperatures; and iii) examine the potential differential effects of this cash transfer for poorer households and for people living in older (less energy-efficient) dwellings, as well as considering regional disparities.

2. Data and Methods

The effects of the WFP were analysed by using a large representative sample of people aged 50 years old or older living in England. The sample includes 24,651 observations obtained from pooling seven waves of the English Longitudinal Survey of Ageing (ELSA; Banks et al., 2023): wave 1 (2002/2003) to wave 8 (2016/2017), with wave 7 (2014/2015) being excluded due to information on WFP being missing to researchers (although originally collected in the survey). The key variables of interest were care needs - measured as the proportion of individuals needing support with activities of daily living (ADLs), quality of life, the presence of cold-related housing conditions, and the age at which individuals became eligible to receive the WFP.

2.1. Outcomes

We included several outcome measures in our analysis. Care needs were measured by a binary variable capturing whether individuals need support with any ADLs. Questions on activities such as getting in or out of bed, dressing, walking across a room, bathing/showering, eating, and using the toilet were asked to survey respondents and had a binary yes (1) or no (0) format in ELSA. We also explore the consistency of our results by counting the total number of ADLs for which individuals need support. Quality of life was assessed by CASP-19, a self-reported scale. It covers four domains: control, autonomy, pleasure, and self-realisation (Hyde et al., 2003) and in ELSA was restricted to 8 out of the 19 original questions (Howel, 2012). Response options were coded as a 4-point Likert scale ranging from 0 ("never") to 3 ("often"). A total score is calculated and values from 0 to 57 are obtained (domains are not usually analysed independently): higher scores indicate higher levels of quality of life.

As the cash transfer could well be used to improve the quality of accommodation, a binary variable was also constructed to capture whether individuals experience any cold-related housing conditions. The latter, in many circumstances, are a consequence of warm moist air coming into contact with cold surfaces such as windows and walls. In this regard, questions found in ELSA included the existence of rising damp in floors and walls, water getting in from the roof, gutters or windows, bad condensation problems, and being too cold in winter. Answers were coded as Yes (=1) or No (=0).

2.2. Heterogenous treatment effects

While the WFP is universal, effects are unlikely to be uniform across the population. In this study, we focused on exploring the effect of the WFP on outcomes of individuals who live in different regions of the country (North and South), those living in older and newer dwellings, as well as those that belong to the richest and poorest income quintile. In the latter, the WFP amount received can be proportionally higher in terms of their overall household budget. We also explored the effect of the WFP among people living in older properties and those living newer dwellings, as there is evidence that older buildings have lower levels of energy efficiency (Department for Work and Pensions & ONS, 2022), and so the extra resources may be less effective in keeping households warm. Regional differences were also investigated to consider differential weather conditions: winter mean minimum temperatures vary from 0 to 3 °C in Southern areas to below −0.5 to 2 °C in the North (Met Office, 2016), potentially leading to differences in expenditure on electricity and gas. There are also regional disparities with regards to energy prices. For instance, in 2022 the highest electricity tariff was found in London and the lowest in Yorkshire (Department for Energy Security and Net Zero, 2023). In our analysis, London, the South East, the South West, and the East of England were considered Southern areas, while the East Midlands, the West Midlands, the North East, the North West, and Yorkshire and the Humber were coded as Northern areas.

Based on this evidence, one would expect that the WFP would reduce care needs, improve quality of life, and/or reduce the number of housing (cold-related) conditions as indoor temperatures become more suitable for habitation. Nevertheless, assuming that individuals living in older

homes would need to spend more resources to keep their indoor environment warm, we hypothesise that the monetary value of the WFP cash transfer may not be enough to improve the outcomes of interest for this group.

