# "Distributional and competition aspects of energy pricing: a memorial lecture for Gill Owen".

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## *0. Introduction.*

I intersected with Gill Owen in two periods of our lives: once when she and I overlapped in the 1990s on what was then called the Monopolies and Mergers Commission before it was translated into its next, more positively expressed title, the Competition Commission. And then at Warwick Business School in the period up to 2010, when we both worked, with Catherine Mitchell, Monica Giulietti and others, at a regulation research centre.

I admired the work she did on the subject I am going to speak about today, and am only too well aware that she made herself much more expert on such matters than I am. I also admire the consistent way in which she combined her objective and scholarly research with the promotion of a coherent policy agenda, across several decades and in two continents, the latter work often being done in collaboration with her husband, David.

Gill's interests revolved around two central issues in energy policy: sustainability and the protection of consumers, particularly vulnerable consumers. I have decided that I cannot cover both and have hence chosen to talk about household consumption issues. Nor will I say anything about energy security issues. I do note, however, that policy and regulation in relation to these two issues do have a major impact on prices. And I support the various recommendations in the CMA energy inquiry report dealing with such matters of policy, governance and transparency.

My lecture falls into two parts. The first is a review, in economic and regulatory process terms, of how distributional issues can be taken into account in setting household energy prices. I then consider competition aspects of the same prices.

## *1. Distributional aspects of energy pricing.*

We do not normally discuss distributional aspects of the pricing of baked beans. But energy in Great Britain is a special case, in the light of the very substantial numbers of households which spend more than 10% of their disposable income on it, and on its significance in providing the precondition for a tolerable life, or even preserving life itself.

Acting on prices is not the only way of solving the distributional problem, but operating on the income side of the equation is not yet an adequate alternative.

A . Top down approaches.

We begin with a standard historic top-down approach to redistributive issues, exemplified by the pursuit of Bentham's overall goal of ' the greatest good for the greatest number'; in other words, Bentham with maths.

On the income rather than the price side, I first came across this approach in the heyday of the 'project appraisal' fashion in development economics in the 1970s, when there was a strong focus on choosing centrally those individual projects which yielded the greatest returns. The key to success in this approach was to 'reprice' all inputs and output at appropriate prices – world prices for tradables, the price of capital as an efficient discount rate, and shadow prices for non-tradables such as labour, in circumstances where the market price of labour in the formal sector exceeded labour's opportunity cost in the rural sector. Manuals showing how to re-price resources were written by very distinguished economists, including two subsequent winners of the Nobel prize for economics, Amartya Sen and James Mirrlees. The decisions were implemented from the top, via the allocation of investible funds to public projects .

It was then recognised that in this top-down world of project selection, the re-pricing could extend to the pursuit of distributional goals. This could be accomplished essentially by lowering the shadow wages of low paid workers, relative to that of their more highly paid equivalents, to reflect the greater social welfare gain of taking them out of poverty. With sufficient dispersion of these 'welfare weights' the shadow wage might even go negative. This refinement became available, and it was embodied in World Bank project appraisal guidelines, but, given the existing complications of the process, and the limited subsequent impact of 'project appraisal' as a development tool, it was not much taken up in practice.[2]

However, the same approach found application at the same time in utility pricing. The key point to remember was that at that time, the relevant sectors were monopolies, so no pricing scheme could be undermined by 'cream-skimming' activities.

The mechanics of utility pricing with distributional or welfare weights are as follows.[3] You assume a social welfare function, which aggregates the utility of individual households. Each household can be assumed to have identical utility functions exhibiting a declining marginal utility of money.[4] The rate of decline is captured by a variable called the elasticity of the marginal utility of money. Suppose a person's monetary income rises by 10% and the marginal utility of money falls by 15% then

[2] See Ian Little and James Mirrlees, 'The costs and benefits of analysis,' reprinted in R Layard and S Glaister (eds.) Cost-Benefit Analysis, 1994, pp. 207-209. The underlying assumptions are discussed in R Layard and A Walters, 'Income distribution', pp. 179-199 in the same volume.

[3] See Roger Sherman, The Regulation of Monopoly, 1989

[4] This implies that no account is taken of differences in individual household needs, but an adjustment can in principle (and practice) be made for this.

the elasticity (ignoring the negative sign) is 15/10 or 1.5 . In fact, an LSE study reports that the bulk of evidence shows that the value of the elasticity is about one, so that a 10% increase in monetary income reduces the marginal utility of money by 10%.[5]

The combination of individual utility functions can simply be by simple Benthamite summation. This leads to the famous problem of 'utility monsters' – people whose unusual capacity for deriving utility from income causes large amount of resources to be devoted to their enjoyment, while those of the opposite tendency are starved of resources. Those who regard this as unacceptable prefer an alternative social welfare function which reflects a socially chosen level of inequality aversion.[6]

This approach can be inserted into utility pricing in several ways, some involving uniform pricing, others different prices for different groups (or, in the limit, even personalised pricing). In one variant, the relative (uniform) prices of different services are configured in accordance with the income elasticity of demand: thus services predominantly consumed by better off households face higher mark-ups, while the prices of those which are consumed at a fairly uniform rate by all income classes are set low. If prices are non-linear, for example with a standing charge and a per unit charge, or with variable block prices, welfare weights can determine the choice of the structure. Alternatively, different income classes of consumers can face different prices for the same service, in such a way that total revenue covers total costs.[7]

In both cases, the problem shares some common features with that of recovering the fixed costs of network operation. In the well-known Ramsey-Boiteux pricing model, this is accomplished by setting individuals' contributions to such cost recovery in inverse proportion to their price elasticity of demand, such that those who respond the most to price changes make the least contribution.[8] This minimises the loss of unweighted consumer surplus .

