Privatise Costs, Socialise Benefits

19 November 2017, Franck Latrémolière, Reckon LLP

1. CMP276 is a proposal (seemingly being absorbed within Ofgem's targeted charging review) to amend electricity transmission charges in England, Wales and Scotland, with the stated aim of "socialising transmission owner costs associated with green policies".

2. The title made me think of that slogan of the radical left complaining about policies that allegedly amount to socialising costs and privatising benefits.

3. The lefties are right. A good regulator would never set out to socialise costs.

4. This is especially obvious in a context where the costs that would be socialised are incurred to provide services or benefits that accrue to private interests. And private investment is definitely involved in the delivery of green policies, probably rightly so.

5. I say we flip it around. Let's privatise costs and socialise benefits of energy networks.

6. For the high-level purposes of this article, and with the exception of distribution charges for extra high voltage connections (the so-called incremental cost concepts in those methodologies are just really intricate shiny turds), Ofgem charging regime can be characterised as being based on incremental cost plus a share of residual costs.

7. To its credit, Ofgem's working paper on the transmission charging review does not rely on the "socialising" terminology, but it suffers from a similar underlying issue: it is about trying to share residual costs across system users.

8. That paper is not all bad. But it is lacking in good solutions.

The economic notion of incremental costs

9. My first attempt at thinking this through was to convert it into economics jargon. In the context of a network business with several categories of users, economists define:

   (a) Stand-alone costs as the cost of building a hypothetical network to serve one particular category of users only.

   (b) Incremental costs as the additional costs of serving an additional set of users.

10. The benefit, for each set of users, of operating a single integrated network instead of a stand-alone network for that user set, are captured in the difference between incremental cost and stand-alone cost.

11. There is another calculation that can be done: the difference between the total cost of the integrated network and the sum of the incremental costs attributable to each user category. The result of that piece of arithmetic seems to be called residual costs.

12. If there are only two categories of users, then the network benefits for both categories happen to be the same and that number also happens to be the residual costs.

Mathematically, if Cost is the stand-alone cost function and Inc is the incremental cost measure:

Inc(A) = Cost(AB) – Cost(B)

Inc(B) = Cost(AB) – Cost(A)

Net benefit(A) = Cost(A) – Inc(A) = Cost(A) + Cost(B) – Cost(AB)

Net benefit(B) = Cost(B) – Inc(B) = Cost(A) + Cost(B) – Cost(AB)

Residual costs = Cost(AB) – Inc(A) – Inc(B) = Cost(A) + Cost(B) – Cost(AB)

13. But that coincidence is limited to cases where network use can be split into only two categories. As soon as there are more than two categories of uses are recognised, the residual cost concept seems to go haywire. With three categories:

Inc(A) = Cost(ABC) – Cost(BC)

Inc(B) = Cost(ABC) – Cost(AC)

Inc(C) = Cost(ABC) – Cost(AB)

Residual costs = Cost(ABC) – Inc(A) – Inc(B) – Inc(C)

Residual costs = Cost(BC) + Cost(AC) + Cost(AB) – 2*Cost(ABC)

14. That formula does not make a lot of sense to me. And its results are pathological: even if each incremental cost is positive and smaller than the corresponding stand-alone cost, residual costs could still be positive or negative. Two illustrations, using simple symmetric cost functions:

(a) If serving any one category costs £10, serving any two categories costs £12, and serving all three categories costs £16, then incremental costs are £4 (£16–£12) and residual costs are £4 (£16-3*£4).

(b) If serving any one category costs £10, serving any two categories costs £13, and serving all three categories costs £20, then incremental costs are £7 (£20–£13) and residual costs are minus £1 (£20–3*£7).

15. But these two cost functions look similar. Their behaviour in terms of incremental and stand-alone costs is similar, and sane. But they lead to completely different residual costs. This indicates a defect in the residual cost concept.

16. It looks like the whole residual cost concept was a bit of a dead end.

A way to privatise costs and socialise benefits?

17. To apply the principle proposed in this article of privatising costs, socialising benefits, we don't need a residual cost concept at all. All we do is:

(a) Privatise costs: charge each customer for what it would have cost to serve them on a stand-alone basis.

(b) Socialise benefits: credit each customer for a share of the total network benefit (the surplus of money raised from privatising costs).

18. The allocation of the socialised benefits could be done on any good socialist principle. Did someone say "to each according to their needs"?

19. But there is a problem. The socialised benefits, which come to Cost(ABC) – Cost(A) – Cost(B) – Cost(C) in terms of the mathematical notation above, depend on how customer groups (increments) are defined. Like residual cost, overall network benefit is in fact an artefact of a particular cost analysis method, not a business reality.

20. Allocating a fictional amount of fictional money is not good socialism. It's just crazy talk.

Getting out of the incremental costing rabbit hole

21. The mistake that I have made in the previous two sections is to treat economic concepts of incremental cost and stand-alone costs as if they were useful guides to charging.

22. I realised that I had left reality and become immersed in a silly game when I found out that I had a seemingly somewhat arbitrary amount of fictional money to distribute when socialising benefits. But in fact the root of my error was earlier, in privatising costs.