2.3. The Winter Fuel Payment (WFP) cash transfer

As noted earlier, the Winter Fuel Payment (WFP) is a universal (non-means-tested) cash transfer paid to households occupied by an individual who, in the qualifying week in the relevant year, has reached State Pension age (cut-off for receipt eligibility). The WFP was first implemented in 1997 (Department for Work and Pensions & ONS, 2022) and consists of one lumpsum payment made annually (usually in November or December) for those who are eligible. The programme aims to help older people meet the higher costs of energy bills between December and February (Angelini et al., 2019). The reception of the WFP is not necessary via an application process, but automatic if individuals already receive the State Pension or any other welfare benefits (Department for Work and Pensions & ONS, 2022), so compliance is high. The monetary amount received has increased over time, from £20-£50 when first introduced to £100-£300 during winter 2017/2018 (Department for Work and pension & ONS, 2018), which is the last year included in the analysis in this study. While the payment is labelled to be spent on fuel to warm up people's homes (e.g., to pay electricity and gas bills), it is unconditional: that is, there is no obligation to spend any of it on household fuel (Beatty et al., 2014).

2.4. Empirical strategy

The evaluation of a policy intervention such as the WFP is challenged by the fact that those receiving its benefits are somewhat in a more disadvantaged position compared to those who are not eligible. Therefore, evaluation of their impact usually involves the creation of a group of individuals that behave similarly to those receiving the intervention before it was implemented. Given the sharp assignment rules regarding WFP eligibility, the Regression Discontinuity Design (RDD) approach was chosen to create a credible comparison group. In RDD, assignment of treatment and control is not as random as it is in a randomised control trial, but based on a clear cut-off point of an observed continuous variable (such as age or income). The latter is known as the 'running variable'. The core idea is that individuals near the cut-off point (to the left and right) should be so similar that they behave as if they have been randomly assigned (or not) to 'treatment' (Thistlewaite and Campbell, 1960). Therefore, when performing RDD, causal inference is made by comparing individuals either side of the cut-off point. One of the main limitations of RDD is that the evaluation of the programme or intervention of interest is only performed near the eligibility criteria (at pension age). More specifically, RDD estimates *local* average treatment effects around the cut-off point (as opposed to an average treatment effect), where treatment and comparison units are most similar (Cattaneo and Vazquez-Bare, 2017). The representation of the main empirical strategy is found in equation (1) below:

$$Y_i = \beta_o + f(x_i)\beta_1 + W_i\beta_2 + f(x_i)W_i\beta_3 + \mu_i \quad (1)$$

Y_i: Outcome of interest

x_i: Running (continuous) variable, age of the oldest member of a household.

$f(x_i)$: Function associated with the running variable x_i. $f(x_i)$ is equal to x_i if $f(\,)$ is a linear question.

W_i: Dummy variable that takes the value of 1 if $x_i \geq c$ or the value of 0 if $x_i < c$, where c is the cut-off point (i.e., pension age).

β_3: Local treatment effect of the intervention (WFP)

RDD requires relatively few assumptions compared to other quasi-experimental methodologies and has been widely used in applied economics studies (see for example, Cook, 2008; Imbens and Lemieux, 2008; Lee and Lemieux, 2010), becoming more popular in health, political and social sciences research in recent years (Valentim et al., 2021; Bonander et al., 2022; Oldenburg et al., 2016). The main assumption of RDD is that individuals have no control over the running variable, which is obviously the case here as individuals cannot decide their date of birth nor the WFP qualifying week. There is, however, a complication in evaluating the effects of this programme: the eligibility criterion goes in line with the reach of State Pension age, and thus, it is not straightforward to disentangle the two effects. To resolve this issue, we exploit previously different State Pension ages for men and women in England which is explained in the Identification method section below.

2.5. Identification method

To identify people qualifying to receive the WFP (without being eligible for State Pension age), we benefited from the fact that, until 2009, women reached State Pension age on their 60th birthday, while men reached State Pension age at 65 (UK Government, 2023). Under the Pensions Act 1995 and Pensions Act 2011 UK Government (2023), State Pension age has gradually been increasing over time since then to first reach 65 for women (same as for men) for those born on or after November 6, 1953 in November 2018. Therefore, during the period 2002/2003 (wave 1) and 2008/2009 (wave 4), any household with a member over the age of 60 at the qualifying week was eligible to receive the WFP. In 2010/2011 (wave 5), any household with a member over the age of 60 and 7 months at the qualifying week was eligible to receive the WFP. In 2012/2013 (wave 6), it was households with a member over the age of 61 and 3 months, and in 2016/2017 (wave 8) over the age of 63 and 6 months. Between 2018/2019, the age of retirement increased faster, and therefore, from 2019 onwards, women and men reached State Pension age at the same time. Therefore, we excluded these data points from our analysis. The discontinuity in the running variable is thus expected to be found between 60 and 63, depending on the wave of analysis.

