



Executive Brief: Energy Price Cap – A Policy for which Errors are Costly

Energy price caps have been on the UK political agenda for several years, receiving the most attention during the General Election campaign of 2015, when a cap was the official policy of the opposition Labour party. After the election David Cameron, the new Prime Minister, backed up the proposal to introduce a price cap on electricity and gas prices and the Competition Market Authority examined the issue as a part of its Energy market investigation.

Price caps do not straightforwardly improve consumer welfare, and this Executive brief explains why. (For the technical results used here we rely on the Europe Economics Staff Working Paper 2016.2 “Cost of regulatory error when establishing a price cap”, recently published at www.europe-economics.com).

Upsides and downsides of price caps

The usual purpose of imposing price caps is to countervail monopoly power when markets lack competition. In a market such as energy where some parts of the value chain are already subject to price capping (energy distribution and transmission) there are complex issues about the interplay between price constraints at different points in the chain. There is also the general problem of price caps that they might often be set too high or too low.

Here, though, we want to concentrate on another kind of problem – namely that in a market where demand is volatile, or at the very least uncertain, it may be very challenging for the regulator to devise a cap, to apply in advance over an extended period (e.g. two years), in ways that limit the risk of serious errors.

Energy producers might be expected to increase output and lower prices to avoid being capped. However, high output would be an inefficient production decision when the price cap is not binding – too much output and too low a price. A rational producer would therefore prefer to decrease output to reduce inefficiencies in the non-capped situation. Further, when the price cap is binding,

the profit margin is smaller and producers have reduced incentives to generate high output. Our model, in fact, suggests that even a moderately high price cap might depress output.

There is therefore the relatively straightforward point that if the price cap is set too low, it might harm consumers more than it helped them, by damaging supply and the amount of good that is available to them. The regulator would need to choose an appropriate trade-off between capping peak prices and maintaining efficient production.

What if regulators are not perfectly informed?

So far so simple. But matters become more interesting when we grasp that the regulator will not (even if the firm cooperates perfectly in devising the price cap — which cannot always be assumed) have perfect knowledge of the future evolution in energy costs. All it can do is to base its price cap on forecasts, estimates and judgement calls. Then regulators might base their decisions on incorrect estimates of at least four things:

1. overall demand variation, even with a correct guess of average demand;
2. overall variation in cap-free producer prices, even with a correct guess of average price;
3. potential maximum and minimum demand;
4. producer cost.

In our model, it turns out that, under *any scenario*:

- An imperfectly informed regulator’s optimal choice of price cap is stricter (lower), than the choice of the well-informed regulator.
- An imperfectly informed regulator’s choice of price cap will always produce less welfare than a perfectly-informed regulator. This is unsurprising, but our model tells us some interesting things about how this welfare losses varies across the four error scenarios above (1 to 4). Remember that we compare each scenario to the situation of a perfectly

informed regulator, its choice of price cap and associated social welfare.

- In the first and second scenarios, the welfare reduction might be small in percentage terms (compared to the situation of a perfectly informed regulator) but it still would be large in absolute value.
- In the third and fourth scenarios, even a mild error leads to substantial welfare losses.

To summarise...

Our model examines the impact of a price cap on output and welfare. The base case has a well-informed regulator while the four scenarios examine the impact of imperfect information on the regulator's decision.

A regulatory error or imperfect information in estimating input parameters leads to a tighter price cap, smaller output and lower welfare as compared to the situation with a price cap set up by the well-informed regulator. Welfare losses might be small in the absolute terms but still would be significant in absolute value.

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For further information on energy price caps contact Dr Andrew Lilico or Dr Nadia Chernenko.