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BUNDLING GAS AND ELECTRICIY WITH VERTICAL RELATIONS

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Overview

On the European energy market, old monopolies had been separated. Thus there are more players but each of them often supplies one kind of energy to final consumers, natural gas or electricity. With a more competitive market, actors will have to diversify their supply to end users. So we imagine that they will provide new services or energy. For example an electrician will be benefit to sell natural gas by creating package of both energies. But he also needs to have natural gas. So the electrician will buy this good to producers. Natural gas fields are far from the European consumption area. So producers have an important market power. We represent this by a monopoly position of a producer witch supply natural gas to two European distributors. The literature on bundling and tying often considers that bundling strategies are anticompetitive by creating entry barriers. When a firm, with a monopoly power on a market, sales another good in a package it can foreclose rivals from this market. The firm determine a low price that does not allow competitors to continue to supply this market or to permit the entry of a new player. So bundling is supposed to reduce welfare and to be anticompetitive. But considering vertical relation, we show that when the European natural gas distributors buy their gas to a same monopoly the foreclosure effect does not exist. We extend our analysis to mixed bundling and show that this strategy does not reduce welfare.

Methods

Using the literature on bundling and tying, we characterize a situation where an electrician supplies electricity and natural gas to European consumers. This actor compete a natural gas distributor. Both of them buy natural gas to the same producer. This upstream player prices at a monopoly level by maximizing his profit. Our model is in the line of Martin (1999), we take the same Cournot reference case but we suppose goods may be substitutes or complements. In network and energy industry, it is important to evaluate flows and it's possible to have the same unit to compare natural gas and electricity. Contrary to Martin (1999), we consider that the composition of the gas/electricity package is important.

Results

We find that the firm witch practice bundling have a higher profit than his competitor. The welfare effect is also negative like Martin (1999) showed. But the introduction of a vertical relation, even with a monopoly, cancels the possibility of foreclosing the natural gas supplier. The extension of the model to a mixed bundling strategy conduce to a situation where the electrician a smaller profit than in pure bundling. The electrician supply a bundle and independent quantities of natural gas and electricity that internalize all effects. The global effect is a gain for the welfare. Consumers excluded in the pure bundling situation have the choice to buy the energy they prefer. The natural gas distributor benefit of the competition between the different electrician offers. He supplies more natural gas than in the pure bundling competition.

The scheme below shows the indifference curve of the electrician between the Cournot and bundling options. Π_e^b is the electrician's profit and Π_e^{nb} his profit when there is a Cournot competition on the final market. The values of the parameters make the pure bundling strategy

profitable or not. Below the red curve, bundling does not increase profit of the electrician. He does not supply enough electricity to compensate the effect of substitution between two energies and to catch the consumers of the natural gas distributor.

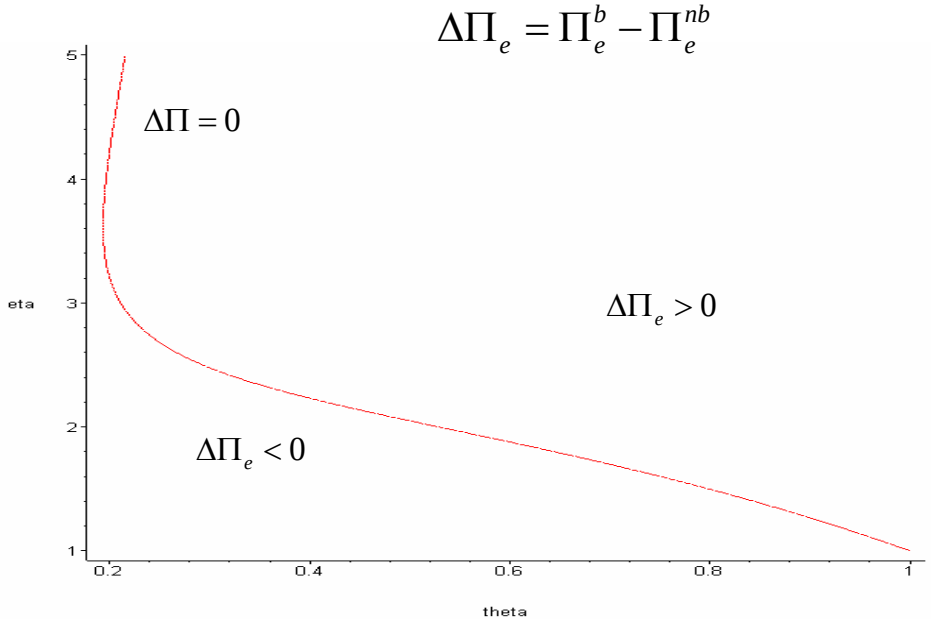

Fig. 1: upstream monopoly and bundling strategy gain for the electrician

The vertical relation makes the downstream market more competitive. The price fixed by the monopoly is low enough not to foreclose the natural gas player from the market. The result is also analyzed with Cournot upstream competitors. The welfare effect of pure bundling is negative.

The introduction of mixed bundling for the electrician supply changes this last result. The Cournot level can be reached with the independent supply of natural gas and electricity. Then the upstream price of natural gas does not include the composition of the electrician's package. The electrician offers quantities such as all the competition and substitution effects are canceled.

Conclusions

We analyzed a situation where vertical relation in an industry allows competition on the final market. On a market with goods which can be substitutes and where we can compare them with an energy unit, we showed that the competition may not be reduced when an important actor on electricity market ties natural gas. The natural gas distributor is not foreclosed from the market. The pure bundling strategy is not always favorable for the electrician. We also extended the result with Cournot upstream competitors. The results are the same than above and the welfare effect is still negative. In a situation of mixed bundling for the electrician, welfare is the same than in the reference case. Then, contrary to the pure bundling strategy the price that an upstream monopoly may charge does not include any link with the composition of the electrician's package. Mixed bundling makes the electrician indifferent between this strategy and the quantity competition option.

References

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