To avoid having two concurrent interventions (WFP and reaching pension age), we followed the same identification strategy as in Crossley and Zilio (2018) and Beatty et al. (2014), but we performed RDD on additional outcomes of interest – care needs, quality of life, and housing quality – as well as exploring the heterogeneity of local treatment effects. For this, we followed Crossley and Zilio (2018) in restricting the "analysis sample to single men and couples in which the man is the oldest member of the household. Therefore, we excluded single women and couples in which the woman is the oldest member because such households qualify for the WFP and the woman's State Pension simultaneously." In our selected sample, therefore, in any household in which the oldest member is male, eligibility for the WFP and State Pension are not concurrent. This will always be true in our analysis as we are only including data collected before the State Pension age for women and men became the same. As long as there is a gap in qualifying State Pension age across gender groups, we can disentangle the effect of the WFP and retirement associated consequences.

As previously mentioned, eligibility for the WFP depends on reaching State Pension age by the oldest member of the household by the qualifying week of each year. However, date of birth is not available to researchers in ELSA (for confidentiality issues), and 'age' is provided as an integer (i.e., 61 years old and 11 months has been coded as 61), thus, it is not possible to directly establish whether, at the interview date, individuals were or were not going to reach the age needed to be eligible by the yearly-selected qualifying week. Therefore, the following identification procedure was implemented.

In waves 1 (2002/2003) to 5 (2010/2011), if the age of the oldest member of the household (i.e., the male individual) was 62 or more at the time of the ELSA interview, the household was identified as receiving WFP - as their members were certainly eligible. On the other hand, if the oldest member of the household was 59 or younger at interview, the household was identified as not being eligible. Those aged 60 or 61 at interview date were both possibly in or out of the cut-off

point (60) at the qualifying week (i.e., individuals could have turned 60 after the qualifying week or were 60 at the qualifying week, then could have turned 61 just before the interview date). Thus, we use additional information provided in ELSA on whether individuals have received the WFP within the last year. For instance, those aged 62 or more in January 2003 were certainly eligible to receive the WFP, whereas those aged 59 or younger were definitely not eligible to receive it. However, those aged 60–61 at the interview date could have been eligible or not: a household will have received a WFP as long as the oldest member was aged above 60 years at the qualifying week. As we do not have date of birth, we assign the age of 60 to those living in households that (self-)reported to be receiving the cash transfer at the qualifying week and 59 for those that did not. In wave 6 (2012/2013) and wave 8 (2016/2017), we followed a similar procedure, but using a different cut-off point: 61 and 63, respectively.

2.6. RDD specification

We used a sharp (deterministic) RDD, as the probability of being eligible for the WFP changes from 0 to 1 at the cut-off (Hahn et al., 2001). We performed a non-parametric local RDD which does not require functional form assumption and puts more weight on observations closest to the cut-off (a strength of this approach as opposed to the use of a parametric RDD where all the observations are used equally). This allows the slope of the prediction to change either side of the cut-off (Hahn et al., 2001; Calonico et al., 2019). Bandwidth size (the smoothing degree in the sample) was selected using the Coverage Error Rate (CER) (Calonico et al., 2021) and we used robust bias-corrected standard errors (Calonico et al., 2019, Hyytinen et al., 2018). To ensure consistency within sub-groups, the same CER-optimal bandwidth was applied when comparing, for instance, households living in the North and South of England, poorer and richer households, and across different property ages.

