Self-Disconnection Among Pre-Payment Customers

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- Background

- Stylized Facts About Self-Disconnection

- Puzzle: The Timing of Self-Disconnection

- A Possible Solution

- Policy Implications

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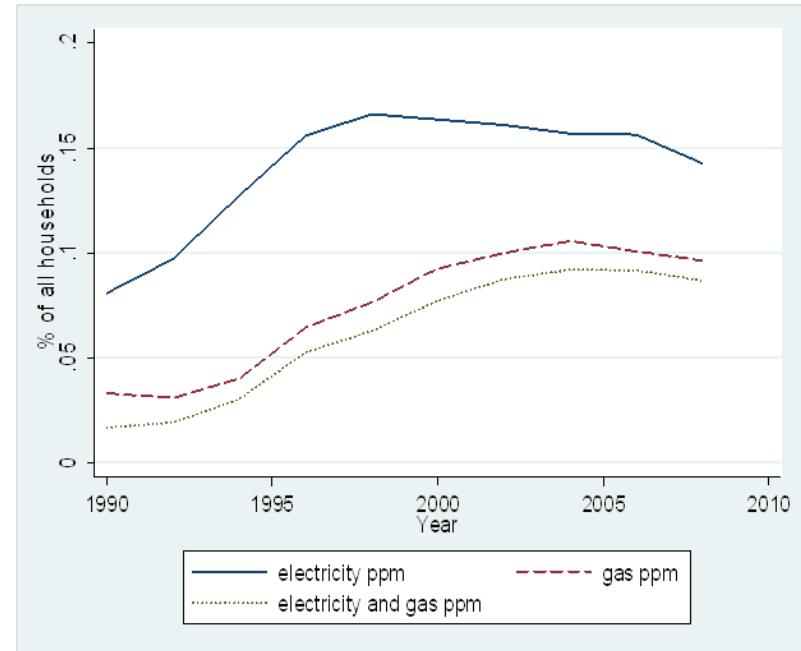
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# An increasing number of households in GB use PPMs.

- Between 1990 and 2009:
  - The share of households using an <u>electricity</u> pre-payment meter increased from ca 8% to 14%.
  - The share of households using an <u>gas</u> pre-payment meter increased from ca 3% in to 10%.
  - The share of households using both increased from 2% to 9%.

Self-Disconnection is the main disbadvantage of PPMs.

- Advantages:
  - They allow to break energy bills into a series of (arbitrarily) small payments;
  - They often come with a lower-than-standard tariff; and
  - Detailed information feedback allows to monitor energy use.

- Disadvantages
  - They are associated with significant transaction costs: and
  - They can lead to self-disconnection
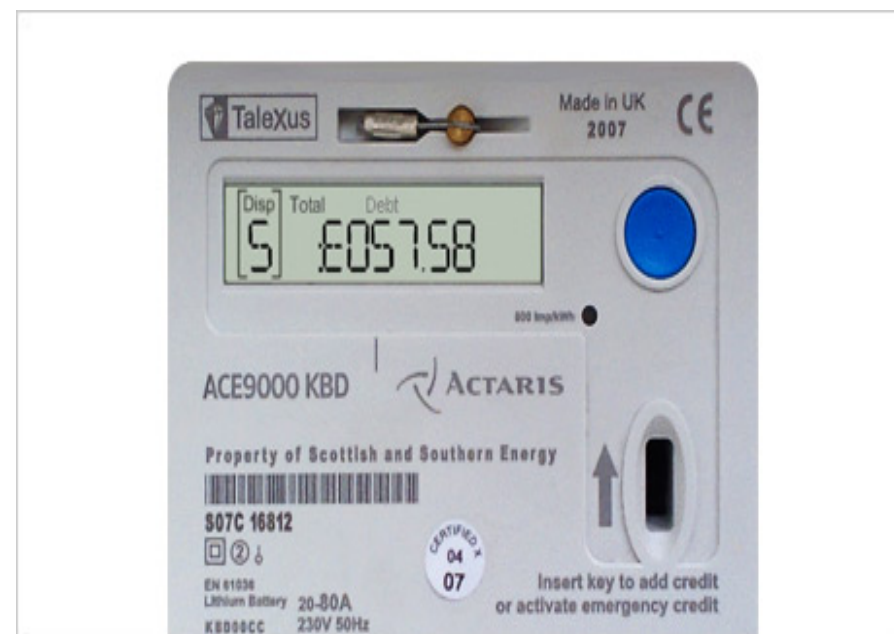
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There is a lot of uncertainty about what we know.

