Climate Mitigation Policies, Distributional Justice and Social Policies

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The challenge of climate change

- Climate change “a truly complex and diabolical policy problem” (Ross Gaunaut)
- CC a new risk that is big, global, long-term, cumulative and uncertain (Stern)
- ‘Both overwhelming and existential *and* unspecific and distant’ (Giddens, Latham and Liddle)

The complex chain

- The logical chain is a long one:
  - Economic Activity → Energy consumption → GHG Emissions → GHG Concentrations →Global Temperature →Regional Climate Change → Impact on Human Habitats → Social Wellbeing
- *Mitigation* policies address first three; *adaptation* policies address last two

Climate change and social justice

- Social policy relates to social justice
  - (notwithstanding variable meanings): the distribution of income, resources, need satisfiers and capabilities
- The new challenges of climate change:
  - Intergenerational justice: distribution between generations,
  - Global justice: the imbalance between emissions and suffering: 'double injustice'
- Together:
  - Social justice versus environmental justice?
  - Wellbeing versus sustainability?

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So much ignored here

I ignore the global aspects:

- The UNFCCC process, Copenhagen etc
- Outstanding distributive issues at the global level

Also not covered here:

- Direct impacts of CC on welfare in UK:
  - JRF programme on Climate Change and Poverty
- Indirect impacts of CC on welfare in UK:
  - eg. Distress migration (EU)
- CC adaptation programmes:
  - sea defences, housing in flood plains, NHS heatwave programme
- Procedural justice issues

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Two questions

Focus on CC *mitigation* policies (CCMP) and their impacts on social welfare and social policy:

1. Will these policies induce severe fiscal competition with welfare state expenditures?
   - SR2010 plans 41% growth in DECC capital budget alongside swingeing welfare cuts
2. What are distributive consequences of CCMPs? What do these imply for social policies and programmes?
   - Is there double injustice in rich countries?

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Plan of presentation

1. Climate change scenarios and UK targets
2. Fiscal competition?
   - UK policies and programmes to mitigate climate change
   - Their expenditure impacts
3. Distributive consequences of these programmes
4. Concluding remarks on the implications for social policies

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1. Climate change science

- Take for granted the dominant science
  - Eg. Royal Society Report 2010
  - and ignore deniers (eg. Nigel Lawson's Global Warming Policy Foundation)
- Global warming constraints narrowing as research builds
  - 2◦C rise in mean surface temperature above pre-industrial levels now widely accepted as the maximum threshold

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Global targets

- This target thought to entail a maximum GHG concentration of 450ppm CO2e
  - Stern report based mainly on target of 550ppm, and the link is not linear
- Others more conservative and target cumulative emissions:
  - Anderson: must limit cumulative total emissions in 21st century to 1.4-2.2 trillion tonnes CO2e
  - This implies unprecedented cuts:

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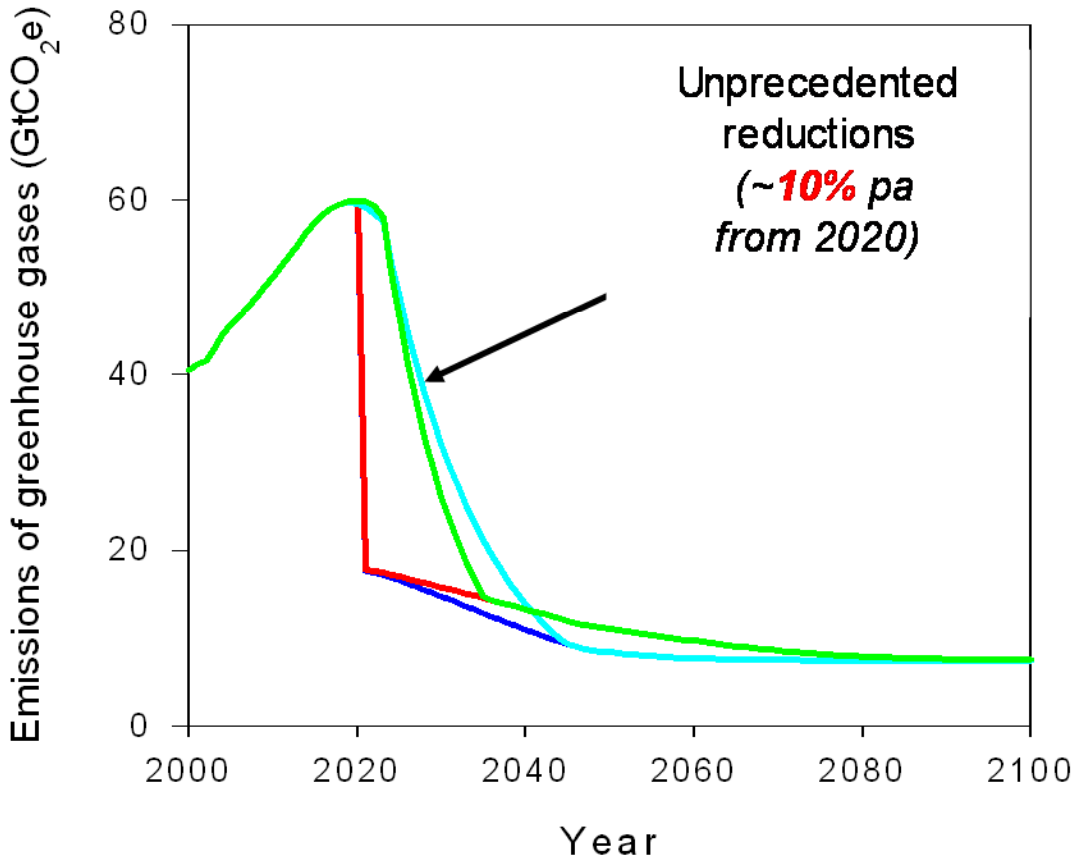
Global emission cuts required