But in an equity- weighted scheme, a low income household will find itself making a smaller contribution to those fixed costs, while richer household will contribute more – the comparison being made between contributions with and without the distributional adjustment; the reasoning being that a contribution to fixed costs by

[5] Such evidence uses the behaviour of people presented with risky alternatives. Thus a person with a high elasticity of marginal utility will require substantially higher winnings to persuade her or him to risk a given monetary loss. Cowell, F A and Gardiner, K (1999), Welfare Weights, STICERD, London School of Economics, Economics Research Paper 20, Aug 1999.

[6] See Layard and Walters, op. cit. in fn. [2].

[7] See Sherman op. cit . in fn [3] for further details.

[8] For the avoidance of doubt, each household in this somewhat abstract framework starts the process by covering its marginal costs, including any marginal environmental cost to which its consumption gives rise). With welfare weights, this property may not be retained.

a poor household imposes the same monetary loss but more pain than the same amount contributed by a rich household. [9]

At first sight, energy pricing seems a particularly suitable arena for such pricing, since it has a low income elasticity of demand: the share of disposable income expended by the poorest decile of households is about 10%, while the equivalent figure for the richest is about 2.5%.

How granular the redistribution can be depends on a mixture of social preferences and practicability. In the limit, prices could be personalised. Or classes of consumers could be made eligible for different levels of subsidy. The criteria need not be confined to income: need can be separately assessed. The approach also includes the special case where higher distributional weights are attributed to a minority of users on low incomes, and costs and benefits accruing to the majority were counted at par.[10]

This may all sound a bit far-fetched, but such equity weighting in policy formulation is sanctioned by the Green Book, which notes that the evidence supports use of an value of the elasticity of the marginal utility of money of one.[11] The approach was recently applied in the regulatory impact assessment for the Warm Homes Discount (WHD) Scheme, under which about 2 million households receive an annual reduction in their fuel bills, the cost of which is smeared across all household bills. Even though a small proportion of households benefit from the scheme, all contribute, so a weighting of all deciles is required. The scheme is top-down obligation imposed on all suppliers above a certain size.

The welfare weights used in the appraisal for the different decile groups were as follows:[12]

| **Decile** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** |
|---|---|---|---|---|---|---|---|---|---|---|
| **Welfare weight** | **3.6** | **2.0** | **1.5** | **1.3** | **1.1** | **0.9** | **0.8** | **0.7** | **0.5** | **0.4.** |

[9] I am aware of a more detailed discussion of how energy costs of different kinds might be allocated approach to the allocation of energy costs based on fairness as set out in Jon Bird, Smarter, fairer? A discussion paper on cost-reflectivity and socialisation of costs in domestic electricity prices. Sustainability First, March 2016. This paper also covers the vexed question of inter-generational cost allocation.

[10] This focus has some affinities with Rawls' principle (in A Theory of Justice, 1971) that in dealing with inequalities, matters should be arranged in the interests of the least-advantaged member or members of society.

[11] HM Treasury, The Green Book - Appraisal and Evaluation in Central Government, 2013, appendix 4. The approach adopted appears to neglect the second stage in the weighting process, that of defining a social welfare function which may reflect (amongst other things) society's degree of inequality aversion.

[12] DECC**,** Warm Homes Discount Scheme, Impact Assessment, 2016-*18*, available at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/531163/Warm_Home_Discount_2016-18_extension_Final_IA_23_06_2016.pdf

The weight for the lowest income decile (3.6) is nine times that for the highest (0.4). To be consistent with an elasticity figure of one, this implies that the average 'equivalised'[13] income of the top decile is nine times that of the bottom decile.

Note that this is an example of what I might describe as ' (very) piecemeal welfare weighting.' Most obviously, the transfers do not apply to all income and expenditures. Second, even within the framework of energy prices, the scheme is not engineered – as it could have been - to maximise the weighted welfare improvement. Instead only two options are assessed: scrapping the scheme, and continuing it.

In other words, the top down welfare weighting approach plays a very subordinate role in providing a check on a scheme which emerges from a political process. I think that is quite appropriate. But political processes are not immune from electoral opportunism and voter bribery. So I for one am glad that the WHD scheme was subject to the impact assessment.

I return briefly to the issue of fixed costs, the allocation of which can be made in a number of ways, including on distributional grounds. One standard breakdown of the costs of supplying end users identifies four components: energy costs (not price-regulated), transmission and distribution (price-regulated), policy costs (determined by government or regulation), and retailing (mostly not price-regulated.)

A point made forcefully by Helm in a recent book [14] is that, in the case of electricity, the impact of recent policies has been to change the cost structure of these activities in a radical pattern.

Thus while conventional generation from fossil fuels imposed significant private costs in generating the electricity as well as large marginal external costs associated largely with carbon emissions, their replacement technologies – wind, solar , and nuclear – have very low or even zero marginal costs, both private and external.

Policy costs are essentially taxes providing subsidies for generation or consumers. The marginal cost component of transmission and distribution is very small. And retailing costs are not only very small but also largely driven by customer numbers.