Study	Approach	Findings
Drakeford (1995)	Questionnaire: households recruited through Citizen Advise Bureau	51% of hh reported having self-disconnected
Centre for Sustainable Energy (1998)	Questionnaire: households which receive council tax benefits	28% reported having self-disconnected
Doble (2000)	Questionnaire: 200 randomly chosen households in Coventry	33% reported having self-disconnected
Centre for Management under Regulation	Questionnaire: Stratified sample of 3400 households	25% reported having self-disconnected
National Housing Federation (2008)	Questionnaire: 100 households (Sample selection not clear).	9% of households reported having self-disconnected

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# Better Data promise more clarity.

- Metering data:
  - 2.3 million households with an electricity PPM account with British Gas spanning the years 2007 to 2010 (inclusive).
  - Variables include: electricity use, top-up behaviour, use of emergency credit etc.

- Survey data:
  - Additional demographic, socio-economic and behavioural information on 500 hhs with an electricity PPM account with BG.

→ Data allows us to get access to much larger sample size than before and to circumvent problems of recall/ response bias etc.
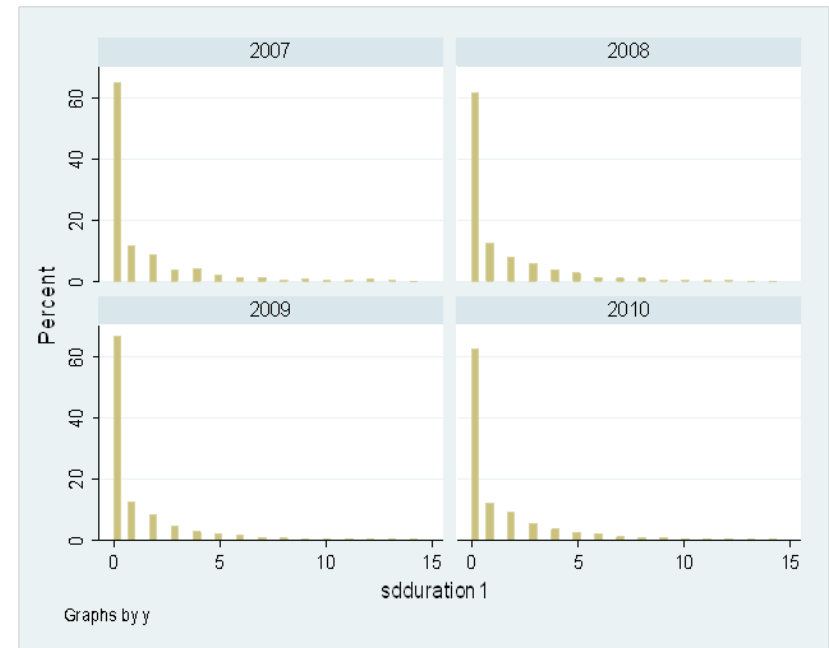
Stylized Facts I