… for 450ppmvCO_2e
& 2020 peak



The dangers

- 4-5◦C looking more likely.
  - ‘Five degrees is absolutely enormous. It would redraw the physical geography of the world. Large parts of the world would become desert, including most of southern Europe and the southern part of France. Other areas would be inundated. You’d see massive movements of population… This isn’t a black swan, a small probability of a big problem; this is a big probability of a huge problem’ (Stern in Touffut 2009: 136).
- Weitzman on the precautionary principle

UK targets

Climate Change Act 2008

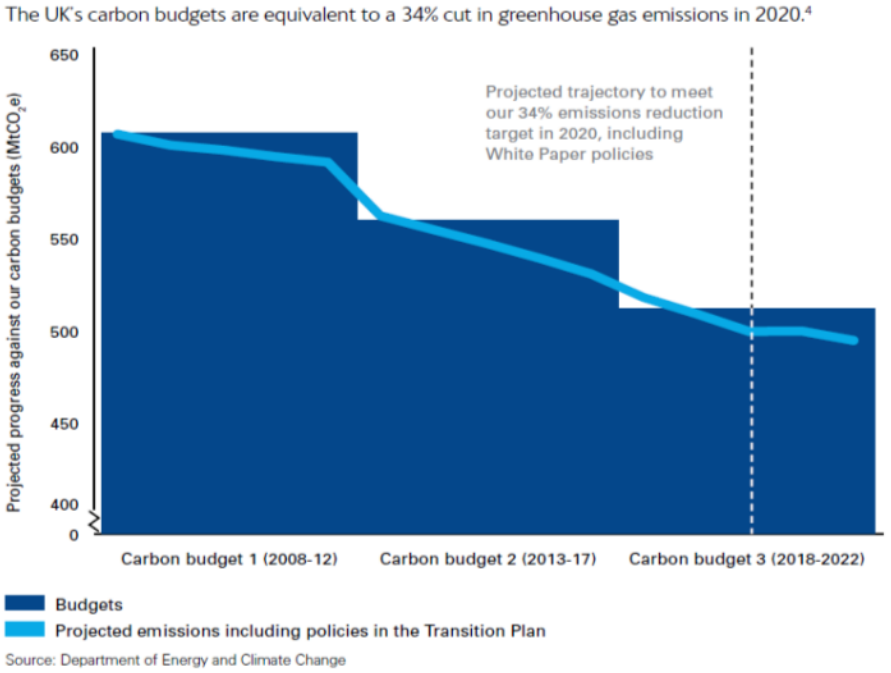
'World's first legally binding targets to cut emissions 80% by 2050 and a set of five-year carbon budgets to 2022'

% cumulative reductions from 1990:

2008-12: 22%

2013-17: 28%

2018-22: 34%



UK targets

- This has bipartisan support, and is monitored by the Climate Change Committee
- But note this a production, not a consumption, target. Impact of outsourcing:
  - Estimates for 2001, show UK consumption emissions between 17% and 37% higher than UK emissions from production
  - Since 1990, UK greenhouse gas emissions have fallen by 15% but on a consumption basis, they have risen by 19% (Helm)
- Analysis later concentrates on consumption

2. UK CC MITIGATION PROGRAMMES

Not simple to summarise! They include:

- EU Emissions Trading System (ETS)
- Investment programmes in renewables, nuclear, CCS
- Policies to reduce emissions in industry and agriculture
- EU and other regulations on products ,vehicles, buildings
- Programmes to reduce household emissions:
  - Taxes and tax breaks
  - Government spending programmes
  - ‘Mandated’ programmes for energy providers

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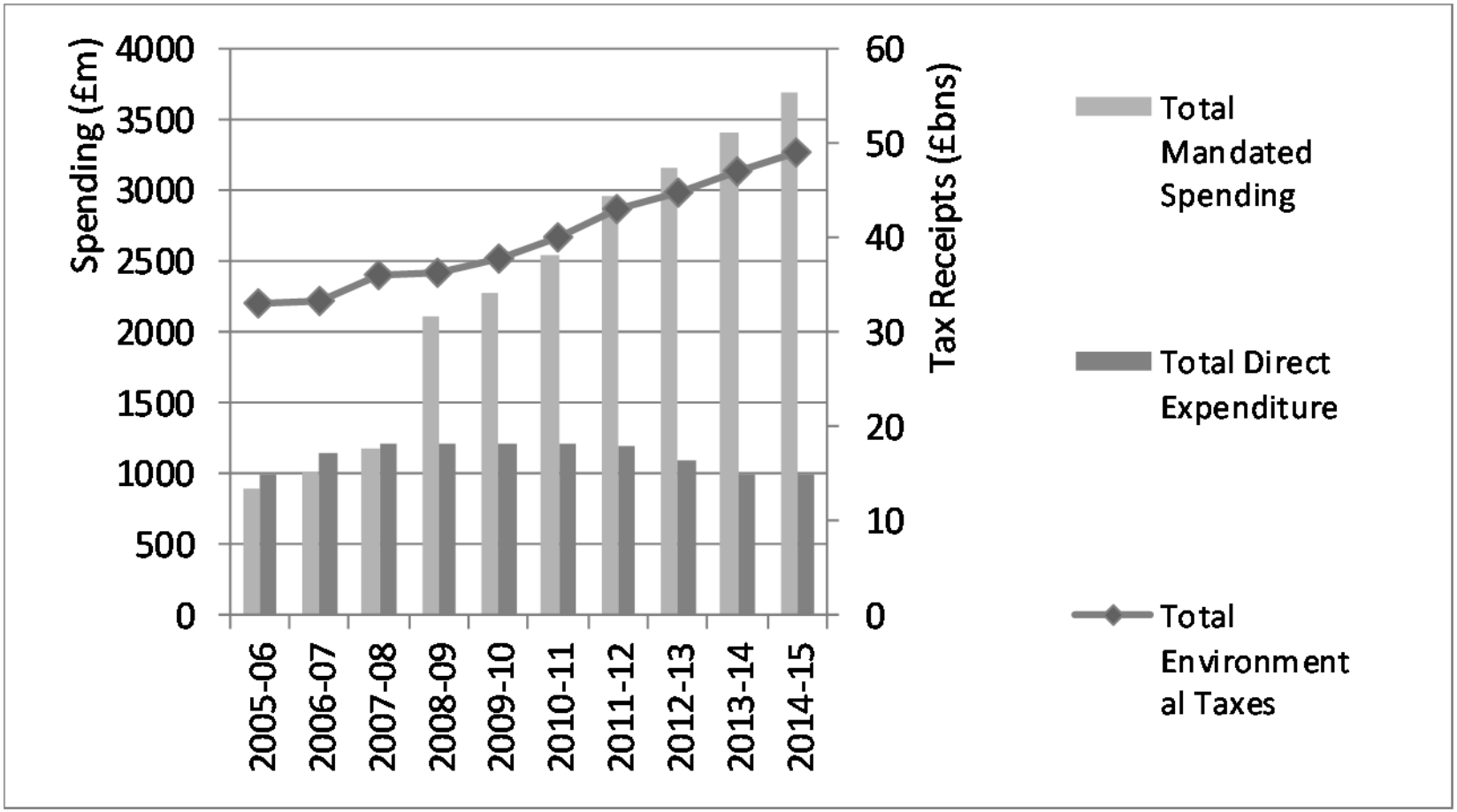
Some major programmes directed at households