The implications of these changes for all components of the value chain are very large. As far as distributional questions are concerned, they give regulators and policy makers a great deal more latitude in the configuration of charges which do not risk over-consumption, defined here as marginal price failing to cover marginal costs. One way of exercising such discretion is to recover all the fixed costs via a progressive tax system, and let everyone have low marginal prices. But this comes up against another well known shadow price – the shadow price of public finance, or the cost of distortions throughout the economy associated with taxation of things

[13] Equivalised means adjusted for household composition.
[14] D Helm, Burn Out: the End Game for Fossil Fuels, 2017

such as labour or goods and services. However, as Little and Mirrlees point out (in another context) with distributional weights the shadow price of public finance can lie between the value of the private consumption of rich households and the value of the private consumption of poor households. [15]

A more conventional approach is by creating a universal service obligation imposed on the monopolist. This usually has two separate dimensions: a requirement for averaged charges, irrespective of costs, and special schedules of charges for particular classes of customer. Geographically averaged pricing is often justified in part by other considerations than distribution, notably by regional development considerations or network effects.[16] In the case of utility services, differential prices are assisted by the difficulty (but not impossibility) of reselling the product.

This is a practicable implementation of a very crude redistributive scheme. One or both of two types of customer are favoured, those with high costs and those identified as disadvantaged. In some sectors, such as communications, the distributional benefits are accompanied by network externalities.

Where does the money come from in practice? Governments generally reveal a preference for cross-subsidy among consumers; regulators and firms prefer tax finance. But it is the government, with taxing power, which generally calls the shots.

Some aspects seem to depend on chance (or history). In GB, geographically averaged tariffs can be determined for the country as a whole , as in telecommunications, or, as in the case of distribution and transmission charges in electricity and wholesale and retail water prices, for one or two dozen or twenty contiguous geographical areas, in some cases of wildly divergent size. The nature of the services covered may change over time, as has been the case with telecoms. I also note below the substantial differences in the coverage of reduced price schemes across energy, telecommunications and water.

## B. Competition

On the face of it, cost averaging and price discrimination do not sit very comfortably with competition. A monopolist can be made to serve every household, its solvency protected by guaranteed demand and its (probably regulated) market power.
But in a contestable world, no competitor would want to serve certain low tariff or high cost customers.

[15] Little and Mirrlees, op. cit. in fn 2, page 203.

[16] Note that charging the same price for services produced at different costs is, despite appearances to the contrary, a form of price discrimination, and not of price uniformity.

This difficulty can be resolved by regulation in several ways. Each firm in the market can be made responsible for subsidising its own set of households benefitting from the arrangement.

Or one firm (typically the former monopolist) can be assigned the obligation, while a calculation is made of the net costs incurred by that firm in meeting it. Each firm in the market then makes a contribution to this net cost in proportion, usually, to its revenue share – although it could possibly be in proportion to its profits. Or the task of providing the USO could be tendered for competitively. Then each firm contributed to a universal service fund to defray this cost. Or, as happens with mobile communications and rail services, the ability to serve profitable customers can be packaged with an obligation to meet the needs of unprofitable ones, and the package auctioned off.

Examples show that these ways are practicable. I conjecture that their operation can be imperilled if the scale of redistribution becomes too great. In this case, the redistributive tail can wag the dog of the market's ordinary commercial operation.

C. Process.

Processes have to be established for i) deciding who chooses the beneficiaries of redistribution, and ii) how the chosen bodies decide. This usually requires legislation of some sort, either giving a body such as a regulator general duties with regard to particular types of customer (which sit beside other duties – for example to promote competition), or making provision for specified interventions (such as the above-noted Warm Homes Discount Scheme).

How is the public interest represented or expressed in this process (other than by the government) ? A Sustainability First research project focussing upon the energy and water sectors has identified a 'ladder of involvement' , identifying ways in which such representation might occur.[17]

A (slightly amended) subset of these is:

- Direct influencing of markets through switching and behavioural change
- Analysis of complaints
- Market research- eg opinion polling or deliberative research
- Consultation
- Limited involvement in governance
- Expert groups embedded in (eg Ofcom's Consumer Panel) or paralleling (CC Water ) decision makers
- Negotiated settlement
- Governance by consumer interests (Welsh Water)
- Full public control.

[17] Sustainability First, Towards a definition of the long-term public interest, 2015

The metaphor of a ladder which one ascends, in this case to 'full public control,' is often aspirational – think of Jacob's ladder. But getting to the top has its price,. In Australia the former government put into effect a plan to provide high speed broadband service to virtually the whole population, initially by establishing a co-investment scheme, and then via a process of nationalisation and re-monopolisation. It has not prospered. It is probably the most expensive fibre network in the world.

D. Outcomes for vulnerable utility customers

The NAO report on vulnerable customers in regulated industries (including financial services) sheds light on the current situation in the UK.[18] It notes that 13 million people live in poverty and 11 million with a limiting physical or mental condition. Many organisations are involved in supporting vulnerable customers but not in a co-ordinated fashion. In particular, the responsibilities of regulators and government s are not sufficiently clear, and regulators have not translated their high-level aims into detailed objectives.