- ## Frequency of Self-Disconnections:
  - The majority of households never self-disconnected (ca 78%);
  - 12% of households self-disconnected once;
  - Approximately 3% self-disconnected more often than four times.
  - This pattern is relatively stable across years.
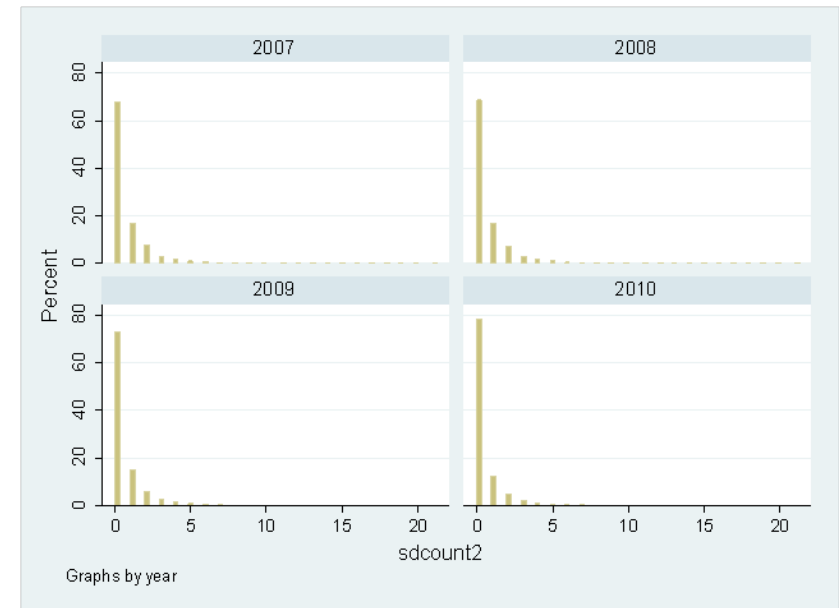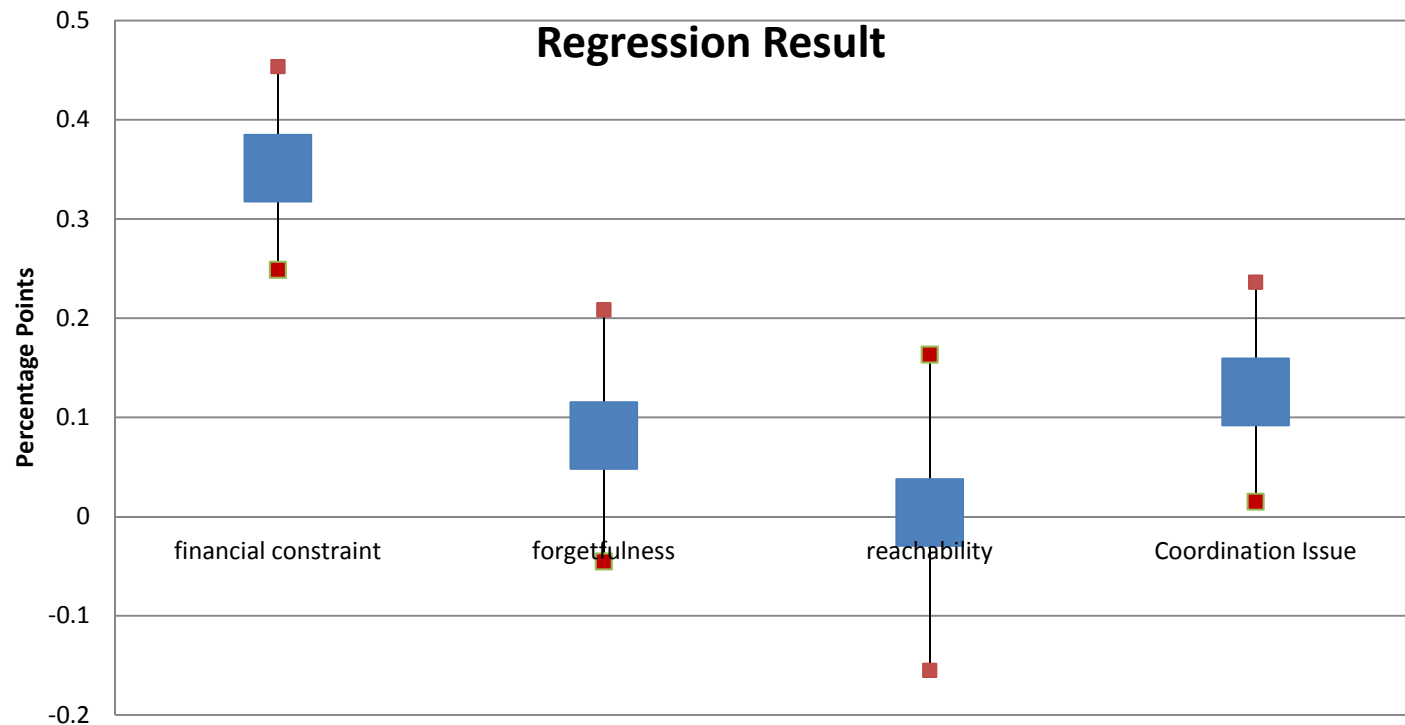
Stylized Facts II

