

Institute for  
Fiscal Studies

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## Cash by Any Other Name?

Evidence on Labelling from the Winter Fuel Payment

and

## Is there a Heat or Eat Trade-off in the UK?

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# Two distinct but related pieces of work

- Cash by Any Other Name?  
Evidence on Labelling from the UK Winter Fuel Payment
  - Does giving a benefit a label affect how it is spent?
  
- Is there a Heat or Eat Trade-off in the UK?
  - Do some older UK households have to cut back on food expenditure to meet the extra heating costs associated with periods of very cold weather?

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- Cash by Any Other Name?  
Evidence on Labelling from the UK Winter Fuel Payment
  - Does giving a benefit a label affect how it is spent?
  - Yes (for this benefit)
- Is there a Heat or Eat Trade-off in the UK?
  - Do some older UK households have to cut back on food expenditure to meet the extra heating costs associated with periods of very cold weather?
  - Sometimes

# Cash by Any Other Name?

## Evidence on Labelling from the Winter Fuel Payment

# Introduction

- The Winter Fuel Payment
  - An annual cash transfer, but with a label
  - “an annual tax-free payment made to eligible people to help towards their winter heating costs”
  - No obligation to spend all or any of it on heating
  - Some other cash transfers and cash-equivalents are labelled
    - child benefit
    - rental vouchers, food stamps.

# Introduction

- Standard demand analysis says a pound is a pound – the labelling *per se* of such benefits should have no effect on how they are spent.
- So why do Governments label transfers?
  - Doing so makes redistribution more palatable to voting taxpayers?
  - Standard economic theory is mistaken, and spending patterns can actually be influenced by labelling?

# Does Labelling Matter?

- Theory: mental accounts (Thaler, 1990, 1999)
- To date, no strong evidence that the labelling of transfers matters
  - Child benefit: Kooreman (2000), Edmonds (2002)
  - Food stamps: Moffit (1989), Whitmore (2002)
- Some recent experimental evidence that inframarginal in-kind transfers differ from cash transfers (Abeler and Marklein, 2010)
- **THIS WORK:** evidence from the UK Winter Fuel Payment (WFP) on the behavioural effect of labelling a transfer

# The Winter Fuel Payment

- Winter Fuel Payment (WFP) is a non-means tested benefit paid to all households where at least one member is aged 60 or over on the reference date (currently September)
- Introduced in 1997; (nominal) value fairly constant after 2000

- Rates: 

	2010/11	2011/12
Age		
60-79	£250	£200
80+	£400	£300

- Rates are per household (no difference for singles and couples)
- Payments are made in one lump sum, generally in November or December
- The sharp eligibility criterion (age 60) allows for a regression discontinuity design (RDD)



