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Comments on the paper : “Nuclear market power : taxation or liberalization?” by P. Himpens, J. Morbee and S. Proost

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Motivations of the paper

- In many European countries, almost all nuclear generation capacity is controlled by a one firm
- Barriers to entry are high in the nuclear segment (because of the technological characteristics of nuclear energy)
- Same situation is not observed in fossil-fuel generation
- **Consequence:** For a given country the electricity market must be analyzed by considering a dominant producer having efficient nuclear capacity and a competitive fringe of non nuclear producers

Government intervention (as proposed in the paper) to reduce the monopoly power

- Tax on nuclear energy
  - Short term effects
  - Long run effects with commitment and with no commitment
- Divestiture of the existing nuclear capacity
- Increasing interconnection capacity at the border

Main results

- Divestiture of the nuclear capacity is the most efficient instrument to maximize (local) social welfare
- Proportional Taxes are the less efficient way to maximize social welfare
- Taxes have a negative long run effect on investments
- In some cases the tax is a subsidy

The divestiture of actual nuclear capacity could reduce future investments in nuclear power

- Nuclear energy implies huge investments and low marginal costs
- Investment decisions must be made under a large uncertainty (future regulation, fuels prices, demand, …)
- Regulation impose more severe constraints on nuclear investments than on fuel power plants
- **Possible consequence**: It is more difficult for small firms to invest in nuclear power than for large firms
- **Question** : Is it really possible to increase by 50% the use of nuclear power (as shown in table 3 p14) under the “divestiture policy”?

The role of interconnection is limited by network constraints

- The distribution of power plants on the network matters: network constraints can make impossible the use of a given power plant at a given point of time (Kirshhoff law)
- Even with zero transmission costs, electricity produced in France is not necessarily perfectly substitutable to electricity produced in Belgium
- **Consequence**: it is not clear that increasing interconnection capacity will allow to increase activated nuclear capacity by 37% as shown in table 3 p14

Externalities are absent from the paper

- Nuclear and fuel power plants do not produce the same externalities
- Climate change does not give incentives to tax nuclear energy or to introduce public policies limiting nuclear investments
- From the climate change point of view what is important is the role of nuclear power at the EU level not at the local level

About the share of nuclear capacity owned by local (S_l)

- As electricity demand is very inelastic (a small), the proposed policies have an effect more on redistribution than on social welfare (Consumer surplus increases and nuclear producers surplus decreases)

- Consequences:
  - The optimal tax highly decreases with s_l (it becomes negative for $s_l > 0.37$)
  - It is shown in table 2 that social welfare is significantly increased under divestiture and interconnection policies; this result should not apply with s_l close to 1
  - The proposed policies are more a way to modify income redistribution than to increase social welfare, this suggests that other policies than the one proposed in the paper could be applied

Conclusion

- It is not clear that the divestiture policy would give the results shown in the paper because:
  - Nuclear investment is often considered as risky by potential investors (The MIT report for instance proposes to subsidize the first investors in nuclear capacity in US)
  - Divestiture of nuclear capacity would make the situation worse from this point of view
- The potential role of interconnection is limited by the network constraints, this is not taken into account in the paper
- Externalities should be taken into account
- It seems that the results essentially show the efficiency of the proposed policies to make redistribution from the nuclear firm towards households (a problem of redistribution)
- How is it possible to apply the divestiture policy when the share of the nuclear capacity owned by local is zero ?
- One of the alternative policies is to create a regulated public monopoly with the dominant firm do you think that this policy is worst than the one proposed?