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title: The role and performance of wind and solar energy policy in energy transition process in Germany and Poland

Wind and solar energy sources have developed rapidly during the last few decades, as conventional fossil fuels' global dominance looks to be coming to an end. Furthermore, these two renewable energy technologies are in the centre of global 'modern' energy transition, based on carbon-free sustainable system. While renewables like wind and solar energy have recently become a widespread object of discussion on political, economic, social, and other levels, they are strongly considered as a major force in tackling global problems such as energy scarcity, environmental pollution, or global warming.

Last but not least important is the role played by support policies in speeding up deployment of clean energy sources. Despite some criticism centred in the realization and expediency of such measures, there is a consensus in the literature that policy instruments are one of the main catalysts of wind, solar and other renewable energy sources. Understanding of the main features and effects of support policies can contribute to a better use of financial resources and boost the development of renewable energy markets. Also, assessment and monitoring performance of support instruments is very important, as different dimensions (e.g., socio-economic, environmental) should be considered.

Measuring effectiveness and efficiency of renewable energy policies is one of the main discussions in the literature regarding energy economics. Despite growing interest in the topic, there is an agreement among scholars that more research must be done in this area. This stems from multiple factors such as recent energy shock, the growing significance of energy security and transition etc. Also, a dynamic expansion of wind and solar energy markets led to seismic changes in many areas including political, social, and economic aspects. This forces governments to continuously update their goals and improvements in terms of policies that support these RE sources. Within this context, there is a need for reliable and up-to-date research in the mentioned area. This thesis aims to fill that gap by providing a comprehensive study on policy performance of wind and solar energy technologies. While concentrating on the case study countries of Poland and Germany, other European Union (EU) member states were also included in the analysis during the periods of 2005-2021.

Based on the conducted literature review, methods including the indicator-based approach, DEA (Data Envelopment Analysis) and regression modelling were applied. Also, as a result of the empirical research carried out in this work, a good deal of important evidence have been extracted. The main evidence suggests that Germany is much more effective to compare with Poland in terms of both wind and solar energy policies. When measuring policy efficiency, Poland performs slightly better. However, when comparing with other EU member states, both Germany and Poland conducted inefficient wind and solar energy policies.

Additionally, findings of the present work indicate that even the same policies promoting wind and solar energy sources can perform differently across various countries. That is why there is a strong need for an in-depth analysis of support frameworks to maintain constant improvement of policy support in each stage of technology development. The study also provides valuable insights for policymakers and researchers. While results are explained in the most accessible way, special attention is also paid to the data collection process. Furthermore, limitations and avenues for further research are highlighted.