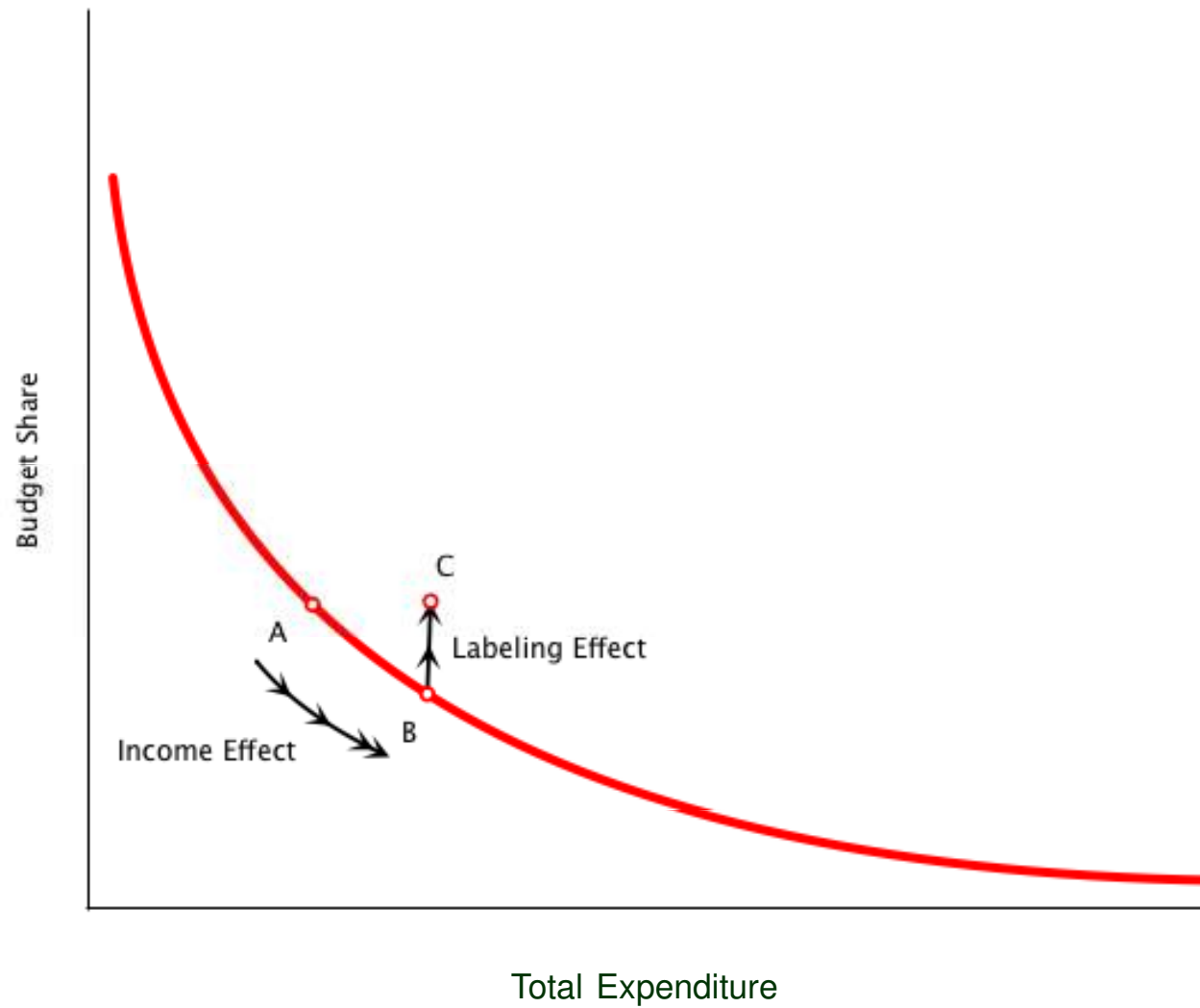
# Methods: Regression Discontinuity Design

- WFP has a sharp eligibility criterion
- In absence of WFP, no reason to think people just below age 60 should be very different to people just above age 60
- So use those just below 60 to estimate the counterfactual for those just above
- Actual minus counterfactual is estimate of the effect of WFP (at age 60)
- In practice have to use an age window around age 60

# Methods: Income Effects and Labelling Effects

- Add RDD to standard demand model (households choose spending given prices and income)
- WFP increases income
- Would expect fuel spending to increase and fuel budget share to decrease as income increases (fuel is a necessity)
- Our interest is in *additional* spending beyond this standard income effect

# Methods: Income Effects and Labelling Effects



## Data: The Living Costs and Food Survey (LCF)

- Formerly the Expenditure and Food Survey (EFS) and before that the Family Expenditure Survey (FES)
- About 7000 households annually
- Detailed expenditure information: 2 week diary and recall questions about infrequently purchased items
- Income, demographics
- Spending on fuel includes gas and electricity payments, coal, coke, and bottled gas and coke for central heating.

## Data: Sample

- We use data from 2000-2008 (and from 1988 -1996, as will be explained below)
- Single men and couples without children
- We exclude single women and couples in which the oldest member is female (because during this period women qualified for the state pension at age 60)

# Baseline Results: Labelling Effect on Budget Shares

Base specification: year and region dummies and their interactions; quadratic in log total expenditure; interactions between year and total expenditure variables; month dummies; log of household size.