2.7. Robustness checks

Based on RDD assumptions, covariate adjustment is not necessary. Nevertheless, we tested different bandwidth sizes and kernels (weights) and added control variables (waves), which increase efficiency of the estimator (Calonico et al., 2019). We also tested our results adding 'employment status' as a covariate, to reduce the risk of cofounding (the effect of the WFP cash transfer being tangled with the effect of retirement decisions). In addition, we tested the robustness of our specification using a parametric RDD including linear, quadratic and cubic trends in the running variable. We also ran placebo tests to explore whether outcomes were discontinuous at ages outside the range for eligibility. This involved testing other cut-off points (for instance, 55 years old and70 years old) in relation to the same outcomes of interest. The idea is to test whether we only see a discontinuity at the policy relevant threshold, and not at other points.

We used single statistical testing on each outcome of interest, for each sub-sample analysed. All analysis was carried out using Stata 17 (StataCorp, 2021). Ethical approval was not required for this study as only secondary data collections were used. In this regard, subject consent for participation was handled by the UK Data Service (UKDS).

3. Results

Overall, our pooled sample from seven waves of ELSA included a total of 24,651 observations, from which 19% need support with any ADLs and 11% had at least one cold-related housing condition. A large proportion (44%) of the sample live in a property built before 1965 and a quarter of the observations are in the South of England. Descriptive statistics from the pooled ELSA waves (one to six, and eight) are summarised in Table 1.

We first present our findings by using the RDD standard visual representation. In Fig. 1, the vertical axis represents the outcome of interest (support needed with ADLs, quality of life and cold-related housing problems, respectively); and the horizontal axis the age of the oldest member of the household. Results are shown with age centred at the cut-off used in the year of analysis. A fitted line has been created on both sides of the cut-off and, thus, the 'treatment' effect (the impact of WFP) is indicated by a jump (discontinuity) between these two lines. Fig. 1 suggests that, overall, the WFP seems to have an effect on reducing prevalence of ADLs for which individuals need support and a positive effect in terms of increasing the quality of life of those who received it, but no overall effect on reducing the prevalence of cold-related housing conditions. It is important to note that these visual representations of differences between the groups to the right and left of the cut-off point do not show whether they are large enough to represent a statistically significant impact of the WFP. In addition, different functional forms are possible for those receiving and not receiving the cash transfer.

Table 1
Descriptive statistics.

	N	Mean/prevalence
Care need (any support with ADLs)	24,651	18.83%
Quality of Life: CASP scale (0–57)	19,890	41.35
Cold-related housing conditions	24,529	11.1%
Poorest/Richest quintile of income	4855	20.00%
Living in properties built before 1965	6673	44.20%
Living in properties built between 1965 and 1984	3918	25.95%
Living in properties built in 1985 or after	4506	29.85%
Living in the North of England[a]	18,347	74.21%
Living in the South of England[b]	6376	25.79%

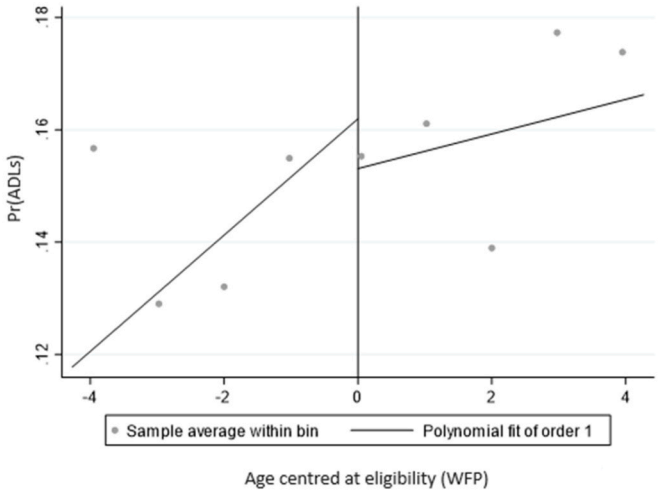
[a] North East, North West, Yorkshire & Humber, East Midlands, West Midlands.
[b] London, East, South East, and South West.

