Imperfect Legal Unbundling of Monopolistic Bottlenecks

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Research Question

In many network industries like energy, rail, or telecommunications, the network is a naturally monopoly and network access is an essential input for firms competing in downstream markets. An important policy issues for these industries is whether the firm that controls the network should be allowed to be active also downstream. Instead of either allowing full integration, or requiring complete ownership separation, many jurisdictions have opted for some compromise: "legal unbundling". This allows an integrated company full ownership of the network assets, but requires that the network is operated independently, in a legally separated entity. In Europe, legal unbundling is the standard requirement for the energy industry, and similar forms of "partial separation" are common in the telecommunications industry in Europe and the US.

It is however frequently doubted whether legal unbundling and its accompanying provisions for making the network management independent are an appropriate means to benefit consumers. Neelie Kroes, former European Competition Commissioner, expressed her views as follows:

Speaking very personally, I see only one way forward if we are to restore credibility and faith in the market. Europe has had enough of "Chinese walls" and quasi-independence. There has to be a structural solution that once and for all separates infrastructure from supply and generation. In other words: ownership unbundling.

We develop a model of imperfect legal unbundling and investigate how market outcomes are influenced by the form and strength of unbundling regulations and downstream ownership. We study a framework where a price regulated network operator can perform various forms of non-tariff discrimination.

Modeling Approach

Production technology, non-tariff discrimination and downstream competition

•The network operator must provide access at a regulated access price, which lies above marginal cost

• The network operator can perform non-tariff discrimination in form of discriminatory investment decisions or sabotage that can influence output or cost of network users.

• Downstream firms need network access to sell products to final customers

• We place only few restrictions on the form of non-tariff discrimination and the form of downstream competition

Vertical structure and legal unbundling

• A downstream incumbent has full or partial ownership in the network operator and gets a fraction of network profits proportional to its ownership share.

• Legal unbundling regulations officially require an independent network management that has the target to maximize profits of the network operator (subject to the price regulation) , not taking into account downstream profits of the incumbent.

Modeling imperfections in legal unbundling

• While officially forbidden, the downstream incumbent can try to influence the network management to act in a way desired by the downstream firm, e.g. to discriminate competitors

• Such manipulation is costly (risk of detection and punishment). Cost shall be proportional to foregone profits of network operator (mirroring the degree of manipulation) and the strength of the regulation.

• In result, the network operator acts as if it maximizes a weighted sum of profits from network operations and downstream profits of the incumbent

Results

Remark on incentive regulation for access prices

We assume that network access prices are regulated. At the heart of any incentive regulation of access prices lies the idea to align the interests of the network operator and the public, i.e. the network operator shall receive higher profits if his actions increase welfare (or consumers' surplus). A linear access price above marginal costs gives the network operator incentives to act in a way that increases total output, which typically goes along with higher consumer surplus.

Effect of downstream incumbent's control on network management

Under legal unbundling regulations that make it easier for the downstream incumbent to manipulate the network management, the network management will more strongly act in the interests of the downstream incumbent and the incentives induced by the access price regulation have a smaller impact. In our model, weaker legal unbundling regulations always lead to a reduction of final output .

Effect of downstream incumbent's ownership in network firm

Ownership of the downstream firm in the network firm means that the downstream firm more strongly participates in the network profits and thereby partly internalizes the incentives induced by the access price regulation. This can cause the incumbent to act more pro-competitive in downstream decisions, e.g. to price more aggressively, which benefits consumers. We call this the downstream expansion effect.

Relation between ownership and independence of network management

Somewhat paradoxically, higher ownership shares by the downstream incumbent can lead to higher independence of the network management. The reason is that a downstream incumbent that more strongly participates in the profits of the network operator has smaller incentives to manipulate the network operator in a way that reduces network profits. Generally, the effects of downstream ownership on network independence are ambiguous.

The ideal: perfect legal unbundling with 100% downstream ownership

In our model, consumers would benefit most if legal unbundling would be perfect in the sense that the network management acts completely independent, while at the same time the downstream incumbent owns 100% of the network operator, which allows to reap the benefits of the downstream expansion effect.

Downstream ownership is more beneficial under strong regulation

If the legal unbundling regulation is weak, downstream ownership may be harmful, since network control may cause too strong discrimination of competitors: in that case complete ownership separation can be more beneficial for consumers. However, if rules that shall enforce independence of network management become stronger (but not necessarily perfect), downstream ownership is more likely to have in total a beneficial effect.

Flaws in access price regulation can be magnified by downstream ownership (example: interconnector auctions)

If the incentive regulation of the network operator is flawed, downstream ownership can magnify these flaws even under legal unbundling through a negative downstream expansion effect. For example, if a network operator can keep revenues from an interconnector auction, it has incentives to increase auction prices by offering only limited amounts of interconnection. A downstream firms that owns the network operator has incentives to exaggerate bids, in order to increase auction revenues (negative downstream expansion effect). Instead of pushing for ownership separation, changing the reimbursement rules for interconnection usage may be more beneficial.