Effect of WFP on Budget Shares  
(conditional on total expenditure)

Shares	(1) OLS
Fuel	0.0057**
Food	-0.0034
Clothing	-0.0035
Leisure Goods	0.0032
Age Window	45-75
Data Period	2000-2008

# Problems: Confounding with Employment Effects

- Possible changes in employment at age 60
- In particular, eligibility for pensioner Minimum Income Guarantee (MIG)
  - Previously called Pensioner Income Support; now called Pension Credit
- Not labelled, and any income effect captured in Engel curve framework
- BUT if the MIG reduces employment, and leisure influences consumption patterns this could explain changes in spending patterns – i.e. if you are home more, you may have the heating on more

## Methods: Testing for Employment Effects

- Include employment information for both spouses: employment dummy, self-employment dummy, and hours of work
- Compare to period from 1988 to 1996 with MIG but no WFP to difference out any labour market effects.



# Problems: Confounding with Intra-household Effects

- In two-person households cannot distinguish labelling effect from intra-household effect
  - Husband and wife have different spending preferences. Household spending pattern changed by who receives the income and not because of labelling?
- But in our sample husband always the recipient at 60 and men are also the primary earners – not plausible that WFP will shift power.
- But we investigate anyway by looking separately at couples and singles.

# Results: Specification / Falsification Checks

- Results are robust to (and estimated effect hardly changes):
  - Adding additional controls
  - Comparison with MIG only period
  - And more – e.g. varying age window
- Statistically significant effects estimated both for single households and for couples
- In addition:
  - No estimated effect when put discontinuity at age 55 or 66 instead of age 60
  - No estimated effect when use pre-introduction period

## How big is this effect?

- Consider a household average fuel share in 2008 of 0.061 and total budget of around £308 per week receiving a transfer of £250 a year (so just under £5 a week)
- Our estimates imply an income effect (slide along the Engel curve) of £0.13.
- The corresponding estimate of the labelling effect is £1.82.
- In other words, if there was no labelling effect an average household would spend around 3% of the WFP on fuel. We estimate an additional labelling effect of about 38%.
- Estimate of the marginal propensity to spend on fuel out of the WFP is around 41%

# Conclusions

- Does calling the £250 that most older households receive in November / December a “Winter Fuel” payment make any difference?
- Sharp differences in the eligibility requirements allow us to use a RDD to examine how fuel expenditure changes on receipt of the benefit.
- We find a substantial and robust labelling effect.
- Recipient households, on average, spend around 41% of the WFP on fuel. If the transfer was unlabelled this figure would be 3%.

# Conclusions

- Understanding the effect of labels is important for policy.
- If labelling influences how transfers are spent, then governments might use labels innovatively to try and increase consumption of particular goods or services that are thought to be under-consumed.
- Perhaps hard to argue this for the WFP – why would we think richer households under-consume heating?
- But if the aim of a transfer is simple redistribution, then an operative label might actually imply a welfare cost – care should be taken in labelling benefits.

## Families' 'heat or eat' choice

Rising energy costs are forcing many households in the North East to choose between heating and eating, according to a Newcastle-based charity.

8 February 2008

# Is there a Heat or Eat Trade-off in the UK?

Independent.co.uk

## Severely disabled people must make heat-or-eat choice

A million adults face stark decisions as ministers fail to extend the winter fuel payment. By Simon Read

*Sunday, 19 September 2010*

# Introduction

- Recent cold winters and rising fuel prices have led to media claims that some households face a “heat or eat” trade-off; pensioner households are thought to be particularly at risk.
- The UK does experience 30,000 “excess” deaths every winter (Department of Health, 2009)
- Excess winter mortality appears to be related to temperatures but not to socioeconomic status (e.g. Wilkinson et al., 2001 )
- Research in the US suggests that both rich and poor households increase fuel expenditure during cold weather periods; among the poor, there are coincident reductions in food expenditure (Bhattacharya et al., 2003, Cullen et al., 2005)
- IS THERE A “HEAT OR EAT” TRADE-OFF IN THE UK?