- **Duration of Self-Disconnections:**
  - The majority of self-disconnections (>62%) last for less than one day;
  - Between 72% and 82% of self-disconnections last for less than two days.
  - Between 12% and 18% of self-disconnections last longer than 3 days.

Stylized Facts III

- The main driver of self-disconnection is financial constraints:

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The optimal timing of self-disconnection.

- From a rational perspective - households should self-disconnect whenever it hurts them the least.

→ What this suggests is that households should spread the total amount/total duration of self-disconnection evenly over the course of a year

→ That is, even if they face a strong seasonal pattern in income flows/energy use. (In the latter case they should simply borrow/save to ensure that at any point they have the right amount of cash available).

* In the absence of seasonal differences in tastes/prices, that is.

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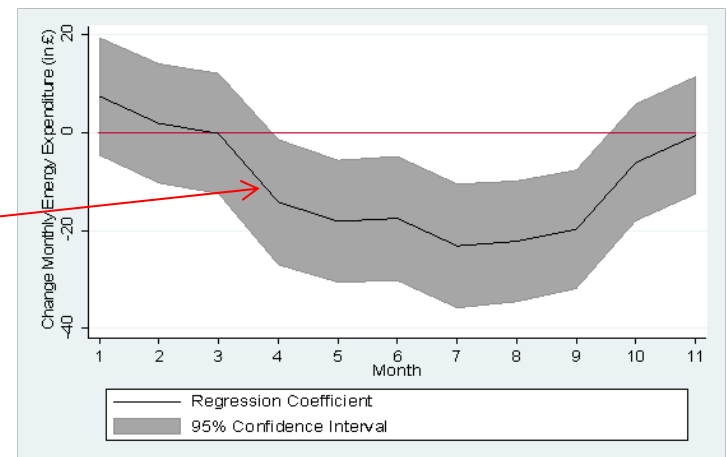# In practice: households do not behave optimally.

- The probability that a hh self-disconnects is highest in the autumn/winter and lowest in the spring/summer.

- This is very similar to hhs' pattern in energy spending.
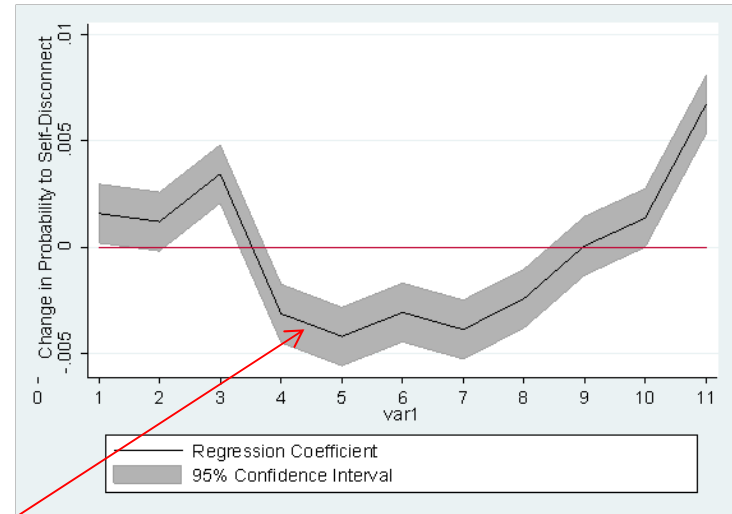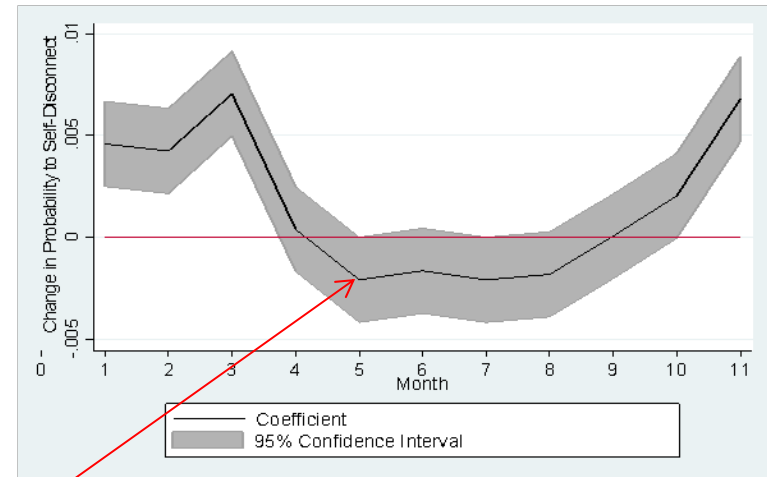
Probability to SD*

