Reliance on Compliance – Monitoring the consistency of Green Deal energy assessments in Great Britain

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Distinctly Ambitious
www.hw.ac.uk

The Green Deal (GD)

- A loan scheme started in 2012 for households to pay for energy efficiency improvements
- Also linked to an energy company obligation (ECO) scheme
- Eligibility and effectiveness of improvements based on a simple energy model of the home (RdSAP)
- Therefore very reliant on what the assessor does

How GD assessments work

- **Energy Performance Certificate**
  - An assessor generates results of a standardised EPC for a “typical” occupancy (RdSAP model)
- Green Deal **Occupancy Assessment**
  - Results altered to account for specific occupancy of that dwelling
    - Number of people
    - Showers/baths/fridges/freezers
    - Use of energy billing information
- **Recommendations** are provided following both analyses

“Mystery Shopper” exercise

- Commissioned by Department of Energy and Climate Change (DECC)
- Partnered with ICF International
  - Investigate consistency of Green Deal (GD) assessments across an identified sample
  - Indicate reasons for any identified variability by looking at three stages of GD reports

Sample size

- A relatively small sample of households took part
  - Part of a slightly larger sample (48) involved in a “customer journey” survey
  - 29 households assessed by four registered GD assessors
  - A fifth assessment was carried out by an independent assessor (CADS) as part of the project team
  - Results must be placed in context of sample size
    - But 145 GD assessments still provided a revealing picture...

Data sources

- Assessments registered on central GD Oversight and Registration Body database, including:
  - EPC inputs and results
  - Occupancy Assessment (OA) inputs and outputs
  - Summed post-OA improvements
- Mystery Shopper questionnaires

Mystery Shopper questionnaire

- Provided further information such as
  - Duration of assessment
  - Questions asked (and not asked) by assessor
  - Getting to the bottom of “mysteries” in the databases (e.g. why did the assessor do that?)
  - The effect of occupant-assessor interaction on final recommendations in the GD report
  - Overall experience from booking the appointment to final contact

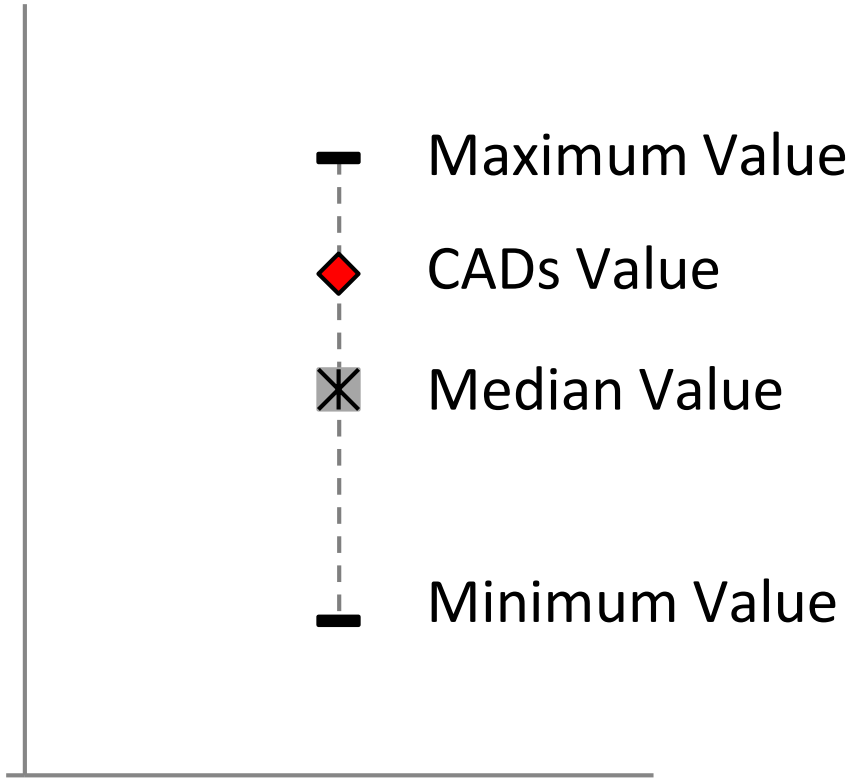
See DECC report, “Green Deal Assessment Mystery Shopping Research”, December 2014 at www.gov.uk

Respondents satisfied...usually....