- Taxes:
  - Fuel duties, excise duty, climate change levy, Congestion Charge (but VAT on household energy only 5%)
- Mandated spending by energy suppliers to increase household energy efficiency:
  - Renewables Obligation, Carbon Emissions Reduction Target (CERT), Green Deal
- Direct government programmes:
  - Decent Homes, Warm Front

Our estimated costs of CCM programmes directed at households



CCMPs - Summary

- Small and patchy programmes
- Mainly through mandated energy markets
- Indirectly financed via household energy bills – this is intended, but hidden
- Present spending still weighted to compensation not investment:
  - Total on Warm Front, Decent Homes and CERT £2.3b
  - Cost of Winter Fuel Payments £2.7b

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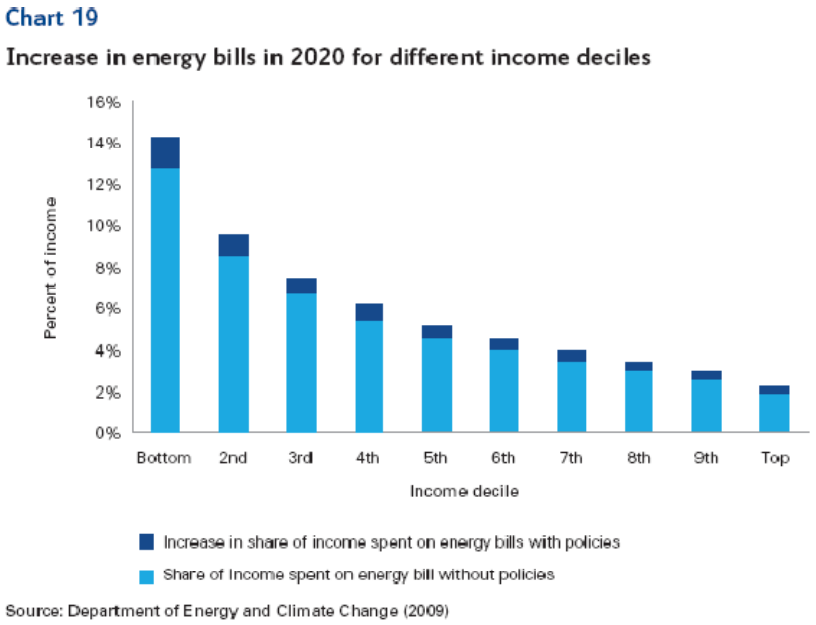
DECC estimates

- Distributional impact in 2020 sharply regressive
- Yet DECC predict average energy bills just 1% higher in 2020 due to efficiency and renewables
- Also assumes no 'rebound'
  - Average internal temp rose 6◦C 1970-2001



Fiscal competition?

- Sam Marden's work on policies and their costs
- Our concern with fiscal competition misplaced:
  - Environmental taxes c2.7%GDP and steady
  - Direct spending on CCMPs tiny and falling
  - Mandated spending tiny and rising
- Compared with social programme budgets these are miniscule sums:
  - outweighed by compensation for fuel poverty
  - and no plans to increase
- A mismatch with the revolutionary targets

3. DISTRIBUTION OF EMISSIONS

- What are the distributional effects of these and likely future policies?
- Studies of direct household emissions
  - Dresner and Ekins (2006), Druckman and Jackson (2008) and Thumin and White (2008). Present only the last here
- Then present Nef/CASE study of total household emissions, direct plus indirect

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Thumin/White on direct emissions

- Study household fuel and electricity plus fuel for private cars, using EFS and carbon coefficients.
- Model ‘winners and losers’ from equal carbon allocation scheme which overall is progressive
- Find many ‘low income losers’ :
  - large families in rural, hard-to-heat houses, ‘empty-nesters’ in large houses and houses without gas central heating, retired under-occupied urban households (not an exhaustive list)
- Conclusion: hard to compensate rising energy costs via social benefits