# The Economics of “Heat or Eat”

- Households decide on spending given prices and income, we focus on:
  - Spending on food
  - Spending on fuel for heating
- There will be normal seasonal variation – more heating in winter than summer, or fresh fruit more expensive in winter
- “Heat or Eat” asks what happens when it is *unusually* cold
- A cold weather shock can be thought of as an (unexpected) increase in the price of maintaining any given inside temperature



# The Economics of “Heat or Eat”

Can think of two polar types of households:

- Those that can “smooth” expenditures over time
  - only effect of a temperature shock is a change in relative prices
  - so might even substitute *towards* food when temperatures are cold
  - If there are limited substitution possibilities between food and fuel, this will be unimportant
- Those that cannot smooth
  - cold weather shock is also like a negative income shock
  - this *reduces* food expenditure when temperatures are cold, and is larger the greater the household’s budget share of fuel
- What happens in practice is an empirical question

# Data

- Again, the Living Costs and Food Survey
- We use 1974-2007
- Key: has geographic location of household – standard region
- We focus on households with at least one member over 60
- 80,966 observations
- Focus on food and fuel expenditures
- Also look at information on fuel payment method
  - For some payment methods (equal instalment plans) expenses and use are not contemporaneous.

# Data

- The effects of temperature shocks will vary by season and by affluence of households (access to credit and fuel budget share)
- We consider four subsamples
  1. All households
  2. Households observed in winter months
  3. Households in the poorest quartile of the total expenditure distribution
  4. The poorest quartile of households observed during winter months

# Data: Temperatures

- Publically available Met Office data
- Monthly regional averages
- Want to take out variation that could plausibly be anticipated
- Regress on
  - region dummies,
  - monthly dummies (to capture seasonal components),
  - a quadratic time trend (to capture predictable long run trends in weather)
- Residual “shocks” merged with expenditure data by region/month

# Methods: Spending Regressions

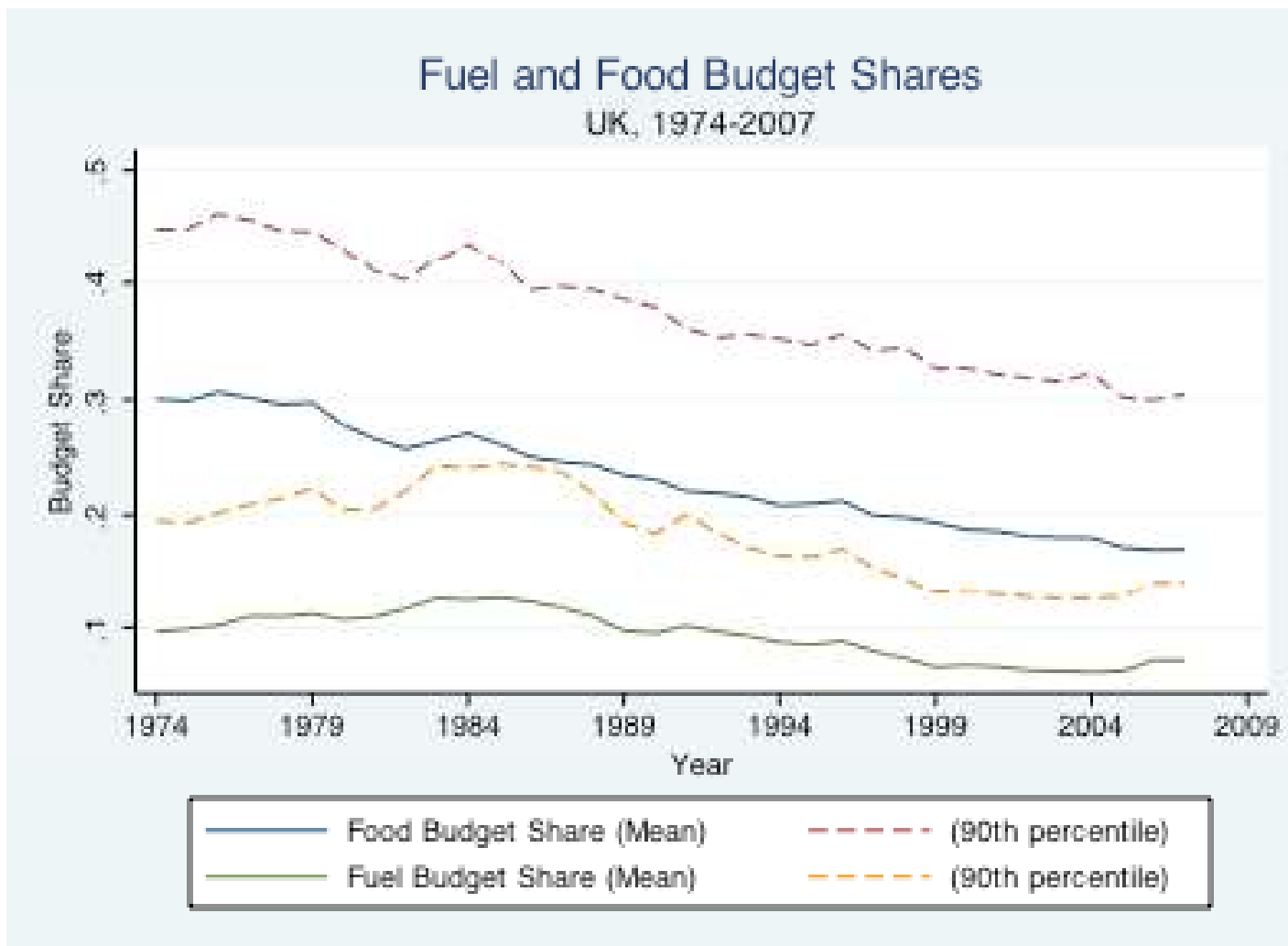
- Model (logarithm of) food and fuel expenditures
- Regress on temperature shock variables and additional controls
- Additional controls: month, region, quadratic time trend, household size.
- Temperature shock variables: (dummy) variables (to allow for nonlinear effects):
  - $< -2$  SD,
  - $-2$  to  $-1$  SD,
  - $+1$  to  $+2$  SD,
  - $> 2$  SD

