DOES INFORMATION ABOUT ELECTRICITY IMPORTS AFFECT PUBLIC SUPPORT FOR ELECTRICITY IMPORTS, AND FOR NUCLEAR AND WIND POWER?

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Overview

Imports of electricity are often met with skepticism among the general public. Citizens worry that dependence on electricity imports could leave their country vulnerable to disruptions in supply, whether due to geopolitical tensions, natural disasters, or issues in the exporting country (e.g., power outages, infrastructure failures, fluctuating generation) (e.g., Haxhimusa, 2018; Rüdiger, 2019;). This has been a particular concern in times of crisis, such as during periods of extreme weather, when demand for electricity spikes and the grid could become strained. In addition, some citizens view reliance on imports as compromising national control over their energy supply, as the country becomes dependent on the policies, economic stability, and energy generation methods of another nation. Concerns about "import dependency" may also be part of broader debates about sustainability and reducing reliance on nuclear power or fossil fuels. In practice, however, citizens may not know the generation source of imported electricity. Likewise, they may not know that electricity imports typically lower the price of electricity in the importing country (e.g., Gugler, K., Haxhimusa, 2019; Newberry et al., 2016).

In this study, we examine the causal effects of providing information about the main generation source of electricity imports and on the cost-saving effect of electricity imports on individual acceptability of electricity imports and on acceptability of investments in nuclear and wind power plants in France and Germany. Besides being the main generation sources of electricity exports for France and Germany respectively, nuclear and wind power plants are also key technologies to achieve climate targets in these countries, yet typically prone to not-in-my-backyard (NIMBY) attitudes (e.g., Devine-Wright, 2005; Dugstad et al., 2020).

Methods

Our analysis relies on a demographically representative online survey experiment among the adult population in France (N = 1007) and Germany (N = 1006), conducted in November and December 2023 via an existing household panel of a professional market research institute. For each country sample, participants were randomly split in three groups: a control group and two treatment groups (T1 and T2). Participants in all groups were informed that France and Germany are part of the Central Western Europe electricity market and that countries in this market have interconnected their electricity grids and markets to facilitate the trading of electricity across borders. Relying on official statistical data, participants in France (Germany) were informed that *in 2022, about 50% (20%) of the electricity that France (Germany) imported came from Germany (France).* Participants from T1 were in addition informed *that the electricity that France (Germany) imports from Germany (France) is typically produced in wind power plants (nuclear power plants)*. In addition to the information provided to T1 participants, and in line with basic economic principles, participants in T2 were told that *importing electricity from other countries typically lowers the costs that consumers in the importing country eventually pay for electricity*. We employ two types of outcome variables: acceptability of electricity imports and acceptability of the construction of new power plants. More specifically, all participants from France (Germany) were first asked to what extent they are in favor of electricity imports from Germany (France) and then asked whether they are in favor of electricity imports from Germany (France) generated in wind (nuclear) power plants. Further, all participants were asked to what extent they are in favor of the construction of a new nuclear power plant and of a new wind power plant. We thereby distinguished three types of locations for the power plants: local (within 30 kms of a participant's municipality for nuclear power plants and within the municipality for wind power plants); national (i.e. within the participant's own country but not locally; in the other country (i.e., either in Germany or France, depending on the sample). Thus, for each country sample, we have two outcome variables reflecting acceptability of imports, three outcome variables reflecting acceptability of new nuclear power plants, and three outcome variables reflecting acceptability of new wind power plants.

To investigate the causal effects of the treatments, we estimate econometric models which include – in addition to the treatment variables – sociodemographic characteristics, items reflecting perceived benefits and costs of technologies, and attitudes. We estimate separate models for the samples from France and Germany.

Results

We find that acceptability of electricity imports is higher in Germany than in France. Further, for all three types of plant location, acceptability of new wind power plants is higher in Germany than in France, and acceptability of nuclear power is higher in France than in Germany. In addition to the traditional NIMBY attitude for nuclear and wind, we also observe a NIMBY attitude when comparing acceptability of local construction of nuclear and wind power plants and acceptability of construction of these plants in the other country. For France, we observe for both technologies a higher acceptability of constructing these plants in Germany than in another part of France, indicating what we term as a not-in-my country (NIMCY) attitude. In comparison, for Germany, we find no NIMCY for wind power plants, and a negative NIMCY for nuclear, i.e. acceptability of construction of nuclear power plants in Germany is higher than acceptability of construction in France.

Surprisingly, we find no evidence in either country that information on the main generation source of electricity imports (T1) influences their acceptability, either in general or based on the specific generation source. In comparison, our results suggest that providing additional information about the cost-reducing effects of electricity imports (T2) causally increases acceptability of imports in both countries, and acceptability of imports by France from Germany based on wind power (but no significant effect for acceptability of imports based on nuclear in Germany). Finally, we find that the information shown in T2 leads to an increase in NIMCY for wind power in France.

Conclusions

Our findings have implications for policy-making. In particular, to increase acceptability of electricity imports and associated infrastructure (e.g. interconnectors) policy-makers should communicate that electricity imports eventually lower the electricity price that consumers pay. Electricity imports may help achieve the energy transition targets at lower costs to society, especially when other measures to accommodate fluctuations in supply and demand are only available at higher costs (e.g. back-up capacities, storage technologies), are not available, or lack acceptability among large parts of the population (e.g. dynamic pricing) (e.g. Jacobson, 2021).

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