In relation to outcomes, the NAO concludes that suppliers of services differ markedly in the degree to which they identify and engage with vulnerable customers. At the same time, regulatory interventions are often limited and inconsistent, with universal service not being universally maintained, and discounts in the form of social tariffs inconsistently available within and across sectors. The number of households benefitting from lower price schemes in energy is 2.2 million, six times more than that covered by social prices in telecommunications and nine times more than those covered in water.

One of the merits of the NAO approach is that it brings out the accumulation of disadvantage which vulnerable customers can suffer across a range of essential services which make up a very high proportion of expenditure of the poorest households, such that payment difficulties in one utility spill over via indebtedness into access to another essential service.

E. Bringing these points together.

The discussion so far has covered a theoretical and thorough-going utilitarian way of handling distributional questions relating to utilities or more generally, which lives on in the justification of at least one scheme. In practice, distributional policy is much more ad hoc. Customers with a high cost to serve can be protected by geographical averaging, and lower prices can be offered to particular groups of

[18] National Audit Office , Vulnerable consumers in regulated industries, March 2017, available at https://www.nao.org.uk/report/vulnerable-consumers-in-regulated-industries/

customers with low incomes or special needs. This process can be combined with competition in, or for, the market. Schemes can be funded by general taxation but their costs are more usually covered within the sector.

The nature and extent of such schemes are ultimately and probably both necessarily and desirably determined by a political process. Redistribution via by price is a close cousin of redistribution by tax and benefit, and at a high level the principle of 'no taxation without representation' should be extended to it. We clearly have not reached the state of plenty anticipated by early 19th century socialists, where 'the government of men can be replaced by the administration of things'.[19] But in many cases the legislation may leave the regulator some considerable discretion.

That said, the NAO report suggests room for improvement in the way regulators address these problems. In my view it exposes the somewhat piecemeal way in which distributional issues related to utility pricing are dealt with in the UK. The report's publication creates an opportunity for rethinking this process in a more systematic way. Doing so is seriously overdue.

I now want to turn to some issues more closely related to competition in household energy markets.

## *2. Competition aspects of household energy pricing.*

As noted above, a household's total energy bill consists of four elements: an energy component, policy costs, transmission and distribution, and retail costs.

I am adopting the assumption that energy costs are given and that regulated transmission and distribution are set at roughly appropriate levels.

In relation to historic policy costs, I do not think that we can have the same confidence. The individual components in the sequence of measures taken over the past decade leave, with hindsight, strong indications that things could have been done more cheaply. I believe that the recommendations for the government and Ofgem set out in the CMA report, combined with 'learning by doing,' may improve the situation.

That leaves the operation of the retail market, and the levels of the various prices which lie within it. I agree with a point made in a recent Sustainability First paper by Jon Bird that the pricing structure should not disadvantage any particular segment of customers.[20]

[19] Comte de Saint-Simon, Cathéchisme des industriels, 1822.
[20] Jon Bird, Engaged, or just good friends? An exploration of retail electricity and gas pricing and 'sticky' customers, *S*ustainability First, March 2017.

In practice the tariffs of vulnerable customers are often linked to generally available tariffs. Thus households on the Warm Homes Discount Scheme and receiving a reduction of £140 per annum are disproportionately on the standard variable tariff, even though an alternative tariff as much as £300 per year cheaper might be available to them.

Much of the debate about the level of household retail tariffs in Great Britain has revolved about customer engagement, both in present conditions and in the much 'smarter' future.

A. The arrival of 'smart' retail processes

When preparing this talk I looked through some of Gill Owen's papers and was reminded that she was a longstanding enthusiast for smart solutions to energy tariff problems, writing that 'smart meters will facilitate a broader range of tariffs that could provide new services of value to consumers'. Those with long memories may be able to date this quotation from the knowledge that, at the time. 'estimates of the cost of installing smart meters range from £3-6 billion.'[21]

But, while welcoming their potential to empower customers and reduce emissions, she was particularly concerned with their impact on vulnerable customers. This is clear from a paper she co-wrote for the NCC in 2008.[22] A paper she wrote in 2013 on Australian issues associated with rising peak demand and its impact on tariffs noted that time of use prices create both winners and losers, and that it was important for households struggling to pay their bills and for those afflicted with health difficulties, for example, not to be in the latter category. The load shifting which smart meters time of use tariffs seem to be capable of achieving should make the winnings outstrip the losses.[23]

A relatively high proportion of households in Australia receive concessions on energy bills – 38% in Victoria and 30-44% in New South Wales. It was therefore important to make sure that switching tariffs did not jeopardise these benefits. She recommended that time of use tariffs should be opt-in, and not opt-out. She also proposed that energy retailers should not market time of use tariffs to vulnerable customers unless the customer has had a smart meter for at least a year, to ensure they have sufficient data to decide whether they would benefit. (This amounts to assuming a fairly high level of efficient engagement.) Citizens' Advice has recently offered related advice in the UK.[24]

[21] It was October 2007.

[22] Gill Owen and Judith Ward, The Consumer Implications of Smart Meters, National Consumer Council, 2008.

[23] Addressing Peak Demand, Monash University Sustainability Institute, 2013

[24] Smart support. Support for vulnerable consumers in the smart meter roll-out, March 2017.