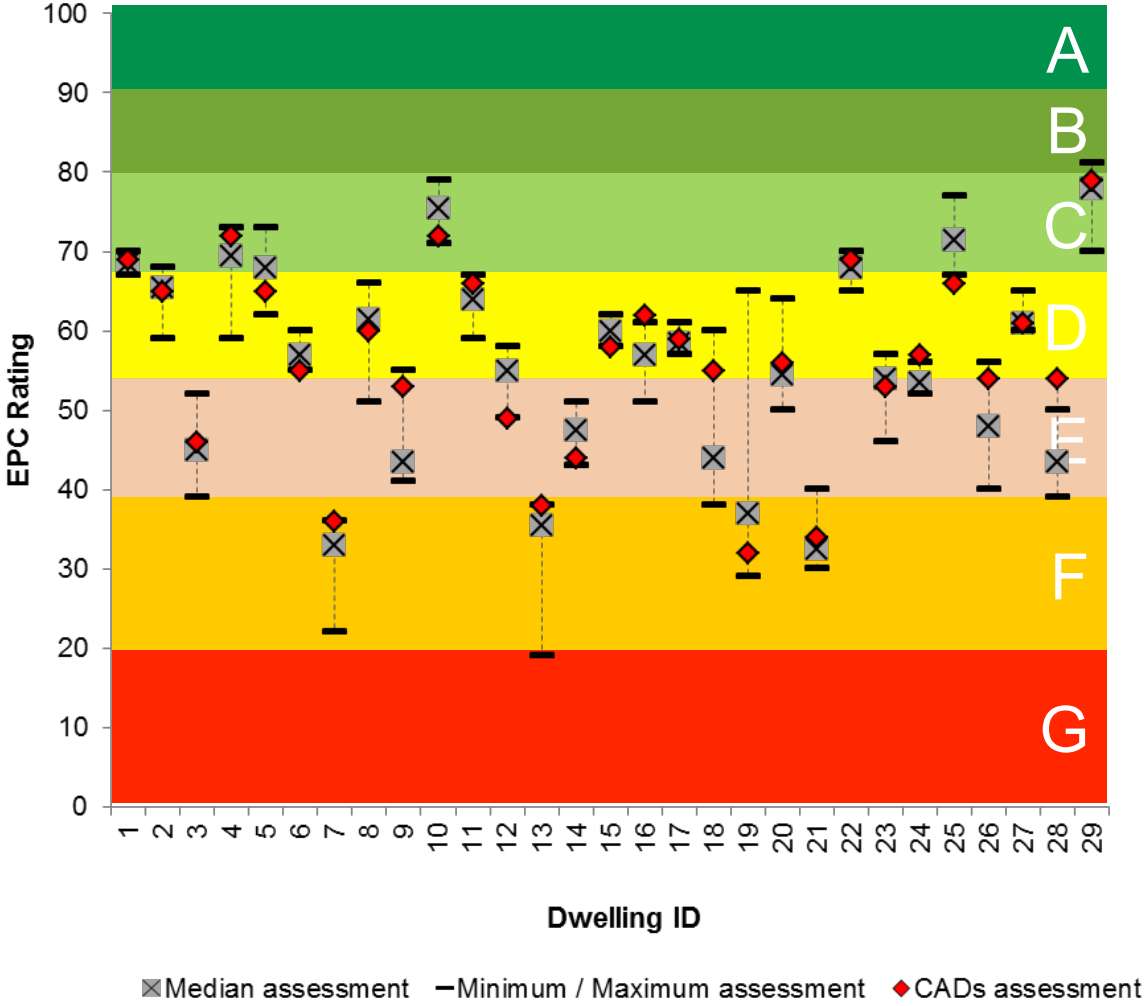
*“He [the assessor] rushed through the assessment. He started **drilling holes in my outside wall without telling me he was going to do that or why**. The only recommendation he made was the loft insulation, despite my boiler being 15 years old and I did not have cavity wall insulation or energy saving bulbs.”*