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Distribution of all household emissions: Nef-CASE study

- But all these studies omit 80% of emissions that are *indirect* – embodied in food, housing, other travel, consumables, private services etc
- Nef-CASE study overcomes this by marrying
  1. Stockholm Environment Institute's (SEI) *Resources and Energy Analysis Programme* (REAP) - an input-output model, with
  2. *Expenditure and Food Survey* on distribution of 80 consumption categories, both for 2005

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Methods

- Household income is equivalised
  - % Children in lowest income decile: 15% using total household incomes; 41% when equivalised
- Also distinguish 7 household types:
  - Single 60+, two+ persons 60+, single 60-, two adults 60-, single parent + children, two+ adults + children, three+ adults
- Dependent variable is GHG emissions per capita
- Cindy Smith's recent work on data and analysis

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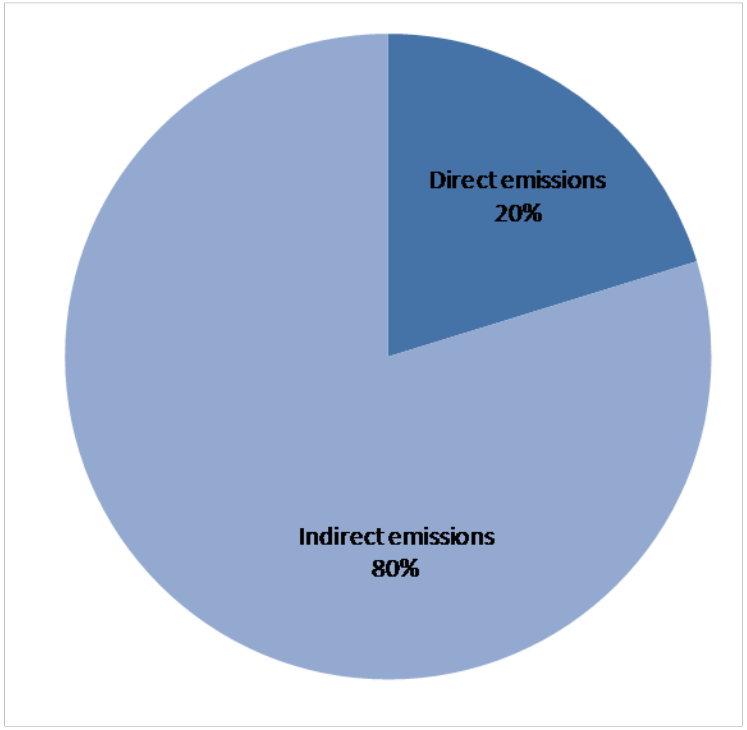
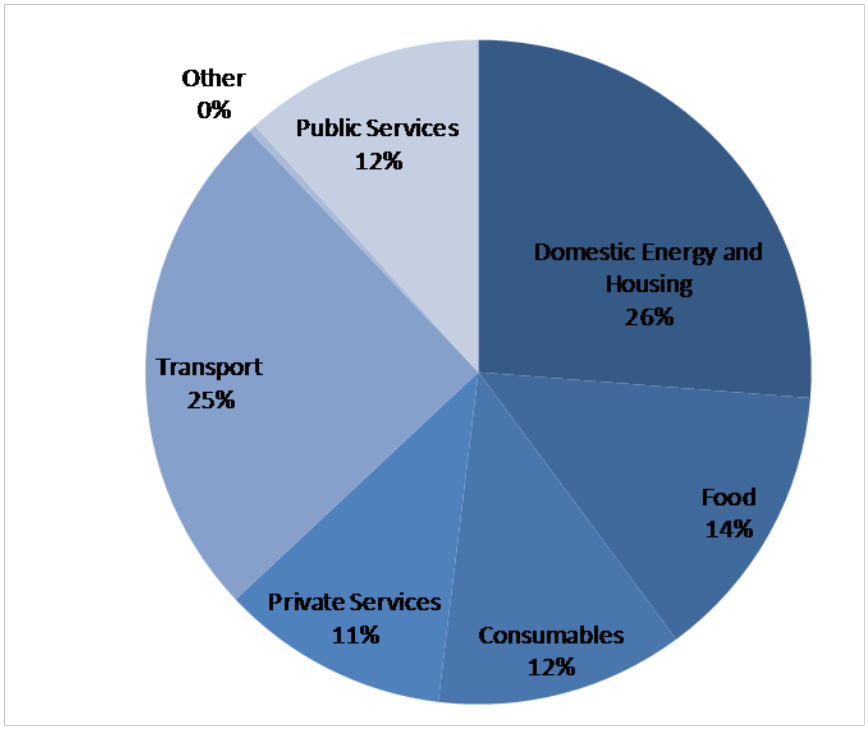
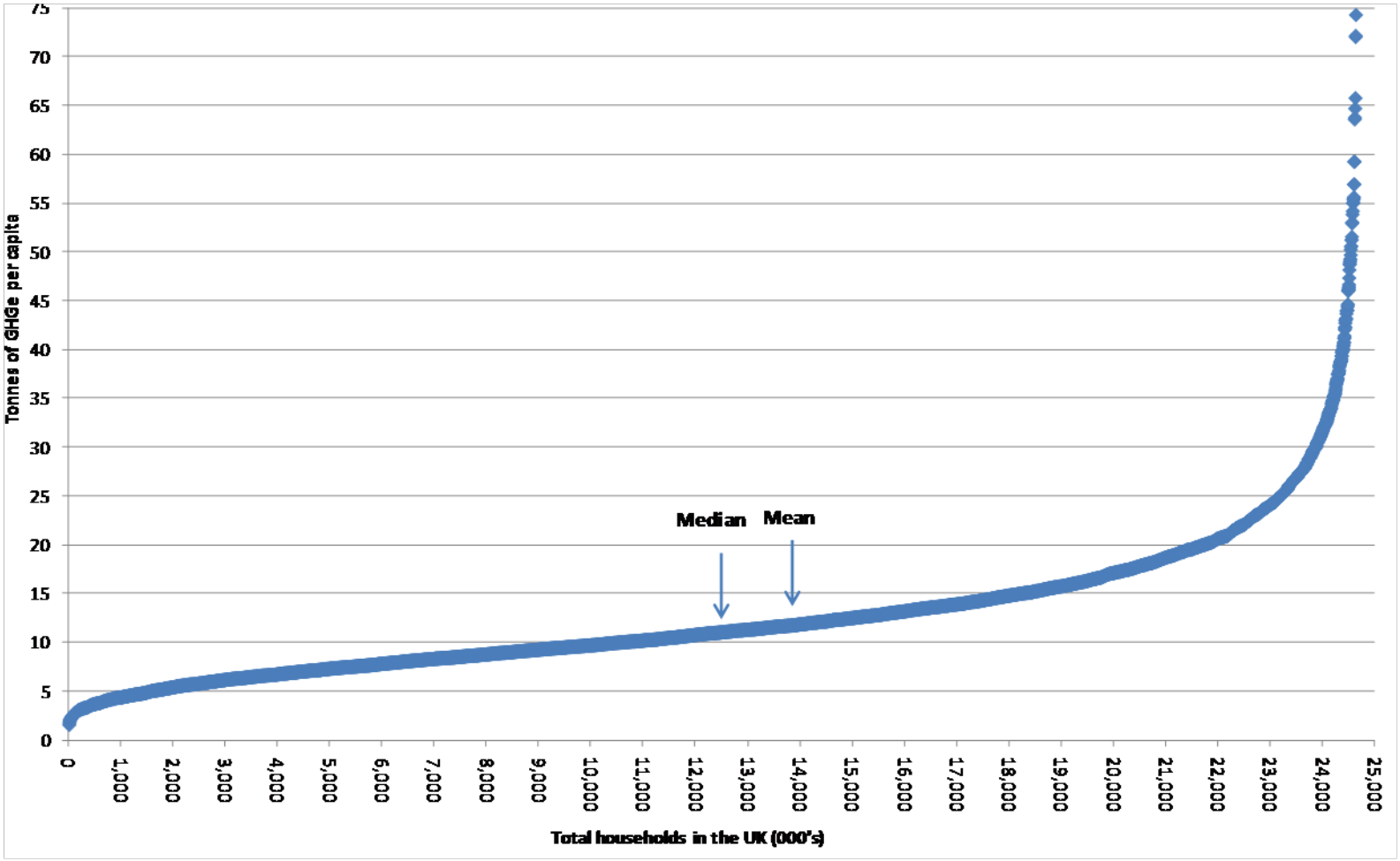
Pie chart of total emissions