More generally, a paper by Catherine Waddams and Claude Crampes [25] for CERRE, a Brussels think tank on regulation with which I am also associated (though not with this paper), reviews the scope for demand side response (DSR) protocols or schemes in Europe. In relation to arrangements to curtail demand, it concludes that medium and small consumers equipped with electric heating and air conditioning, as well as those who own energy storage capacity (for hot water or electricity) can be aggregated into subgroups by specialised operators, which can trade the response. Individual small consumers would have to overcome significant obstacles to gain individually and collectively from DSR. In the short run, public authorities must encourage these small consumers to be more aware of retail opportunities and to switch whenever they find better offers. (pp. 37-38.)

I veer towards scepticism about the impact of smart technologies which require active management by the household. The next section will discuss the issue of customer engagement in the pre-smart world, and to my mind that gives little ground for confidence in a future in which a large scale step-change improvement in households' active 'real time' decision-taking will materialise on a nearly universal basis. On this view, what are needed are automation and delegation.

This is already on offer by services such as Voltz for one-off fixed term energy purchasing decisions by households. As far as time of day pricing is concerned , automated technology can be incorporated to turn down heating or air con at periods of high tariffs.

The CERRE review is not optimistic about taking this effect up the value chain into the wholesale market in the case of the majority of small consumers. But there is an interesting example from another sector (mobile communications) of a technology company offering an automated solution based on purchasing inputs from suppliers. In the US, Google has launched Project Fi. The service automatically provides mobile calls and downloads using the cheapest or fastest of two services, cellular and wi-fi. In the case of cellular, subscribers have access indirectly on wholesale terms to the two smaller US mobile networks – the two larger (AT&T and Verizon having declined to participate). Service is also available in 135 other countries.

The UK government has indicated that it will bring forward legislation to allow it to extend its powers, associated with completing the smart meter roll-out, for up to five years. There are also delays in developing the more advanced meters capable of permitting easy switching of supplier. Thus there are supply side issues concerning the delivery of meters as well as demand-side issues as to how they will change consumer behaviour.

[25] Empowering Electricity Consumers in Retail and Wholesale Markets: Project report, CERRE, March 2017. Available at: http://www.cerre.eu/sites/cerre/files/170309_CERRE_EnergyConsumers_Final.pdf

B. Pre-smart engagement problems

The CMA report found an adverse effect on competition arising from 'an overarching feature of weak customer response, which, in turn, gives suppliers a position of unilateral market power concerning their inactive customer base which they are able to exploit through their pricing policies or otherwise.'

The report and subsequent commentaries have provided additional information, some of which draws on international comparisons. Thus the CERRE paper by Catherine Waddams and Claude Crampes cited above[26] includes the following observations, based on international evidence:

> 'All the evidence suggests that increases in expected gains are the main incentive for those who can estimate them.. However, only a minority of consumers are able even to estimate what gains might be available to them by switching.
>
> The least cost way to increase total involvement is probably to address the barriers faced by the 'almost' active group. Moving them from the inactive group to the active group is likely to reduce the aggregate price sensitivity of both groups, and might lead to suppliers raising prices for both groups.
>
> There is mixed evidence on how far competition helps those who are considered vulnerable. One group who might be stimulated by a targeted information campaign are older consumers, who seem to consistently underestimate the gains which they could achieve.
>
> To the extent that groups which may be considered vulnerable are less active than others, and therefore can often benefit from higher gains than others, one obvious way to help is to provide direct assistance to them to engage in the market... However past efforts to encourage increased switching have had mixed results, with high levels of ignorance and disinterest remaining.'

In the specific circumstances of the UK , the CMA energy inquiry concluded that[27];

> "We have identified a combination of features of the markets for the domestic retail supply of gas and electricity in Great Britain that give rise to an AEC through an overarching feature of weak customer response, which, in turn, gives suppliers a position of unilateral market power concerning their inactive customer base (the Domestic Weak Customer Response AEC)."

The Authority observed a 'two-tier' market in which about 70% of households were on an evergreen standard variable tariff while the remainder were on fixed period tariffs, the difference between the two amounting to as much as 30-35% of a fixed period tariff. The Authority estimated the detriment to households, based on a

[26] See fn. 25.
[27] CMA, Energy Market Investigation, June 2016.

comparison of actual and competitive prices, at £1.4 billion per annum over the period 2012-2015.

As far as availing of the benefits of switching supplier is concerned, the CMA report notes that switching rates are lower than average in the case of demographic and household characteristics as follows:

- age 55+ years
- income < £18k
- educational qualifications GCSE or below
- those residing other than in mortgaged accommodation
- the disabled
- residents of Wales and Scotland
- rural residents.

This led to the imposition of remedies, directed expressly to the retail household market, of which two major ones are i) a set of demand side measures, associated with the above-noted response, and ii) a price cap imposed on pre-pay customers, chiefly associated with a supply-side feature of the provision of that service.
I discuss these in turn, and then make some remarks about other remedies.

*Demand-side measures*

Demand side remedies are defined as regulatory interventions which are intended to enhance competition by helping the demand side of the market to work more effectively. They are distinguished from supply-side market-opening measures, which have already attracted numerous competitors into the market, and from more coercive measures such as price controls.

A thorough account of the application of demand side measures by UK regulators and competition authorities has recently been published by Professor Amelia Fletcher of the University of East Anglia.[28] The remedies fall into three core categories:

- disclosure remedies, requiring suppliers to furnish consumers with information about their products or services
- shopping around remedies, such as the encouragement of price comparison websites or giving nudges which might encourage shopping around
- switching remedies, which make switching less costly, quicker and less anxious-making.