- Quote from householder

Format of quantitative results



Variations in EPC results

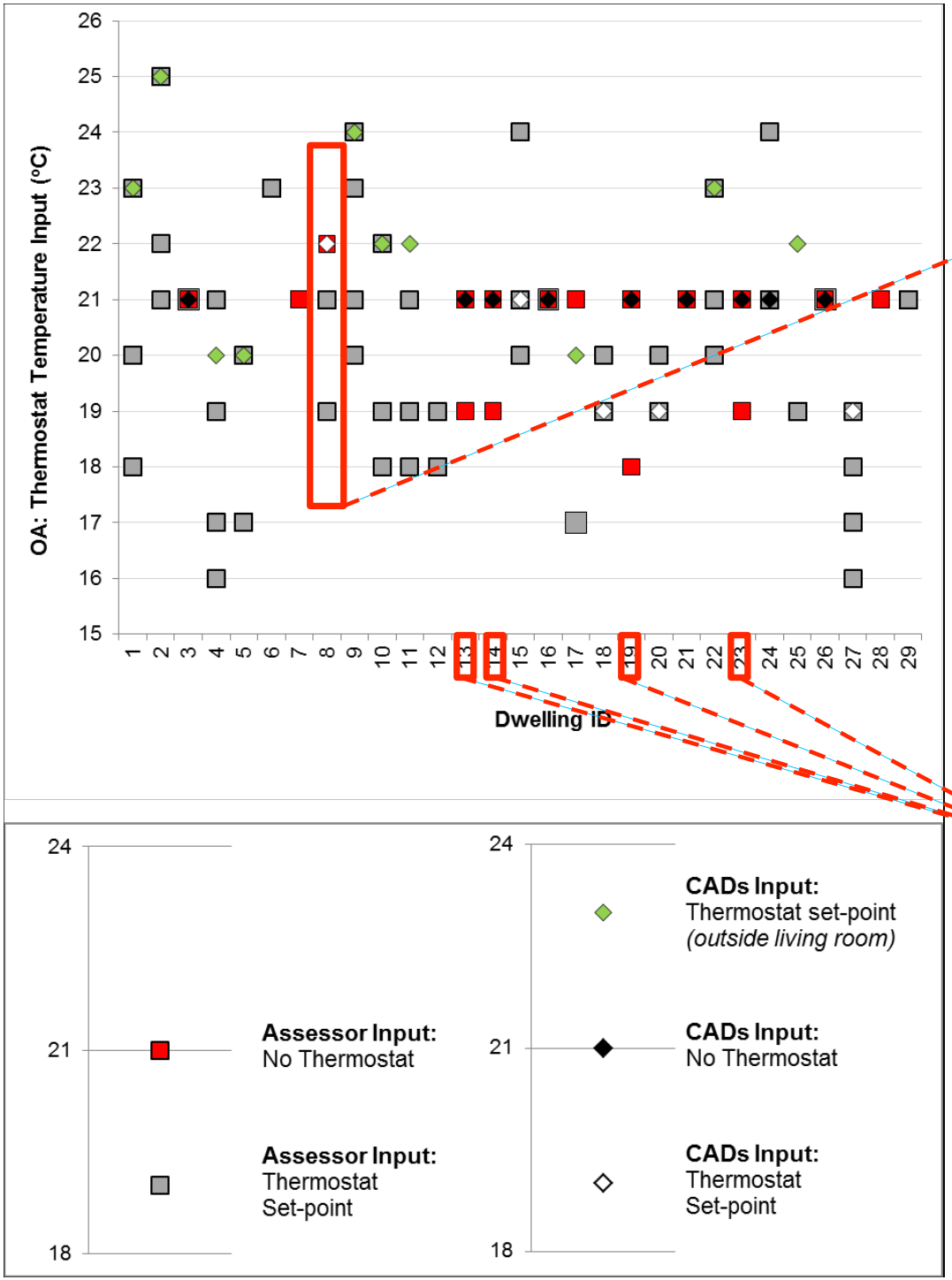


Average range = 11.1 ratings points

Nearly two thirds of households showed variation across two or more energy bands

Occupancy Assessment – thermostat temperature

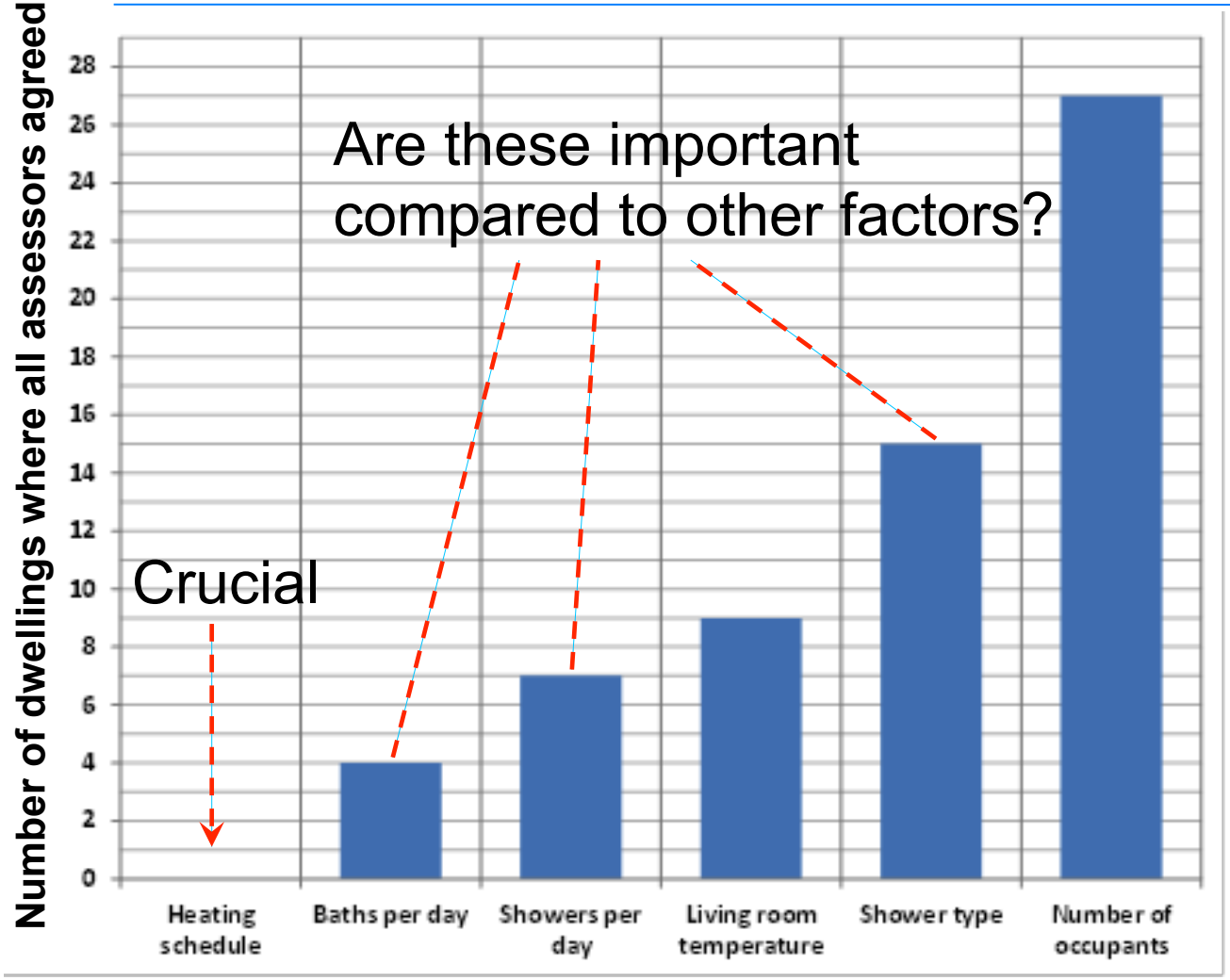
- OA allows specific set-point of thermostat to be used in calculation of space heating
  - But can use default of 21°C if no thermostat exists