Energy Spending*

* relative to December

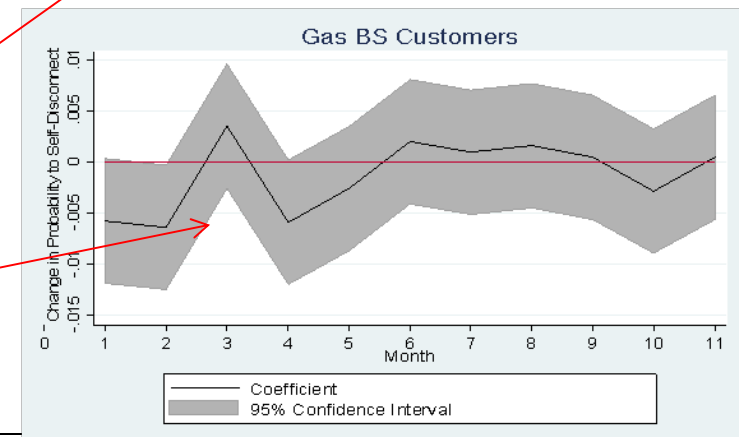# In practice: households do not behave optimally 2.

- The resemblance in patterns is not accidental:

- Households with a stronger seasonal pattern in energy spending also show a stronger seasonal pattern in self-disconnections.

Probability to SD - hhs with a gas ppm

Probability to SD - hhs on a gas budgeting scheme

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A possible explanation: Preference Reversals

- The way preference reversals can affect households' ability to smooth self-disconnections is by affecting their ability to save.

→ The basic idea of preference reversals is that: while in the autumn/winter households might have a strong preference to save in the spring/summer, as soon as the spring/summer arrives their preferences change and -- instead of saving -- they keep on consuming (making themselves vulnerable to excessive self-disconnection in the following autumn/winter).

Measuring Preference Reversals

- Question 1: Would you prefer to receive £350 guaranteed today or £400 guaranteed in 1 month?

- Question 2: would you prefer to receive £350 guaranteed in 6 months or £400 guaranteed in 7 months?