The author notes that before 2008-2010, the focus was on understanding information asymmetry and on the importance of search and switching to drive effective competition: in other words on empowering consumers.

[28] Amelia Fletcher, The Role of Demand-Side Effects in Driving Effective Competition, a Review for Which? November 2016.

From 2008-2010, as behavioural economics took hold, it was recognised that the earlier measures were necessary, but not sufficient to generate effective competition. As a result the focus switched to engaging customers. This involves thinking carefully about how consumers behave and the more psychological issues which might discourage search and switching.

Professor Fletcher notes that the pre 2008-2010 approach is still necessary, but it should be supplemented by considering in detail the experience of the switching customer and making it easy, attractive to undertake, consistent with ordinary social interactions and timely. In many cases the work of facilitating search and switching can be delegated to and undertaken by commercial organisations.

At the same time suppliers to disengaged customers may seek to undermine the remedies and the impact of demand side measures may be to make some customers worse off.

As to the effectiveness of demand-side measures, Professor Fletcher reports mixed results, while noting that the most observations relate to measures adopted in the earlier 'pre-behavioural' period. In relation to disclosure remedies, 'a number of positive outcomes are observed. However, there are also a number of instances in which disclosure remedies were less effective than expected, or even ineffective. Examples are also provided in which disclosure remedies seem to have had a detrimental effect on consumer decision-making' (p. 34.) The same conclusion applies to shopping around remedies (see p. 51). Switching remedies too exhibit some successes, but there 'is also evidence of switching remedies that have been less effective , or even ineffective, reflecting the fact that it can sometimes be hard to enhance switching behaviour' (pp. 65-66).

The summary of the paper concludes (p.10) that:

> "Getting such remedies right is difficult. We can sometimes predict how consumers will act on the basis of past experience, but often we cannot."

OFGEM has introduced a variety of remedies over past years to deal with price dispersion and customer engagement in household energy markets, including customer prompts and changes in bill formats. These have been accompanied by barrages of publicity adverse to energy companies concerning the level of their charges, and very large amounts of newspaper column inches, TV advertising and other advice devoted to explaining how to switch supplier. Yet none of these developments has made a substantial dent in the proportion of customers on the Standard Variable Tariff.

However, progress is being made in terms of trialling demand-side measures before their large scale implementation. This is being done in the case of a number of the CMA's remedies, including the preparation of a data-base of non-switching

customers to which competing suppliers will have access in order to send by post information on alternative tariffs.[29]

Another approach, not adopted in the CMA report but proposed by Professor Dieter Helm[30], relies upon a demand-side response to a requirement imposed on suppliers to present tariffs in a particular way. Under the proposal, each supplier is required to offer a tariff which is decomposed into two parts: one includes energy costs (based on wholesale market prices), policy costs, and transmission and distribution costs; the second shows the supplier's offer of a supplement for the retailing activity on top of these costs. This arrangement exposes the retail costs of individual suppliers in a way which aids transparency and permits direct comparison the retailing charges. There are signs that some suppliers will adopt this approach. I am not aware of any evidence relating to the effect of this demand side measure on on switching.

It is noticeable that regulators do not generally commit to a forecast of what increase in engagement they expect to see in a market, either in total or as a consequence of the demand-side measures which they introduce. Nor do they generally indicate, in the case of such measures, what level of enhanced engagement would qualify as a success. The absence of such numbers makes it difficult to assess the effectiveness of such measures, as seen from the regulators' perspective. The general lack of *ex post* analysis complicates this further.

There is a partial exception to this rule in connection with the CMA's demand-side measures for energy, in that Ofgem's chief executive was cross-examined in November 2016 by the chair of the House of Lords Economic Affairs Committee as what would count as success.

The chief executive suggested that a reduction in the number of domestic customers from 70% to 30-40% might count as a success. He also suggested that it would be appropriate to wait for a period of five to six years to see if the measures had worked.[31]

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[29] As an illustration of the delays such a remedy may be subject to, national implementation of the database remedy will not occur until well into 2018. Ofgem, Open letter: Update on the timing of the CMA database remedy, July 2017, available at https://www.ofgem.gov.uk/system/files/docs/2017/07/open_letter_update_on_the_timing_of_the_cma_database_remedy.pdf

[30] Dieter Helm, Why intervention on energy tariffs is needed and how to do it without undermining competition, April 2017, available at http://www.dieterhelm.co.uk/energy/energy/why-intervention-on-energy-tariffs-is-needed/

[31] House of Lords. Select Committee on Economic Affairs Uncorrected oral evidence: The Economics of UK Energy Policy Tuesday 22 November 2016, pp. 30-31

However, I am not aware of any regulator making a quantitative forecast of what impact a demand-side measure, or asset of measures, will have in household retail markets. And if such forecasts of this kind were made which were held to be reliable, regulatory transparency would probably require them to be made known. Such uncertainty about results is a relevant feature of the remedy in question, especially in cases where there is a large detriment to customers from the impugned behaviour of certain suppliers.

To conclude : it is possible to describe the medium-term prospects for demand-side remedies as a bottle either half full or half empty. However, there is little evidence that they will have a transformative effect in a timely manner, for example within one to two years. This is regrettable because the use of demand-side measures has a substantial advantage: if successful, they culminate at the point where most regulators (and commentators) want to end up – in a state of effective competition, where the triad of productive, allocative and dynamic efficiency is within reach. However, as the CMA report illustrates, they can be a part of a wider package of measures.

