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Vertical efficiency issues in NTS calls

A note prepared for BT
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This note considers points raised in Annex 10 ("Wholesale concerns") of Ofcom's consultation "Simplifying Non-geographic Numbers" of 4 April 2012.

In conducting its cost-benefit analysis of intervention in the pricing of NTS calls, Ofcom considers a "modified greenfield" scenario as the counterfactual, in terms of what might happen in the absence of any regulation whatsoever. In part, this is based on Ofcom's analysis of the relative bargaining power of originators and terminators in the light of the options available to them.

This "greenfield" analysis is quite presumptive and limited, as it fails to consider the full range of hypothetical possibilities open to market participants to mitigate market failure even without regulatory intervention. In particular, it falls to consider the possibility of contractual arrangements emerging to address market failures, instead assuming implicitly that originators and terminators interaction solely by means of a uniform per minute wholesale price.

Bargaining framework

The starting point for Ofcom's "greenfield" analysis is consideration of the relative ability of originators and terminators to capture rents. Ofcom considers this question within the framework of hypothetical bargaining between operators on the two sides of the market (see §A10.10 and following).

In many economic models of bargaining, the key determinant of the distribution of rents is the outside option available to each of parties if they fail to reach agreement.[1] These ideas are certainly relevant here, but it is important to recognise that these textbook models are typically of bilateral bargaining situations. In bargaining between two parties X and Y, if X is an essential counterparty for Y, but X has options other than Y, then we can expect X to capture the large majority of any rents.

In reality, there are many TCPs and OCPs who are each making independent and uncoordinated decisions. Therefore, we must consider what ability an individual OCP

[1] For example, this is the case in the Nash bargaining solution, which is an axiomatic representation of bargaining processes, where the split of rents is entirely determined by the outside options of two parties. In more explicit game-theoretic models of dynamic bargaining, outcomes are still determined in large measure by off-equilibrium threat opportunities, though other factors such a discount rates will also matter.

(or TCP) has to act an essential (or much needed) counterparty given the existence of other OCPs (or TCPs).

Furthermore, although bargaining theory provides a useful analytical framework, it is important to consider the full range of alternative actions available to originators and terminators when determining their outside options. In particular, outside options are determined by hypothetical mitigation strategies that can be adopted on failing to agree with counterparties, so may be quite different to current market outcomes.

The origination bottleneck

The fundamental insight in terms of relative bargaining power is that, from the perspective of service providers, each and every originator controls access to their respective customers. In many ways, this is a mirror image of the more conventional issue of terminators of regular voice calls having bottleneck control over their subscribers.

A service provider is likely to need to offer its service to all callers, regardless of their prior choice of originating network. If the SP failed to make its service available to even a small fraction of its potential customers, this might vastly devalue the benefit of the service to the SP. For example, this situation would naturally arise with a product helpline, a phone banking service or a charity helpline. Therefore, an SP has a need that all OCPs (possibly excluding the very tiniest OCPs) offer access to its services and at a reasonable price. This means that each individual OCP has a potential bottleneck in its control.

Size effects

Notice that the size of the OCP (in terms of its share of all originating calls) does not much matter in this regard. The SP may ideally need its service to be universally available, so even if, say, 10% of customers cannot call the SP, or find it prohibitively expensive to call the SP, then this may be a significant problem for the SP. Therefore, whilst it is clearly the case that larger OCPs may be in a stronger position relative to smaller OCPs (in terms of controlling a larger share of all originating traffic), this does not mean that small OCPs have little power. Only if an OCP is tiny in terms of customer numbers can its bottleneck control be ignored.

Ofcom spend considerable time in analysing the relative positions of larger OCPs vs. smaller OCPs and larger TCPs vs. smaller TCPs. However, this is largely beside the point. What matters primarily for Ofcom's "greenfield" analysis is the relative strengths of participants on opposite sides of the wholesale market; identifying the effect of relative size amongst participants on just one side of this market is then a secondary question of much less importance.

TCP competition for SPs

We have seen that size does not matter much amongst OCPs; each and every OCP of any material size controls enough customers for SPs to be unable to forego that OCP as a channel to market. How does this then affect TCPs?

TCPs must compete for SPs. Therefore, SPs' interests must be reflected in the pricing strategies of TCPs. This means that if a TCP was in a position where one or more OCPs did not carry that TCP's NTS services, or set a prohibitive price for those services, then this would make that TCP less attractive relative to other TCPs from the perspective of SPs. Given that there is no dispute that competition amongst TCPs for SPs is effective,

we must regard TCPs as effectively acting as nothing more "agents" of the SPs and so equally at risk of individual OCPs asserting bottleneck control over their customers, largely regardless of the size of the OCP. The size of the TCP is entirely irrelevant in this regard.