- If thermostat is outside “living area” then 3°C *should* be added to observed value
  - But confusion noted in definition of living area
- Cases of assessors disagreeing on whether thermostat existed and, whether there or not, what temperature *should* be used



Assessors disagreeing on temperature, with one assessor using a non-default setting even though s/he stated no thermostat existed

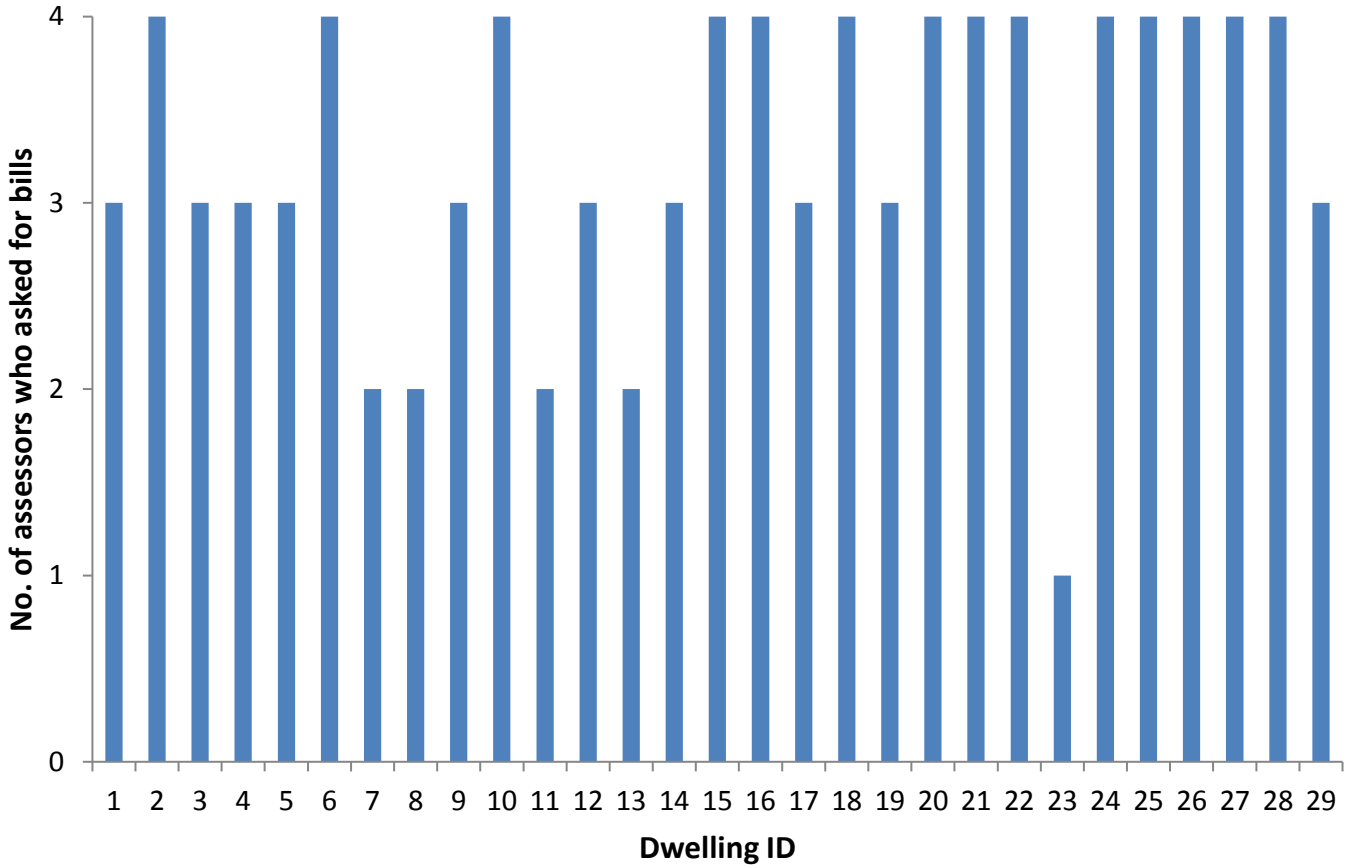
More examples of non-default temperatures used in homes without thermostats