My own view of the measures was (and is) as follows:

> "The harm which is presently inflicted on households in this market (£2 billion in 2015, or an average of £75 for every British household) is very severe, and in my opinion how far and how fast that harm is reduced is the key indicator of the success of the household market remedies. But the remedies proposed for the large majority of households will take some time to come into effect, and are in any case untried and untested. This makes it risky to rely on them. That is why I believe they must be supplemented by a wider price control designed to give household customers adequate and timely protection from very high current levels of overcharging."[32]

*Another option – mass switches*

These include a proposal to introduce opt-out switches. This involves 1) notifying a subset of consumers – for example, households living in rented accommodation provided by a social housing organisation – if they wish <u>not</u> to receive information about a retail offer: 2) the organisation then gets a competitive quote for a tariff to supply those who have not opted out: 3) this is communicated to surviving members of the group; 4) they can decline (opt-out of ) the offer. If they do not opt out, they are switched to the new supplier. [33]

[32] CMA, Energy Market Investigation, 2016, p. 1415, paragraph 2.
[33] For more detail and an evaluation, see op. cit. in fn.25 above.

*Price caps*

The CMA has also imposed a price cap on 4 million households with pre-pay meters, in the light of the particularly poor range of competitive offers which they face. This contains some (above cost) element of headoom, to maintain an incentive to search and switch for cheaper tariffs. It will not apply to households equipped with advanced smart meters, and is expected to expire in 2021. The CMA is optimistic about the long term prospects to make the PPM market competitive:[34]

> " Beyond the life of the PPM Price Cap Remedy levels of engagement among prepayment customers may remain low if customers have 'lost the habit' of engaging in the market. However, we consider that the implementation of our engagement remedies and the introduction of fully functional smart meters is likely to increase, potentially significantly, the levels of engagement, particularly if these attract tariffs below the cap."

There was some discussion, prior to the June 2017 election, of imposing a wider cap, either embracing a small number of additional customers (such as those on the Warm Homes Discount Scheme discussed above) or on all tariffs, including in particular the SVT. After the election the Secretary of State invited Ofgem to devise a programme of measures to deal further with the detriment, to which Ofgem subsequently replied.[35] The discussion of what to do now goes into its fourth year following the start of the CMA investigation, with no clear prospect of closure.

## *3. Conclusions and the future*

Household energy supply in the UK has characteristics which make it an inevitable object of policy intervention and regulatory oversight. These are

i) its essential nature means that all consumers are required to purchase it;
ii) it is a major component of household expenditure;
iii) It accounts for a larger proportion of expenditure of poorer than of richer households
iv) It accounts for a higher than average proportion of expenditure of vulnerable households
v) the current or recent overall detriment imposed on consumers by suppliers is large in absolute terms.

These circumstances place a strong obligation on policy makers and regulators to give priority to eliminating adverse effects on competition.

[34] CMA, Energy Market Investigation*, 2*016, para. 14.404.
[35] See letter from the Secretary of State for BEIS to the Chief Executive of Ofgem, June 21 2017. Letter from Ofgem CEO to the Secretary of State for BEIS, July 3 2017.

As indicated in my dissent from the retail household remedies contained in the CMA's 2016 Energy Market Investigation Final Report (see Annex), I did not think the Authority's proposals went far enough.[36] Remedying the situation via a wider price control than that adopted by the CMA looks to me to be the most urgent requirement of legislation or regulation.

What more is required? In the earlier section of this lecture I discussed an additional basis on which measures can be taken to assist poor and vulnerable households finding it difficult to pay for the energy they need.

I note that there is a comprehensive top-down approach to conceptualising this problem via the utilitarian approach, and that a version of this, authorised by the Green Book, has been employed to assess the Warm Homes Discount Scheme – but not (to the best of my knowledge) other redistributive pricing schemes, which typically identify a set of beneficiaries, but do not extend to an investigation of the other side of the equation – the identities of those who contribute to the schemes. This is consistent with an approach which focuses only on the effects of a measure on those in the greatest need. In practice these are identified by a mixture of legislation, policy and regulation – in other words a political process. Other schemes, such as the Winter Fuel Allowance, have hitherto been tax-financed rather than cross-subsidised, and based upon an age rather than an income qualification. I am not aware of an assessment of these which involves the explicit welfare weighting used in the Warm Homes Discount Scheme. Such an analysis would be welcome.

The recent NAO Report on vulnerable customers shows that the results of this process are somewhat haphazard, and that the delegation of the details of the scheme to individual sectoral regulators takes no account of their cumulative impact, or lack of impact, on vulnerable customers. This creates difficult administrative problems of co-ordination with which the UK Regulation Network is now engaging.

This is an important task, but perhaps a less urgent one than that of dealing with the features of the market which have an adverse effect on competition in the household energy market as a whole. It is worth noting that beneficiaries of the Warm Homes discount in 2016 received a discount of £140 per annum. Yet, as the CMA investigation showed, a disproportionate number of those recipients were on standard variable tariffs, the average of which in January 2016 was at least £300 per annum in excess of certain fixed tariffs.