What we find is…

- Preference reversals are associated with a 40% increase in the ratio of self-disconnections in the autumn/winter compared to the spring/summer.
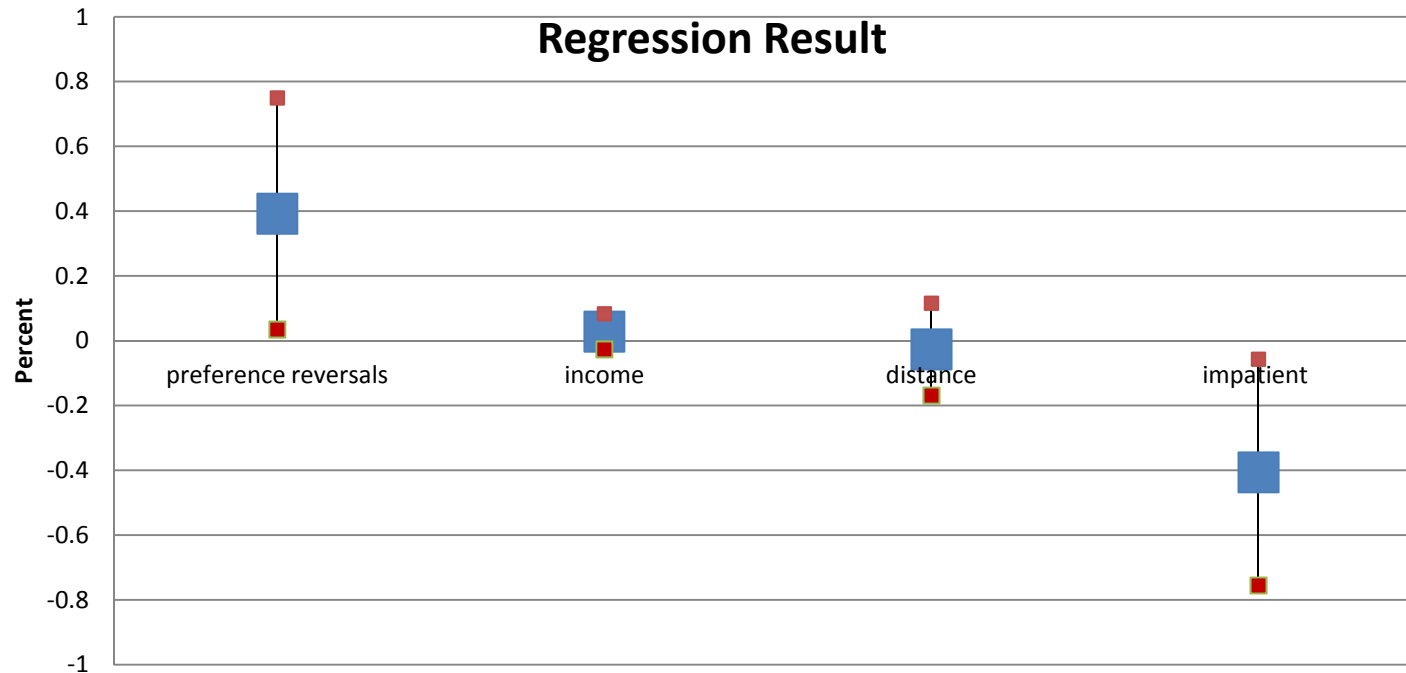
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Two possible policy responses

- Theoretically, there are two possible policy responses to preference reversals:

→ Increasing the awareness of preference reversals among households (so that households can respond to them).

→ Providing households with a commitment savings device (which allows them to 'commit' irreversibly to their ideal savings plan). That is, provide them (also) with a tool to respond to preference reversals.

A test to determine the optimal policy?

- If households 'just' need to be made aware, we should find that 'awareness' reduces the negative effect of preference reversals.

- If households need a commitment savings device (possibly on top-off being made aware of their problem), then we should find that being 'aware' is not sufficient to reduce the negative effect of preference reversals.

Which policy response to choose?

- What we find is that 'awareness' does have a significant mediating effect on preference reversals:

→ For households which are 'aware' of their preference reversals, the effect of preference reversals is less than half the size it is for households which are not 'aware' --

→ This suggests that priority should be given to increasing awareness of preference reversals and their negative consequences when it comes to smoothing self-disconnections/minimising the negative impact of self-disconnections.

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- At least for a small part of pre-payment customers self-disconnection is a real burden.

- To the extent that the main driver of self-disconnection is financial constraints, self-disconnection constitutes a hard policy problem.

- At the same time, it may be possible to reduce the negative impact of self-disconnection – in a relatively inexpensive way – by helping households to better smooth their self-disconnections over the course of a year.

Stylized Facts IV

- Frequency vs (total) Duration:
  - There is a positive relationship between frequency and (total) duration –
  - Such that households which self-disconnect more often also tend to be without electricity for longer.

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