## How much do older households spend on fuel?

**Table 1: Fuel & Food Budget Shares (2004-2007)**

<b>Fuel</b>				
Expenditure Quartile	1	2	3	4
Mean Budget Share	0.11	0.068	0.049	0.033
90 <sup>th</sup> Percentile	0.20	0.11	0.082	0.059
<b>Food</b>				
Expenditure Quartile	1	2	3	4
Mean Budget Share	0.25	0.18	0.14	0.09
90 <sup>th</sup> Percentile	0.41	0.27	0.22	0.16
Obs	2536	2219	2019	1966

# How Much Do Older Households Spend on Fuel?



## How Do Older Households Pay for Fuel?

Expenditure Quartile	1	2	3	4
Pay as you go (Slot Meter)	0.28	0.15	0.08	0.03
Retrospective Payment	0.36	0.35	0.33	0.37
Equal Instalment Plan	0.34	0.49	0.58	0.59
Other	0.02	0.01	0.01	0.01

### Fuel Payment Methods 2004-2007

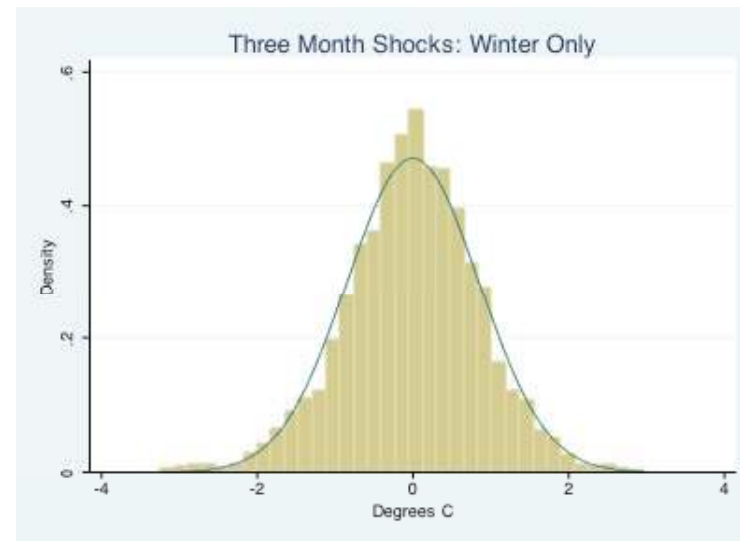
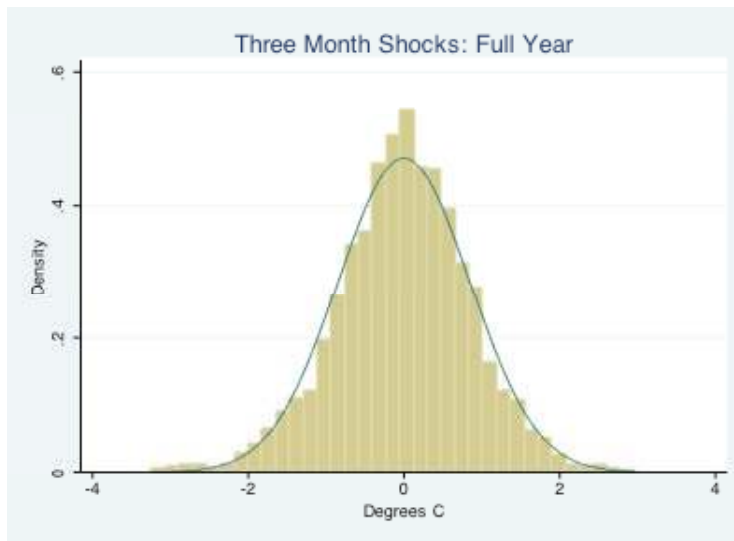