Other OA inputs – lack of agreement?



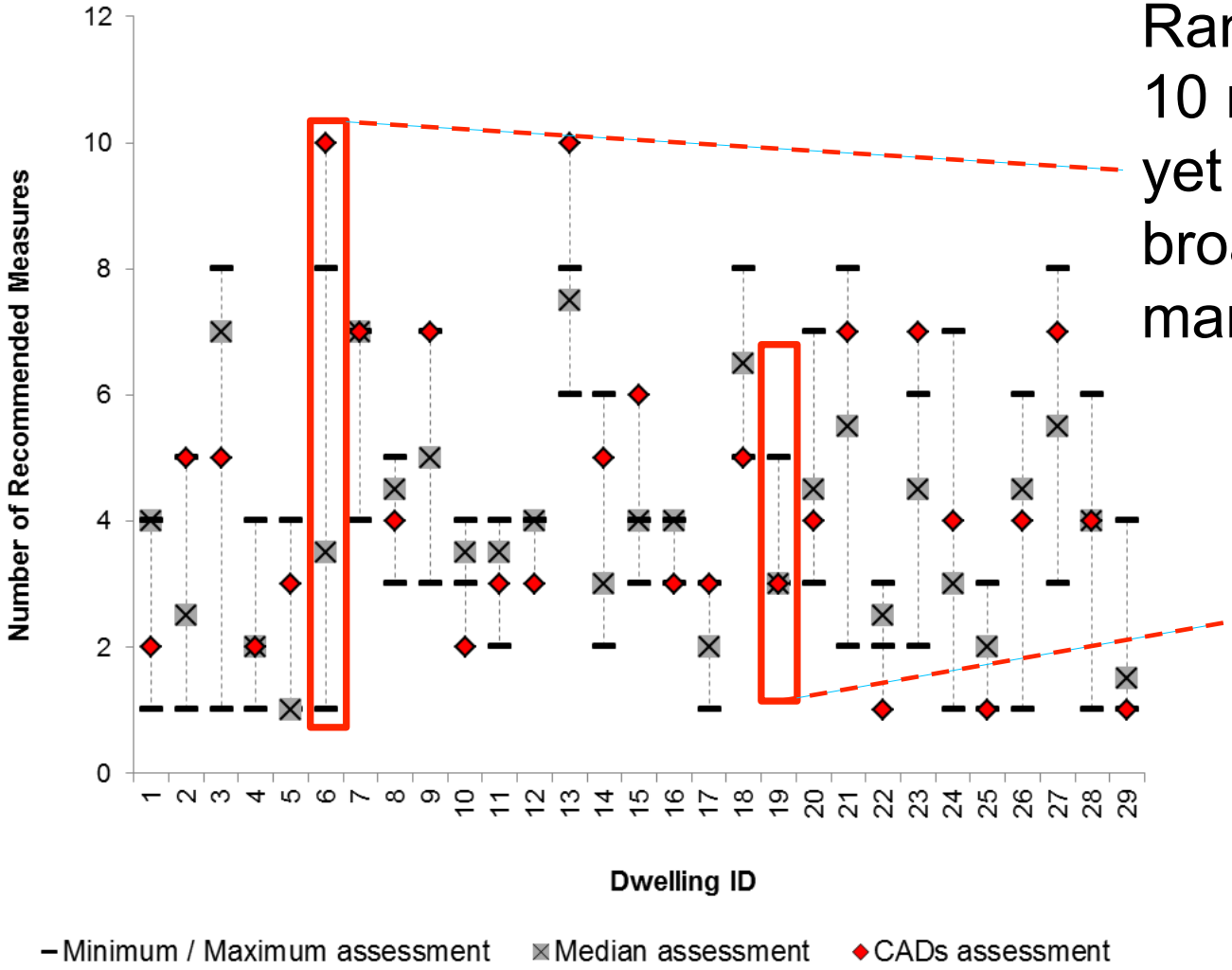
Further signs of assessor interpretation becoming more of a factor