[36] My own private interpretation of the data on the effects of demand-side remedies in other sectors, collected by Professor Fletcher, has confirmed me in this view

## *Annex. Statement of dissent of Professor Martin Cave*[37]

1. I agree with the analysis of energy markets set out in this report, and with the bulk of its remedies. But I respectfully disagree with my colleagues over an important aspect of the remedies adopted for the domestic retail energy market.[38] I do not oppose the proposed remedies, but I do not think they go far enough.

2. The harm which is presently inflicted on households in this market (£2 billion in 2015, or an average of £75 for every British household) is very severe, and in my opinion how far and how fast that harm is reduced is the key indicator of the success of the household market remedies. But the remedies proposed for the large majority of households will take some time to come into effect, and are in any case untried and untested. This makes it risky to rely on them. That is why I believe they must be supplemented by a wider price control designed to give household customers adequate and timely protection from very high current levels of overcharging.

3. The point about risk is illustrated by the report's information remedies, designed to combat disengagement. A significant source of evidence on the effectiveness of such remedies lies in our experience of them over the past three years or more. We have seen a variety of measures covering such things as bill formats and customer prompts, barrages of publicity adverse to energy companies, concerning the level of their charges, and very large amounts of column inches, TV advertising and other advice devoted to explaining how to switch supplier. Yet none of these developments has made a dent in the proportion of customers of the six large energy firms (about seven out of ten) which remains on the standard variable tariff (SVT). This is despite the fact that the SVT is currently more than £300 per year more expensive than the competitive benchmark for a dual fuel customer.

4. The report considers several additional remedies or forthcoming developments which bear on engagement. These include: a data base remedy, the roll-out of smart meters, and the Ofgem-led programme. But the evidence on the likely effect of the new measures is conjectural or limited. It would be very good news if they did work speedily, but I am far from confident that they will.

5. I believe that this point is illustrated by the fact that, while the report contains a quantified estimate of the decline in detriment associated with the pre-paid meter price cap, it is unable to make a similar forecast for non-price cap protected customers.[39] These customers are exposed to the prospect of excessive prices on a

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[37] CMA, Energy Market Investigation: Final Report, 2016, pp. 1415-1417 (footnotes included).

[38] These remedies comprise a set of pro-competitive and pro-engagement measures affecting all customers and a cap on the price to be charged to the minority of households with a particular form of prepay meter.

[39] Compare Appendix 11.1: Assessment of the impact of domestic retail remedies on detriment, paragraphs 61 & 72

scale which might amount to many billions of pounds of harm over the next four years, and quite likely thereafter as well.

6. A natural supplement to the above measures is the application of a wider non-renewable price cap for a short period – say two years. This approach has the potential to give all SVT households some reliable and speedy relief from the very high charges they are currently facing. This combination would be consistent with the CMA's Guidelines for market investigations.[40]

7. The majority of the Group believes in an 'either/or approach' to competitive and regulatory measures (excluding the 'middle' option of applying both) on the ground that the two sets of measures would work against one another,[41] whereas I am not persuaded the conflict between the two approaches is irreconcilable. This is a question which ultimately has to be resolved not theoretically but on the basis of experience and other empirical evidence. I observe that in other liberalised sectors, and in energy in Great Britain and more recently in several Australian states, both remedies were used in tandem, and then the caps were successfully removed - precisely because customer engagement was judged to have developed under an appropriately designed price control.[42]

8. My proposed wider price cap remedy attempts to achieve this goal of interim protection and promotion of engagement. Thus:

- it reliably resets the charges paid by about 16 million SVT households, removing a significant part of the 2015 detriment of £2 billion, whereas the prepay meter cap addresses only one fifth of it;
- a safe-guard (above-cost) element enables the designer of the cap to be confident in achieving a desired level of detriment reduction, but also allows variation in the intrusiveness of the cap, and permits its level to be set to provide appropriate incentives to switch to a cheaper tariff;
- the short duration of the cap (two years or so) reduces the risk that it will become unworkable as a result of unforeseen events;

[40] These state at paragraph 337: 'Some remedy options may have an almost immediate impact, while the effects of others will be delayed. In such instances the [CMA] may select a remedy package combining both types of measure taking into account both when each measure would take effect and how long it would endure.' And at paragraph 333: 'While generally preferring to address the causes of the AEC [adverse effect on competition], the [CMA] will consider introducing measures which mitigate the harm to customers created by competition problems, for example if other measures are not available, or as an interim solution while other measures take effect.'

[41] See Section 11, paragraphs 87 & 89.

[42] See S Littlechild (2003), 'Wholesale spot price pass-through,' Journal of Regulatory Economics, 23, pp88 & 89; Australian Energy Market Commission, Final report: 2014 Retail Competition Review.

- its non-renewable nature ensures that a separate regulatory or legislative process has to be agreed and implemented for it to be extended in time;
- it puts cost pressure on the larger suppliers to become more efficient;
- its protective power should outlast the cap, as customer resistance and other factors will prevent energy companies from immediately reestablishing the same level of over-charging as before;
- it protects vulnerable customers;
- it defaults after two years to reliance on the other remedies, which by that time may emerge from their 'untried and untested' status and have a better chance of success.

9. If after an interval competition fails to develop on this platform, then new legislation or regulation should be introduced to drive out excessive retail pricing on a more permanent basis.

10. I consider that this approach represents a viable strategy for retrieving the situation in a market for an essential service which is presently working very badly for most British households.