# How Do Older Households Pay for Fuel?



Methods of Payment 1977-2007

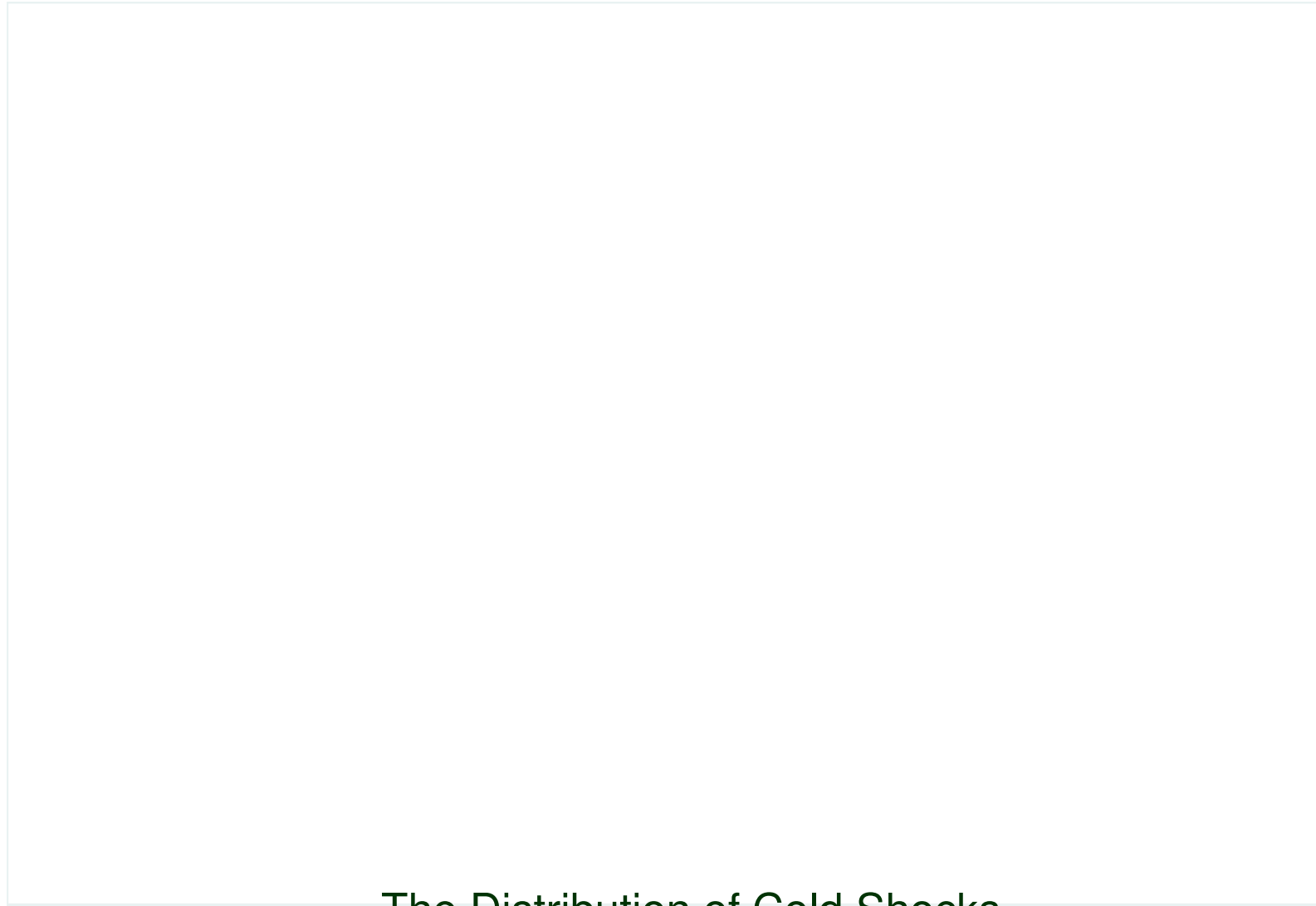
# Temperature Shocks in the UK



## Temperature Shocks in the UK

Percentile	Full Year 3 month shock	Winter Only 3 month shock
2.5	-2.09	-2.03
5	-1.72	-1.71
10	-1.22	-1.34
25	-0.62	-0.70
50	0.03	0.04
75	0.65	0.68
90	1.2	1.30
95	1.62	1.61
97.5	1.94	1.80

# Temperature Shocks in the UK



The Distribution of Cold Shocks

## Spending Responses to Weather Shocks

Group	Interview Months	Sample Size	< -2 SD	-1 to -2 SD	+1 to +2 SD	> +2 SD
All Households	All	80196	-0.0029	0.0330***	-0.0197**	0.0011
	Winter	26662	-0.0261	0.0651***	-0.0048	-0.1057***
Bottom Expenditure Quartile	All	24226	-0.0163	0.0306***	-0.0148**	0.0100
	Winter	7951	-0.0686	0.0706***	-0.0053	-0.1305*

### Fuel Spending Regressions

## Spending Responses to Weather Shocks

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## Fuel Spending Regressions

## Spending Responses to Weather Shocks

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All Households	All	80966	-0.0121	0.0011	0.0014	0.0127
	Winter	26890	-0.0242*	0.0054	0.0086	0.0141
Bottom Expenditure Quartile	All	24629	-0.0429*	0.0038	-0.0027	-0.0067
	Winter	8061	-0.0723**	-0.0026	-0.0190	0.0024

### Food Spending Regressions

# Conclusions

- Not clear ex ante whether there would be “heat or eat” trade off in the UK:
  - If households can borrow and save, unexpectedly cold temperatures could have a *nonnegative* effect on food spending
  - The UK has a moderate climate. We find that a very cold winter month (1/40 or once every 13 years) is about 2 degrees colder than usual.
  - A growing number of households pay for fuel by instalment.
- However, we do find that households spend more (less) on fuel when it is unusually cold (hot)
- We also find some evidence of a reduction in food spending. About 7% for a 2 SD negative shock in winter, for poorer households. Statistically significant at conventional levels.



## Conclusions

- So there is evidence of a “heat or eat” trade-off, for the poorest of older households, in the coldest winter months.
- This suggests these households are not fully protected by current policies such as the Cold Weather Payment and the Winter Fuel Payment.

# Summary

- Cash by Any Other Name?  
Evidence on Labelling from the UK Winter Fuel Payment
  - Does giving a benefit a label affect how it is spent?
  - Yes (for this benefit)
  - Average of 41% spent on fuel compared to 3% of unlabelled income
  - Need to think carefully about using labelling
- Is there a Heat or Eat Trade-off in the UK?
  - Do some older UK households have to cut back on food expenditure to meet the extra heating costs associated with periods of very cold weather?
  - Sometimes
  - Poorest households in coldest winters reduce food spending
  - Suggests that current policies do not fully protect all older households from the impact of very cold weather