Source of disagreements – did they ask for energy bill data?



In 21 of the 116 assessments, bills were not asked for

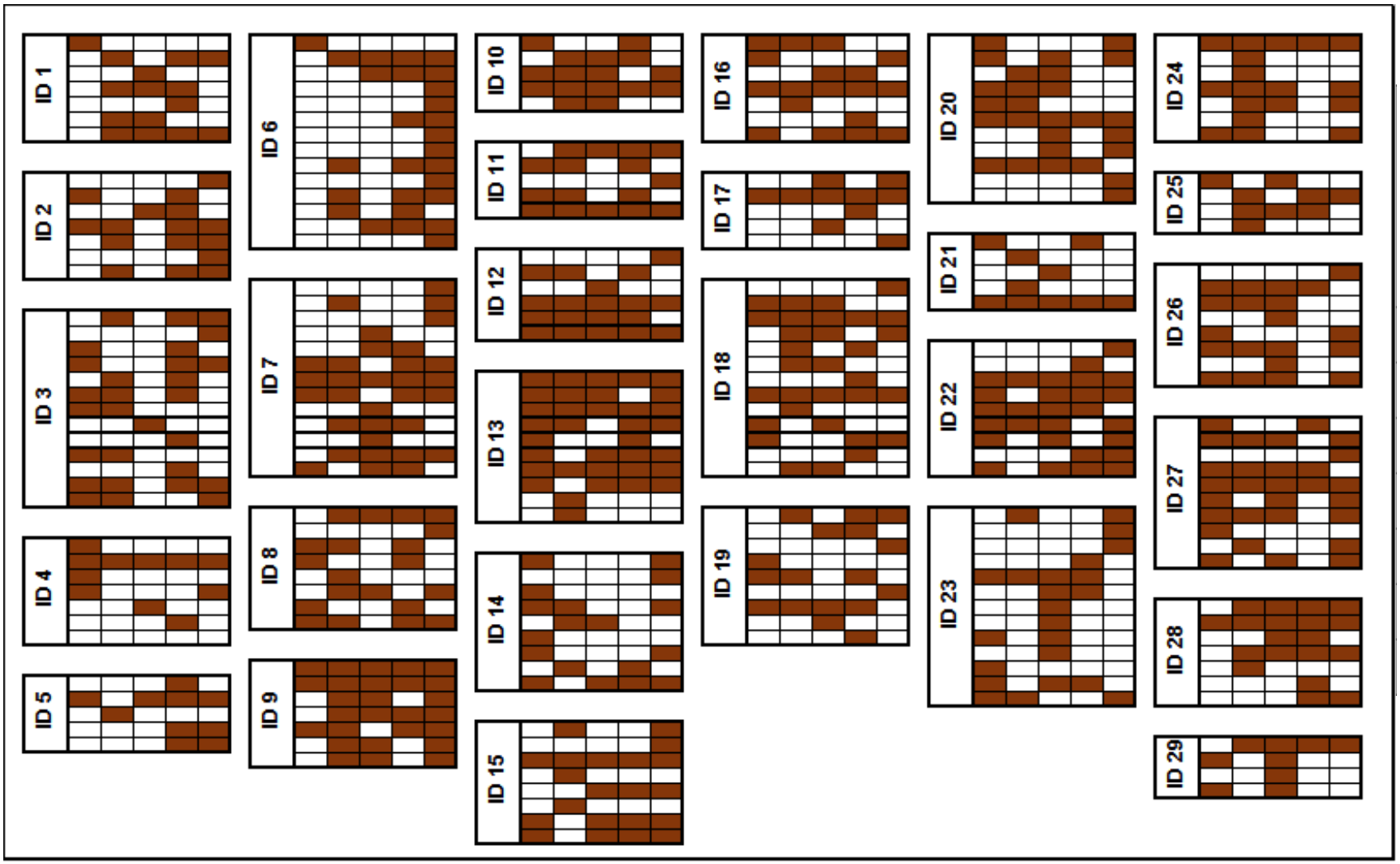
Recommending measures



Ranged between 1 and 10 recommendations – yet assessors were in broad agreement for many inputs