Bargaining power lies with OCPs not TCPs

This means that, to a first approximation, we must regard the bargaining power as lying with each and every OCP rather than with any TCP. In reaching this conclusion we must properly consider the full range of possibilities for a "greenfield" regulation-free counterfactual.

In particular, there is nothing whatsoever to prevent OCPs differentiating the retail prices they set according to the destination TCP or even the destination SP. Indeed this occurs already through zero-rating of some o8X calls. In practice, there may be some costs associated with more complex pricing structures (or with changing prices). However, notice that the larger the TCP, the more worthwhile it would be for an OCP to differentiate retail prices to threaten that specific TCP. Therefore, large TCPs may actually have less bargaining power against OCPs than smaller TCPs (who might be able to increase price to some degree without it being worthwhile an OCP responding).

Every individual TCP faces the potential that any individual OCP could assert bottleneck control over its customers by raising retail price and so capturing some or all of consumer surplus associated with the service being provided by the SP. The fact that OCPs might only differentiate retail prices to a limited degree at present is not relevant to the analysis of bargaining power in this counterfactual, as we need to consider the full range of possibilities that can occur.

Constraints on TCP pricing

Turning this around, consider what might happen if a particular TCP increases its price. The option is always available for any OCP to set a differentiated, higher retail price for that TCP or even not to carry NTS services to that TCP (assuming the OCP is not subject to end-to-end connectivity obligations). If this happened, then SPs would have a strong incentive to switch to a different TCP. Therefore, we see again that all the bargaining power lies with each and every OCP and derives from their bottleneck control of their customers from the perspective of a SP needing a channel to those customers. We have seen exactly this effect at work in the high prices that OCPs have historically set for NTS calls.

Vertical contracting and non-linear pricing

A market failure occurs because the interests of OCPs and TCPs (who must represent SPs interests' to win their business) are not well aligned when interacting through a single per minute price. However, we also need to consider the possibility of contractual solutions to this market failure. In particular, incentives may be better aligned with other forms of wholesale pricing than just uniform per minute charging.

BT's ladder pricing, now widely adopted by TCPs, at least partially corrects this market failure by facing OCPs with the consequences of raising retail prices for SPs. Indeed, TCPs competing for SPs business have strong incentives to innovate in their wholesale prices to better achieve what SPs need and to induce this in the retail pricing of OCPs. As most of the bargaining power lies with the OCPs, this is a pure efficiency benefit rather than TCPs (on behalf of SPs) having any market power to 'grab' surplus from OCPs.

Ofcom's "greenfield" scenario needs to consider this potential for more sophisticated vertical relationships between TCPs and OCPs to correct market failures. There are very many industries with vertical supply chains in which there are potential incentive problems between upstream and downstream firms, but where solutions have evolved through more sophisticated wholesale pricing arrangements that have obviated the need for external intervention.

Vertical integration

Given the existence of externalities between TCPs and OCPs, this raises the question of what, if any, benefits there might be from vertical integration in a "greenfield" scenario (as distinct from the issue of the size of TCPs and OCPs on their respective sides of the market). Clearly, as a matter of logic if all TCPs and OCPs could be integrated into a single party, then all externalities would be avoided. However, what if an OCP with control of some, but not all, originating traffic integrates with a TCP?

From the perspective of an SP, such an integrated TCP is unlikely to have any significant benefits over and above a non-integrated TCP (e.g. one who does not originate any traffic to the SP from its own customers). This follows from the fact that most SPs need access to all (or nearly all) consumers regardless of the originating network to which they are connected. Therefore, partial vertical integration – i.e. a TCP integrated with an OCP originating only some of the SP's traffic – is unlikely to confer a significant advantage in competing for SPs.

For example, suppose that an integrated TCP as a originator controls 50% of the customers of interest to a particular SP. The integrated TCP can, therefore, give assurances to the SP in regard of the retail pricing faced by 50% of customers to which that SP wants to offer services. However, it still has no control over the prices faced by the other 50% of customers that the SP might want to service, for whom the issue of OCPs having incentives to raise retail prices will still be a concern. If the SP has an interest in the universality of its service, the fact that the TCP has limited control over the prices of some, but not all, of the originating traffic is of little value. For instance, the fact of vertical integration would likely be a less attractive proposition to an SP than having a wholesale pricing schedule that induced reasonable retail pricing for *all* OCPs.

Therefore, in any realistic case where an integrated TCP controls only some originating traffic, it unlikely that vertical integration will confer any significant advantage over other TCPs. The TCP would need to be integrated to the extent of controlling the large majority of the originating traffic for vertical integration to have a material effect.