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WHEN WILL REGULATORY BENCHMARKING LEAD TO SUSTAINABLE GRID INVESTMENT?

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Overview

Formerly developed for management purposes, benchmarking has become an increasingly interesting technique also for regulatory purposes. Its main advantage is that benchmarking can help to reduce the information asymmetry problem of the regulator and thus diminish the deadweight losses due to monopoly power. Further it is easy to apply under every incentive regulation regime, which is highly relevant for the German regulator, who is actually planning to temporarily implement a revenue-cap-regime and switch to a yardstick regulation after the first two regulatory periods. Under both of the regimes the Bundesnetzagentur plans to conduct a benchmarking.

Despite the potential of benchmarking techniques the regulator also has to pay attention to its potential dangers.

There has already been substantial research on the topic of the discrimination potential of the application of benchmarking techniques in the regulatory process.

In the current research widely ignored but still an important aspect of benchmarking is the influence of heterogenous capital structures due to investment cycles.

Methods

In this article we use an analytical model to examine the different channels of influence of heterogenous capital structures in a step-by-step approach to clarify the relevance of capital structure heterogeneity. We first analyse as a reference the case of a homogenous capital good. We derive the conventional wisdom rule that amortization periods should correspond to average lifetime of capital goods and show that under this condition benchmarking will not lead to discrimination or sustainability problems.

In a second step we investigate the case of heterogenous capital stock with capital vintages, assuming a constant life time of the capital goods. In these first two cases we solely focus on depreciation ignoring existing cost of capital employed. Also in this case it can be shown that benchmarking is feasible without discrimination or difficulties concerning long-term sustainability of grid investments.

Finally we consider cost of capital employed in addition to bare depreciation being part of capital expenditure.

We further show the problems of current propositions made to guarantee investment under regulatory benchmarking and propose cost comparisons based on technical asset inventories as an eventual solution.

Results

A major finding is that under these conditions a straight benchmarking approach among firms with heterogeneous capital vintage structure will result in setting a benchmark, which will lead to significant sustainability problems.

As a main result we thus derive significant sustainability problems under the currently planned regulatory total expenditure benchmarking regime of the German regulator. Further, discrimination of some utilities is probable.

The heterogeneity of assets of particular network operators has been identified as a main problem of TOTEX benchmarking. Network operators with relatively old assets will set the

benchmark since they have lower cost of capital employed. The resulting benchmarks will therefore determine unrealistic efficiency targets for the firms and thus will lead to the incapability of refinancing the long-term necessary investments.

Conclusions

In this context, annualization of costs through standardisation of depreciation and booking rules is only partially helpful because comparability problems of particular network operators and distortions in the benchmarking process are alleviated. But the problem of systemically insufficiently high benchmarks as a consequence of heterogeneous capital structures described above is not solved.

It would also be possible to implement a system of investment budgets similar to the English approach instead of CAPEX benchmarking. Here, OPEX and CAPEX are regulated separately. Benchmarking includes solely OPEX (partial benchmarking) whereas CAPEX are to be estimated and approved separately. Hence, CAPEX would be subjected to a sliding scale method of incentive regulation.

However, the main disadvantage of this approach is the regulator's duty to define the optimal OPEX-CAPEX ratio. Otherwise one-sided cost optimisation towards the best possible position in the benchmarking is to be expected and would further lead to a tendency towards overcapitalization. But then the danger of a 'double jeopardy' still exists, where unrealistic benchmarks are set caused by one-sided optimisations of either CAPEX or OPEX.

Overall it has to be noted that there is a basic trade-off between creating the highest possible incentives for efficient network operation under simultaneous renouncement to micro management and the requirement not to risk the necessary investments for sustainable network operation. Nevertheless, cost comparisons based on technical asset inventory could, although costly, be a satisfying compromise balancing incentives both for cost reduction and sufficient investment.

However, the appropriate treatment of capital costs plays a decisive role. Further research should above all investigate the multiple interdependencies between endogenous replacement decisions and the cost base applied for the benchmarking.