Significant differences in space heating costs yet similar no. of measures

And differences in type of measure



Main sources of disagreement

- Total floor area
  - But unclear whether this had dramatic effect on EPC
- Thermostat temperature/heating schedule
  - Linked to confusion over “living area” definition
- Other OA inputs
  - Though none likely to be as important as the above
- Interactions with householder
  - Include all recommendations possible then decide later

vs

  - Rule things out during conversation with occupant

Findings from study

- Clearer rationale needed for choosing final recommendations
- More guidance needed on conducting OA
  - Remembering differences between OA and EPC approach are likely to cause confusion
  - Or are errors occurring due to lack of knowledge rather than guidance?

Evidence of clear errors and mistakes....

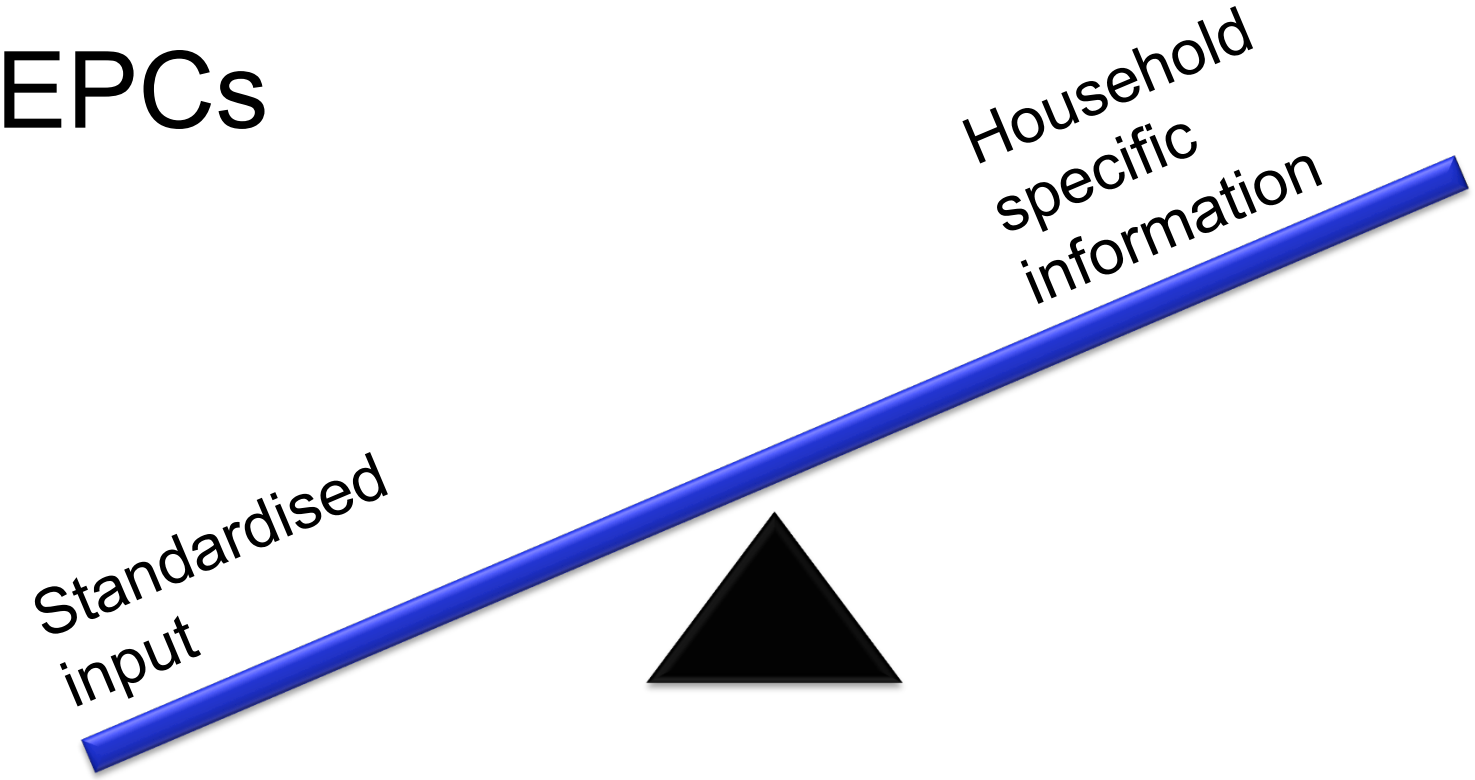
- Assessor asked for depth of LI and CWI in a stone-walled house with no loft
- DG and SWI recommended for a house with DG and SWI already present
- Thermostats recorded in homes without thermostats
- One assessor refused to use energy bill data provided as it was “online”
- Householder told that a technology was not possible (e.g. SWI) but this was then included in the report
- Building orientation repeatedly incorrect
- Several OA questions not asked according to the householder survey