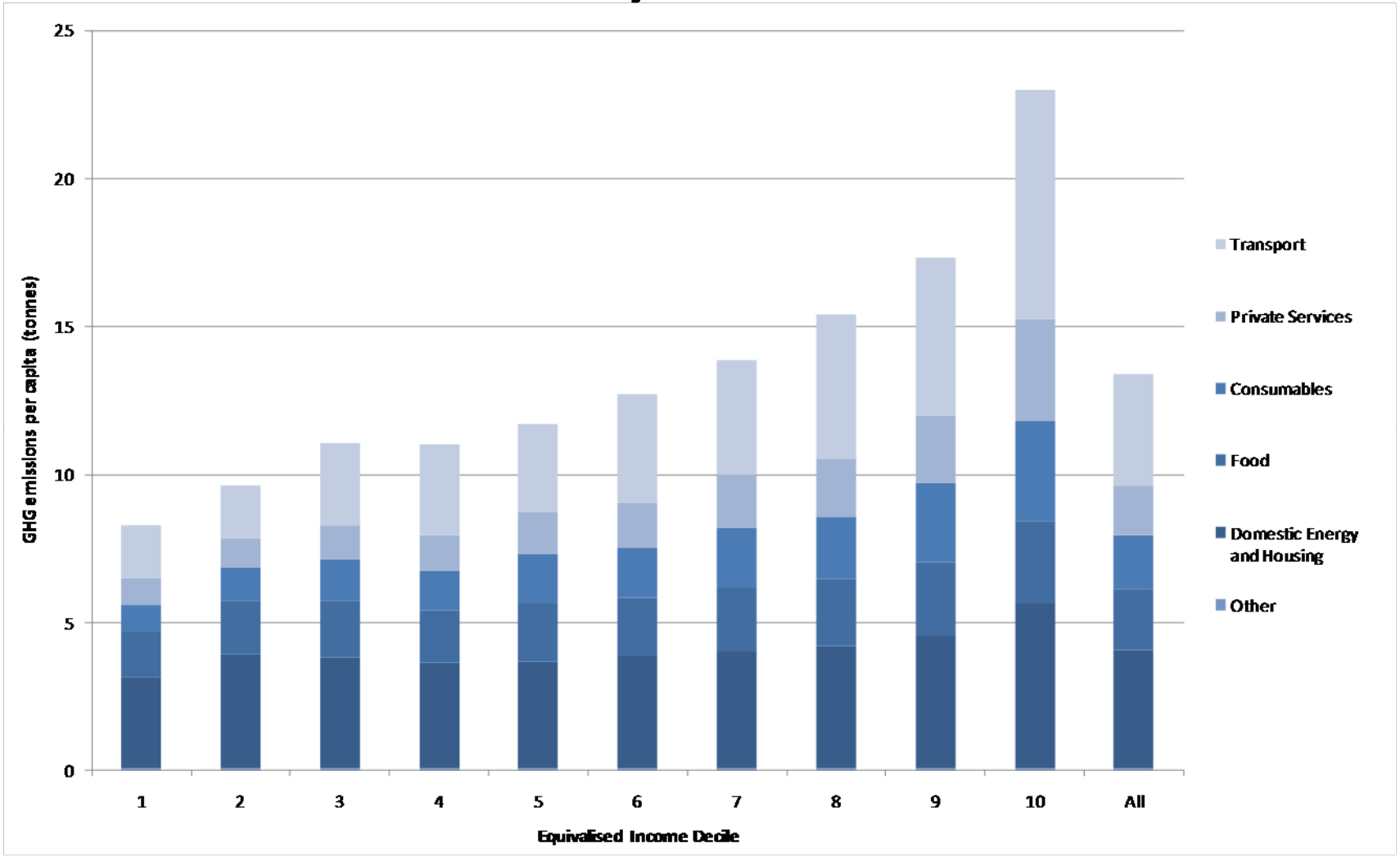




Overall distribution of emissions



Emissions by income decile