To estimate the size and statistical significance of the effects of the WFP showed in Fig. 1 above, we present the formal RDD estimates in Table 2.

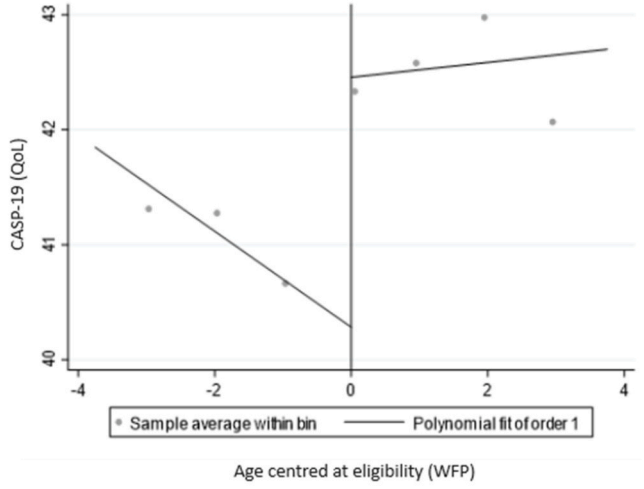
WFP has an overall local treatment effect on the reduction of the prevalence of care needs (measured by the presence of any ADL with support needed). However, the difference between those to the right and left of the cut-off was relatively small (−0.010 or 1.0%) and not statistically significant. We also see a small positive effect, although not statistically significant, on those receiving the WFP in terms of quality of life compared to those not receiving the cash transfer (1.936 points on CASP). The difference between those receiving and not receiving the WFP is not statistically significant when we look at its effect on the presence of cold-related housing conditions (0.030). We tested the robustness of these findings using a parametric approach, testing different polynomial numbers, and Kernel and bandwidth specifications. Results are similar in terms of their direction. In addition, while covariates are not usually needed when performing RDD, we explored the characteristics of those to the left and right side of the cut-off point. Here we found that our identification assumption resembles a random allocation of individuals. For instance, 26.1% of those near the age cut-off, but not eligible for the WFP, have a higher education degree while 25.1% of those eligible have a similar level of education. Similarly, 20.2% of those to the right of the cut-off and 18.9% of those to the left have reported to have good or excellent health, respectively.

As our aim was also to explore the possibility that the WFP had heterogenous effects among the population receiving this benefit, Table 3 explores the effect of this cash transfer for people living in poorer and richer households, for those living in older and newer dwellings, and for those living in Northern versus Southern regions of England. It is important to highlight that we are not aiming to make comparisons between groups, but to establish whether the WFP was effective for some groups, but not for others. Differences in the impact of this cash transfer across groups may be due to several factors, including differences in deprivation levels between groups. We see this perhaps as a limitation of our study, as we can only hypothesise why the WFP was effective in

Care needs: Any support needed with ADLs



Quality of life (CASP scale)



Any cold related housing problems

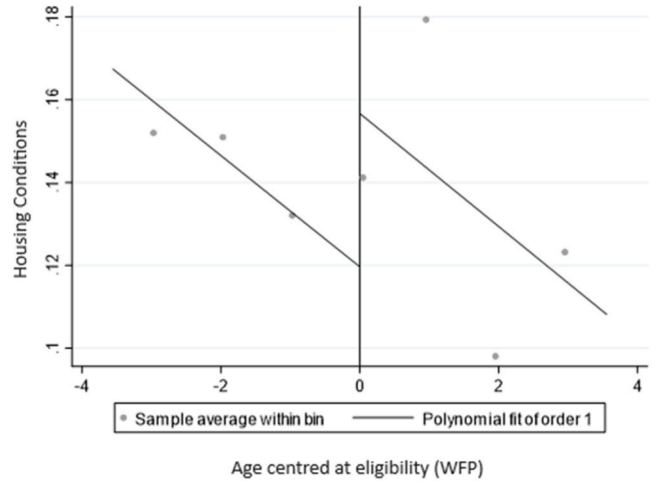


Fig. 1. Impact of the WFP on outcomes of interest (non-parametric linear RDD graphical representation).