Other comments

- Does GD push this form of modelling too far?
  - Focusses on bill predictions rather than “energy compliance”
  - This form of “steady-state” model has very little empirical validation
  - More general problems with energy modelling are *magnified* by GD
- Assessors can become accredited after 7-9 days training
  - Is this sufficient? Does it explain variation in quality/ knowledge of assessors in the sample?

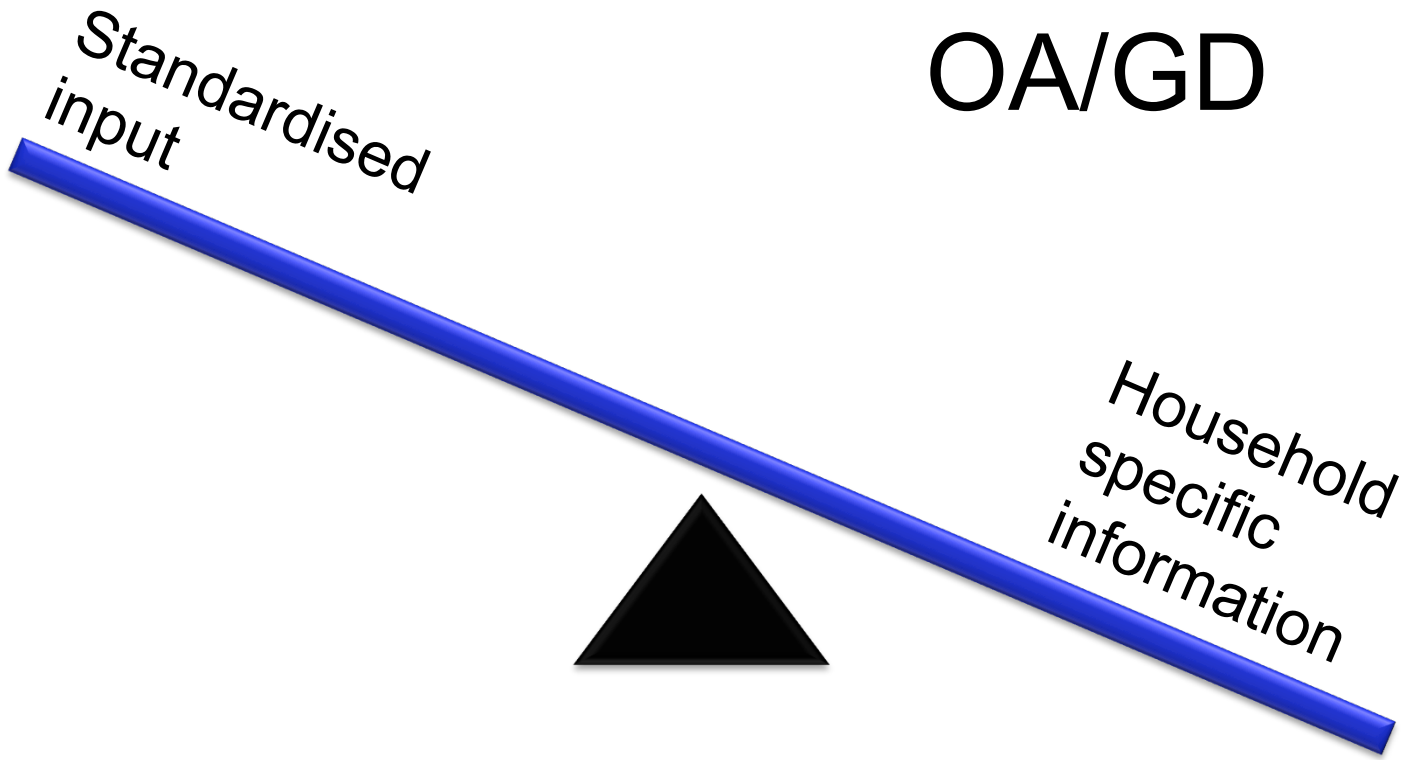
Upsetting the balance and consequences

EPCs



+ Consistency should be possible across stock
+ Reasonable requirement of our models?
- Advice might not be suitable for basing detailed savings on

Upsetting the balance and consequences



+ More tailored to a specific household
- Greater onus placed on understanding of assessor
- Can our models achieve this level of “accuracy”?