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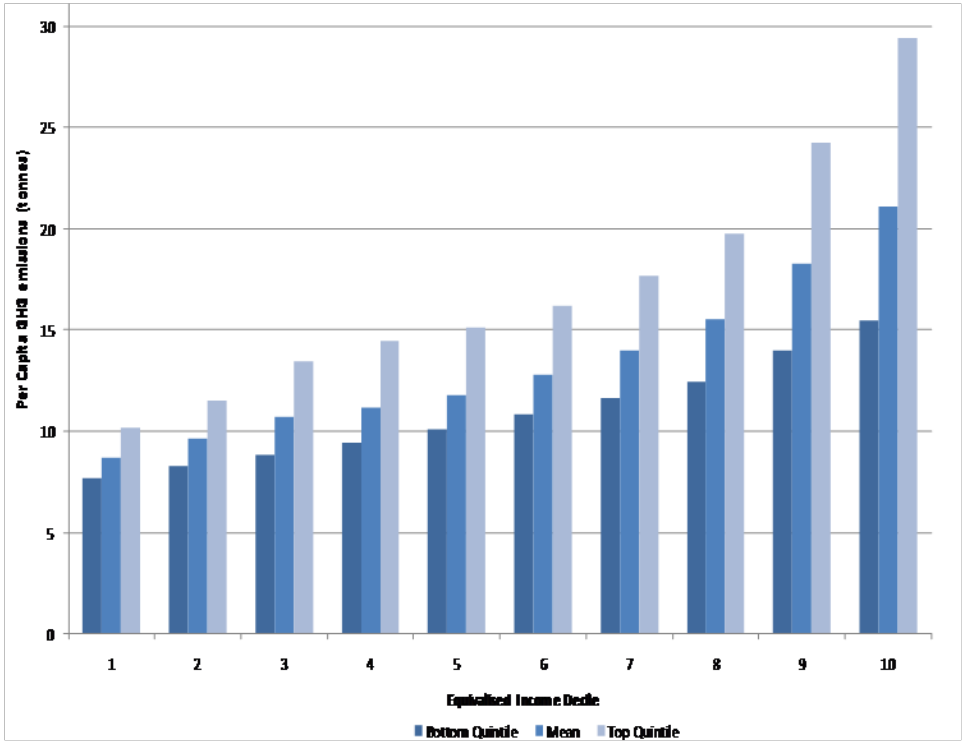
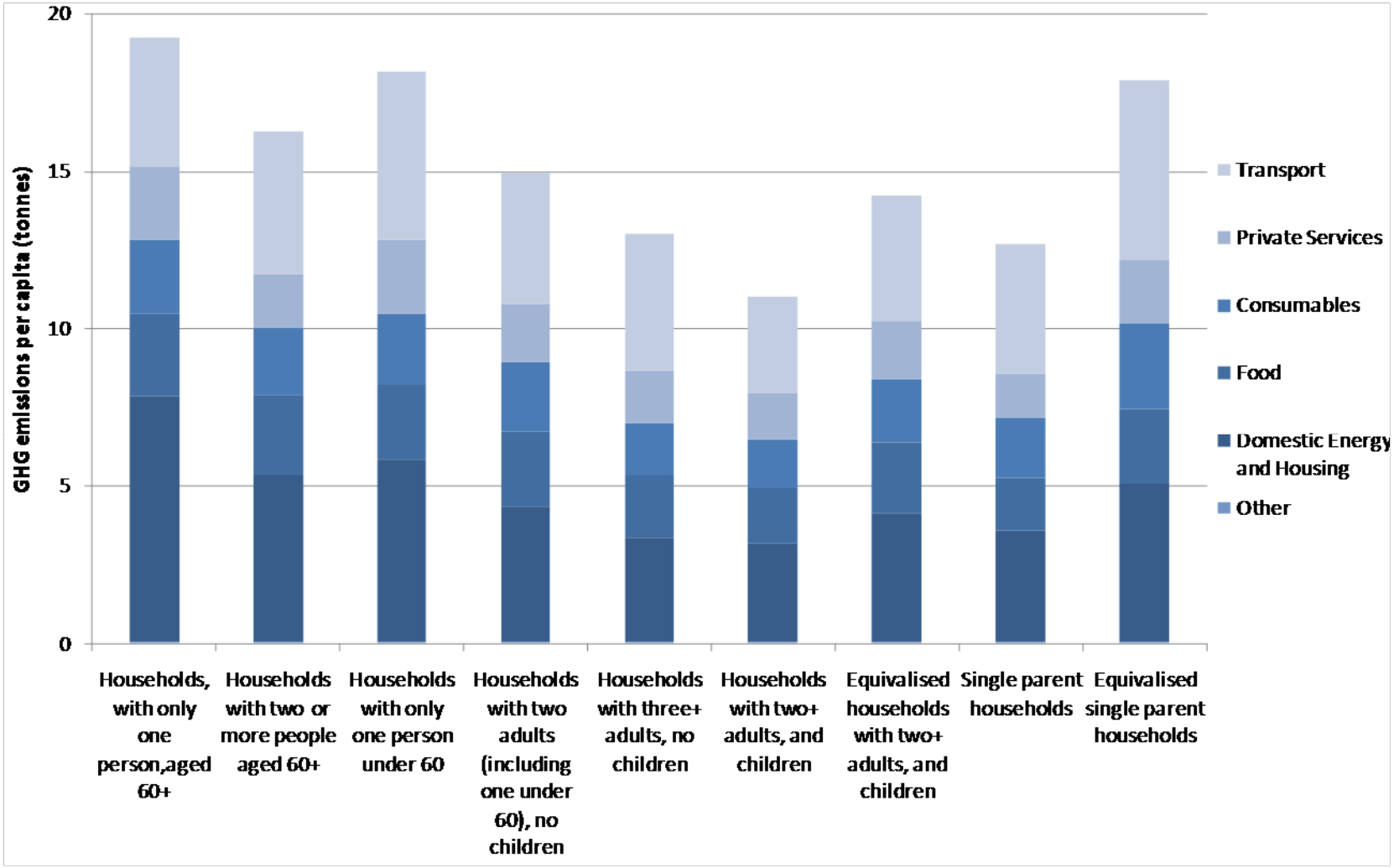
Other variables