Table 2
Overall (local) impact of the Winter Fuel Payment on care needs, quality of life, and cold-related housing conditions.

	Care Needs (Total number of ADLS)	Quality of Life (CASP scale): Higher scores represent a higher QoL	Number of (cold related) housing conditions
WFP effect	−0.010	1.936	0.030
p-value (robust)	0.693	0.369	0.486
MSE-optimal	Yes	Yes	Yes
Kernel	Triangular	Triangular	Triangular
Number of observations	24,651	19,890	24,529

Note: Significance levels of 99%, 95%, and 90% are represented by p-values ***p < 0.01. **p < 0.05. *p < 0.1, respectively.

Table 3
Heterogenous impact of the Winter Fuel Payment.

WFP effect	Care needs: Prevalence of any ADLs	Quality of Life (CASP-19 scale)	Presence of any (cold related) housing conditions
Poorest Income quintile	−0.146 (0.375)	9.0482* (0.070)	0.040 (0.547)
Richest Income quintile	0.001 (0.963)	1.3649 (0.453)	0.042 (0.811)
Age of Property: before 1965	0.081 (0.325)	1.171 (0.786)	0.100 (0.454)
Age of Property: 1965–1984	−0.017 (0.914)	9.6085* (0.099)	−0.062 (0.697)
Age of Property: 1985+	−0.224 (0.220)	5.1545** (0.046)	−0.088* (0.098)
Northern regions of England	−0.007 (0.887)	2.5447* (0.082)	0.029 (0.440)
Southern regions of England	−0.050 (0.517)	−1.529 (0.698)	0.030 (0.868)

Note: Significance levels of 99%, 95%, and 90% are represented by p-values ***p < 0.01. **p < 0.05. *p < 0.1, respectively. Robust p-values are in parenthesis.

some groups and not in others.

The WFP did not have any statistically significant effect on the sub-groups analysed when looking at the prevalence of care needs. However, differential effects are seen when looking at the quality of life measure: the cash transfer increased the CASP-19 scale score, on average, by 9.04 for individuals in the poorest income quintile. This result is statistically significant and consistent with the argument that the WFP has a greater effect where it represents a larger proportion of total household budget. On the other hand, quality of life had a positive, but smaller (and not statistically significant) effect among those in the richest income quintile (1.3649). Effect sizes are comparable across groups as our estimations use the same bandwidth across sub-samples.

In terms of the age of the property, we found that the WFP had a positive, but not significant effect on quality of life for those living in older dwellings (built before 1965), an average of 1.171 points on the CASP-19 scale. In contrast, individuals living in more recently built properties benefited from this cash transfer. For instance, the WFP had a positive and significant impact on those living in a property built between 1965 and 1984 (9.601 points) and for those living in a property built after 1986 (5.155 points). When we looked at regional disparities, we found that the WFP had a positive and statistically significant effect in Northern regions (an average of 2.545 points in the CASP-19 scale), but no significant effect in Southern regions.

We also explored the possibility that the WFP cash transfer was not directly spent on energy bills, but in making sure the property in which individuals were living was able to deal with colder conditions (i.e., fixing cold-related housing issues). In this regard we found that, while there were no differential effects between the poorest and the richest income quintiles or between Northern and Southern regions (Table 3), a statistically significant reduction in the proportion of individuals living with at least one cold-related housing condition is seen among those living in newer properties (−0.088 or 8.8% decrease in prevalence).

In terms of the robustness of our results, placebo tests were performed at age 55 and 70, finding that the WFP cash transfer had no effect at these arbitrary points. Table 4, shows the results for the performed placebo tests at age 55 for the three outcomes of interest. This confirms the assumptions made to perform an RDD approach. We also tested for several functional forms and different bandwidths finding similar results (at least in direction but not necessarily in size) to those presented above. Trying to minimise the possibility that changes in outcomes were associated to retirement decisions, we have also added employment status as a covariate. We found that our results are very similar.