23. And the error was thinking that a network provider or system operator could charge anything lower than stand-alone costs to any user (hence charge stand-alone costs and return a share of benefits). Within the game, that was correct: each user was better off paying me a little below stand-alone costs than going it alone.

24. Reality is not a game. It's better. In this case, the additional feature that reality brings to the table is that users have other choices than pay-up or go-it-alone: they can find another network provider that would meet their needs, or they can associate with whomever they like to set up such a competitor.

25. Dear Incremental Cost Economist, your monopoly pricing game is boring compared to the reality of having to ensure that my privatised charges to any group of users do not exceed the stand-alone cost of serving that group.

26. So in reality the aim is not to calculate either incremental costs or stand-alone costs of the customer groups that I perceive. Instead, it is to get enough of an understanding of costs, including costs of alternative technical solutions, so estimate the competitive price level for each of the services offered by the network.

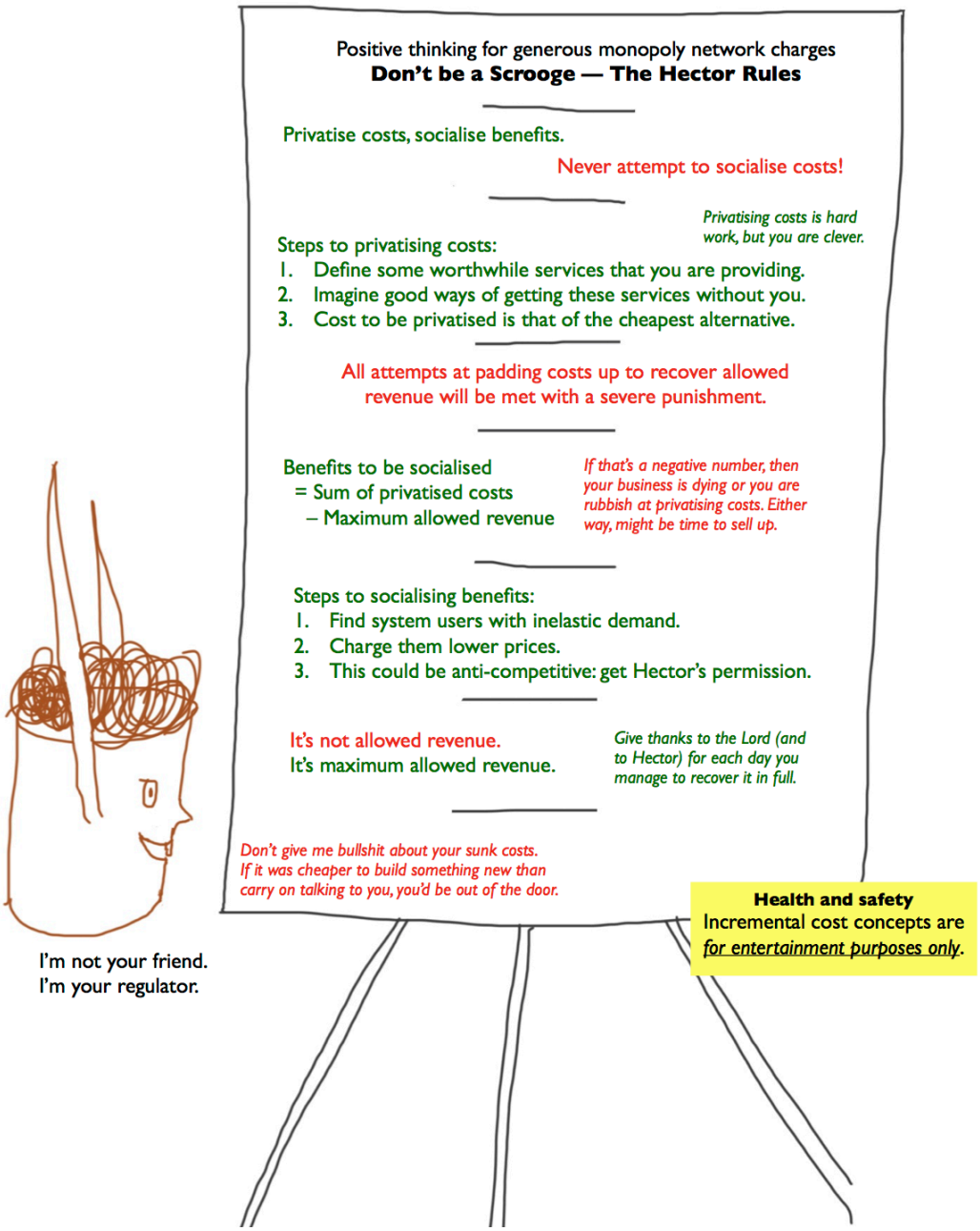
27. That's properly hard work and will involve trial, error, and continuous market monitoring. But it's fun. And it's necessary.

28. As for incremental cost concepts and things like that, they are just toys. The more you explore them, the deeper you go into the rabbit hole, the more absurd and disjointed from reality it gets.

Practical advice

29. My friend Hector the Regulator has some practical advice in figure 1.

Figure 1 The Hector Rules, Hector the Regulator, https://dcmf.co.uk/hector



Shameless plug

30. If you are stuck in an incremental cost rabbit hole, you should hire me because I only go in there for entertainment purposes.