- Household size: correlation -0.27
- Housing tenure: social housing lower
- Employment status: opposing hypotheses but little effect
- Less dispersion within deciles when household size controlled:



Emissions by household type



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Regression: standard model

Log Per Capita GHG Emissions	Coefficients	Standard Error	T-Statistic
Intercept	2.24589	0.029	78.24
Equivalised income	0.00069	0.000	39.09
Household type 2	-0.08652	0.020	-4.26
Household type 3	-0.05425	0.028	-1.91
Household type 4	-0.15412	0.026	-5.92
Household type 5	-0.48033	0.031	-15.26
Household type 6	-0.44042	0.026	-16.77
Household type 7	-0.22416	0.029	-7.62
Part time employed	0.04131	0.022	1.92
Retired	-0.04058	0.024	-1.66
Self employed	0.09268	0.021	4.45
Unemployed	-0.24104	0.042	-5.71
Unoccupied	-0.06922	0.020	-3.48
Adj R^2 =0.349			

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Regression of total emissions

- LogE = a + bY + cH + dT
- Explains 35% of variations in household emissions
- Equivalised income dominant:
  - for each £100 increase in weekly income - or £5000 increase in annual income - GHG emissions increase by 0.0688 log points or 6.9%.
- Household type:
  - All bar one significantly different: single person households emit most per capita and households with children significantly less
- Time use/ employment status:
  - All 'workless' household emit less than those with employed HRPs
- None of our other variables significant

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Regressions for sources of emissions

- Standard model applies for *direct* and *indirect* emissions:
  - but explains more of the variation in indirect emissions (34%) than direct (22%)
- Works for emissions from three sources
  - *services* (33%), *transport* (26%): in both number of adults and earners significant
  - and *domestic energy and housing* (21%)
- Poor re *food* (10%) and *consumables* (11%)

Finally emissions from public consumption: the welfare state

- All above concerns private consumption
- Drivers of public consumption quite distinct:
  - law, regulation and the judgement of professionals
- Public emissions 1.8 tonnes per person:
  - health services, 'public administration & other' and education the main emitters
- An inverse relationship with equivalised income, especially social services and education
  - Estimate from ONS 'taxes and benefits' data
- Including this lowers income slope from 2.8:1 to 2.4:1 for all household emissions

Emissions from consumption of public services: the welfare state

Sector	1	2	3	4	5	6	7	8	9	10	*Average*	*10:1 Ratio*
Education	0.30	0.29	0.22	0.20	0.18	0.19	0.17	0.17	0.15	0.10	*0.20*	*0.35*
Health services	0.57	0.76	0.72	0.60	0.52	0.54	0.49	0.47	0.44	0.46	*0.56*	*0.82*
Social work	0.24	0.23	0.17	0.17	0.15	0.16	0.15	0.14	0.13	0.10	*0.16*	*0.41*
Public administration & other *	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	*0.86*	*1.00*
All	**1.96**	**2.14**	**1.97**	**1.83**	**1.70**	**1.75**	**1.67**	**1.64**	**1.58**	**1.52**	**1.78**	**0.78**

* *Public administration & other includes public administration and recreational services*

Source : ONS (2006) The effects of taxes and benefits on household income, 2005/06

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4. SOME IMPLICATIONS FOR SOCIAL POLICIES

- Convert per capita emissions into per capita emissions per £100 income
- The slope of the income decile line is reversed:
  - Inequality of decile incomes (11:1) far exceeds ratio of emissions (2.8:1)
- Ratio of emissions/£: decile 1/ decile 10
  - Total 4:1
  - Food, energy housing 6:1
  - Consumables, services 3:1
  - Transport 2.5:1