4. Discussion

This research investigates the role of the WFP on the level of care needs, quality of life and the probability of living under cold-related housing conditions.

4.1. Key findings

Our findings show that this cash transfer had no overall effect on those eligible to receive it. This may be because the WFP does not directly or indirectly have an effect (i.e., it is not actually an effective policy for the outcomes analysed) because the additional income is not spent on fuel costs, or perhaps because the WFP cash value is insufficient or too short in duration to make a difference. On the other hand, our findings indicate that poorer individuals do benefit from the WFP at least in terms of quality of life. This, perhaps, raises questions about its universality (non-means-tested). Whether the role of social welfare and public policies should be providing help to all or only to those who need it the most is an old, but still ongoing debate.

4.2. Strengths and limitations

We also provide evidence on the effect of the WFP on sub-groups of the population, understanding that older people are not necessarily a homogenous group. This is a particular strength of our research, which has not been previously investigated. Nevertheless, our findings are also limited by the quasi-experimental approach selected for analysis and the eligibility criteria surrounding the cash transfer being evaluated. For instance, due to the duration of ELSA fieldwork and the need for a gap in State Pension age between women and men, we are not able to include more recent waves of ELSA, and therefore, we are not able to speculate with regards to how the recent stagnation in real wages, increase in fuel prices and current ‘cost of living crisis’ in the UK have affected households.

Table 4
Placebo test at age 55, local impact of the Winter Fuel Payment on care needs, quality of life, and cold-related housing conditions.

	Care Needs (Total number of ADLS)	Quality of Life (CASP scale): Higher scores represent a higher QoL	Number of (cold related) housing conditions
WFP effect	−0.047	3.663	−0.011
p-value (robust)	0.968	0.587	0.238
MSE-optimal	Yes	Yes	Yes
Kernel	Triangular	Triangular	Triangular
Number of observations	24,651	19,890	24,529

Note: Significance levels of 99%, 95%, and 90% are represented by p-values ***p < 0.01. **p < 0.05. *p < 0.1, respectively.

Another important limitation of our study is that we are not able to identify the reasons behind sub-group differences. We are only able to present disparities in the effects of the WFP across sub-groups and speculate the reasons behind them.

4.3. Previous research

The concept of adequacy of universal cash transfers (how intensive there are, in this case the monetary value of the transfer) has been widely discussed in the literature: the right adequacy of a benefit or programme is difficult to estimate due to this decision being normative in nature, and the decision-making behind the size of cash transfer has been likened to a black box (see for instance, Muñoz De Bustillo Llorente et al., 2020). Nevertheless, a rough calculation could shed light on how the government has decided on the WFP amount provided. For instance, the average domestic energy (gas and electricity) bill in Great Britain was £110 per month/household in 2022 (Bolton and Stewart, 2023). If we assume that the winter period in England presents its coldest months between December and February and we assume that energy bills are paid in equal instalments over the year, recipients will need around £330 to cover their bills during the coldest months, which is more or less what the WFP offers to recipients.

In the sphere of population-level interventions, support for the most vulnerable individuals was known in the UK in the 1970s and 1980s as the 'worst first' approach, which later evolved into a more preventative strategy in the 1990s focusing on those 'at risk' (Egan et al., 2016). In this regard, if the main purpose of the WFP benefit is reducing inequalities across groups, then targeted approaches would appear more appropriate. This is also aligned with the idea of making the most of taxpayer-funded resources (Dodge, 2020). However, targeting brings its own challenges, many of them associated with stigma and lower uptake, but also higher administrative costs for the State associated with application processes and navigation costs for individuals when trying to understand the system and eligibility requirements (Age UK, 2021; Marmot, 2014; Greenstein, 2022). For instance, figures for the Department of Work and Pensions have shown that almost a million pensioners are eligible to receive Pension Credit benefits, but are not claiming them (DWP, 2020). This brings to mind a general belief (among universality advocates) that "Programmes for the poor are poor programmes" (Greenstein, 2022).