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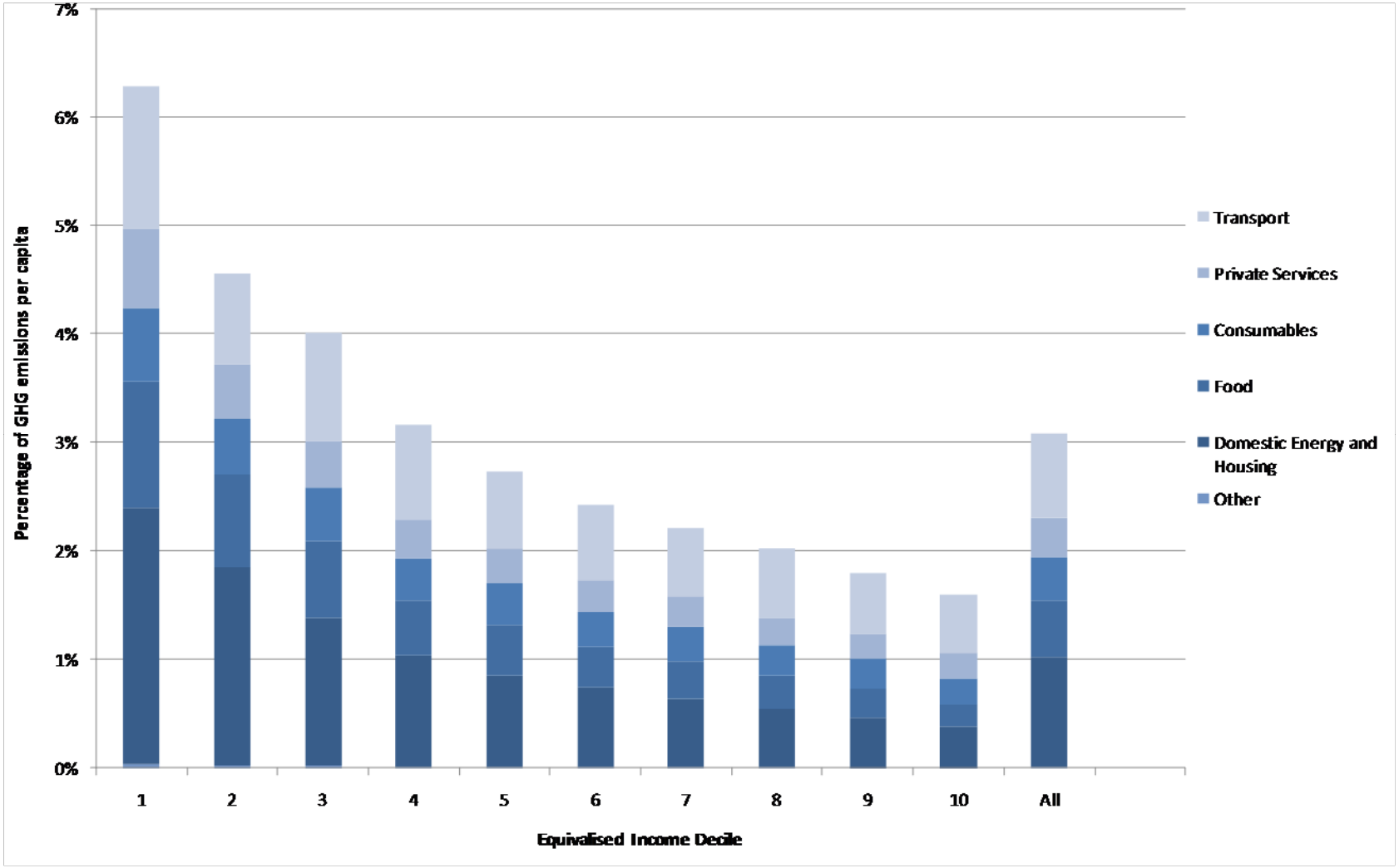
Emissions/income by deciles



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The distributional dilemma

- Any charge on emissions, from whatever source, bears more heavily on lower income households - also small households
- But this especially regressive if charges confined to direct emissions:
  - Current government policies
  - Some alternative carbon tax proposals (Commission on Green Fiscal Reform 2009)
- Two logical alternatives:
  - Personal carbon allowances and trading (PCAT)
  - Eco-social investment programmes

A. Personal carbon allowance/ ration

- Cap emissions and allocate equal annual allowance to all (adults? Citizens?)
- Dual 'price' - £ and carbon credits – for specified goods/ services
- Trading between low and high emitters
- Inherently progressive
- Would make real carbon savings required:
  - Confronts the 'rebound factor'
- A carbon form of Basic Income – with greater legitimacy?

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PCA problems

- Administrative difficulties
- How relate to 'upstream' ETS?
- 'Rough justice': low income losers
  - Many high emitters result from 'lock-in' not 'luxury': structural determinants not easily changed
- Lower allowance for children and differential allowances for others?
  - But too many exceptions undermine the idea
- Defra abandoned plans to test the idea

B. Eco-social investment

- Further development of shift in social policy from compensation to investment
  - Street by street retrofitting of housing stock
  - Major investment in public transport, cycling
  - Direct regulation of consumables, vehicles etc
  - Encouragement of pro-environmental behaviours and consumption patterns
- Argued for by Climate Change Committee, Helm, Giddens etc

Eco-social investment problems

- Requires *major* upfront public expenditure on infrastructure investment, subsidies, plus regulation and green taxation
  - Very long lead times on collective capital stock
- Requires national planning!
  - Yet Decc's *Low Carbon Transition Plan* is such
- This directly confronts dominant marketised strategy
- And induces *real* fiscal competition with 'traditional' social programmes

The dilemma of climate change and social policy

- Social benefits cannot compensate losers for the regressive effects of serious climate change mitigation policies
- But a serious eco-social investment strategy would challenge the nature and fiscal dominance of much existing social policy

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In any case, all present policies fall woefully short of the UK's ambitious targets

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