Our findings also go beyond socio-economic disparities in outcomes. We found differential effects of the WFP across different property ages: those living in newer properties – which generally are also more energy-efficient dwellings (ONS 2022) – have better quality of life and are less likely to experience cold-related housing issues due to the cash transfer. This builds on evidence on how housing conditions are an important means to reduce physical and mental health and care inequalities in society (WHO, 2018; Cartagena-Farias et al., 2023).

4.4. Implications for policy

This study has many policy implications, from providing additional evidence in the 'Universal' versus 'Targeted' public interventions debate to the recognition that older people are a heterogenous group, and therefore some groups may need more or different solutions to support their needs. If reducing inequalities is a priority for government, it is possible that a cash transfer without a specific target group may widen differences in living standards, and may need to be reconsidered and/or restructured.

The original aim of the WFP was, most likely, to reduce mortality and prevent illness development and/or deterioration, but this is only one of the challenges faced by many households, and which could influence how they distribute their limited resources. Other welfare or housing programmes are also needed. For instance, investment in improving energy efficiency and housing conditions seems relevant to ensure that extra resources (through the WFP, for example) are not (at least partially) wasted due to lack of insulation. Our findings are consistent with previous work exploring the association between the age of dwellings and their energy efficiency levels (Department for Work and Pensions & ONS, 2022). In this regard, we can hypothesise that the cash transfer received gets diluted more easily in older properties, where the energy costs may be higher. From data collected in ELSA, the average monthly energy bill (gas and electricity) in wave 8 (2016/2017) was £110 for properties built before 1965, £109 for those built between 1965 and 1984, and £93 for properties built after 1965. Therefore, our results on the effect of the WFP on housing quality pave the road to solutions linked to making housing more energy-efficient, making sure that extra financial resources are well spent.

4.5. Recommendations for further research

Households may decide to spend extra resources associated with the WFP not only on fuel, but also on food or other basic needs (Snell et al., 2018). The 'heat or eat' debate is, however, beyond our scope in this paper, but relevant to mention as part of the potential mechanism through which the WFP may work. Perhaps it is not the extra resources for feeling warm that increase quality of life, but the extra resources to feed household members or pay the rent. In this regard, future research could explore how the WFP works among families, and how it gets distributed across household budgets.

5. Conclusion

This study provides evidence for how a winter cash transfer in England can bring benefits to some members of the population (for instance, those in the poorest income quintile). The policy implications are many, from feeding the 'universality versus targeting' debate to the development of energy-efficient policies that could help households make the most of this extra financial support. The latter may include the implementation of subsidised means-tested housing energy efficiency improvements such as insulation and new boilers or heat pumps, incentives for landlords and homeowners to invest in insulation and other such measures, or information and advice campaigns. Findings also highlight the need to gain a better understanding of how well anticipated this benefit is and how, in practice, it is spent by families. Finally, while the evaluation of the WFP cash transfer is specific to the case of England, many of its policy implications may be relevant to other countries where governments are seeking the best ways to protect their older populations.

ethics approval

N/A (secondary analysis)

Consent to participate

N/A (secondary analysis)

Consent for publication

N/A.

Availability of data and material (data transparency)

This study used third party data made available under licence that the author does not have permission to share (SN 5050 English Longitudinal Study of Ageing: Waves 0–9, 1998–2019. Requests to access the data should be directed to the UK Data Service (UKDS) at https://ukdataservice.ac.uk/

Code availability (software application or custom code)

Software: Stata 17.

Statement

Ethical approval is not required: Secondary data analysis.

CRediT authorship contribution statement

Javiera Cartagena-Farias: Writing – review & editing, Writing – original draft, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization. **Nicola Bramblecombe:** Writing – review & editing, Writing – original draft, Methodology, Funding acquisition. **Martin Knapp:** Writing – review & editing, Writing – original draft, Supervision, Methodology, Funding acquisition.

Declaration of competing interest

We have no conflicts of interest to disclose.

Data availability

The authors do not have permission to share data.

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