POLITICS OR POLICY?: A NETWORK APPROACH TO THE ALLOCATION OF DEVELOPMENT FINANCE FOR RENEWABLE ENERGY PROJECTS

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Overview

The access to affordable and clean energy is one of the global goals in the Agenda 2030. Energy is a priority resource as it acts as an asset at the core of sustainable development: it can help overcome social, economic and environmental challenges. The transition to low carbon economies is essential for economic development in developing economies and it opens venues for developed countries to think strategically about energy and foreign policy in a changing context. In less developed contexts, the scarcity of local public funding and investments make the role of international community and the private sector essential (Donastorg et al. 2017). Some authors (Morries and Shin, 2006) emphasize that the provision of official assistance in a context of crisis, like the climate emergency, can spur other parties to take action to mitigate the aforementioned crisis. In a context of transition from fossil fuel-based economies to renewable energy (RE) based economies, understanding the reasons behind the decision on bilateral allocation of mitigation aid for the development of RE projects is essential. The interest in understanding the motivations behind the country allocation of official development aid (ODA) is not new. McKinlay and Little (1977, 1978, 1979) and Maizels and Nissanke (1984) among others, determined empirically how, during the cold war, development assistance was guided by interests beyond the humanitarian criteria, and how bilateral aid allocation decisions were made in support of donor's perceived foreign economic and political interest (Maizels and Nissanke, 1984). In the current context, the geopolitics of the energy transition can play an important role in how countries allocate bilateral ODA on the particular field of RE investments. Recently, Vakulchuk et al. (2020) reviewed the literature on the geopolitics of the energy transition and highlighted, for example, the importance of accessing to critical materials required for renewable energy generation, distribution, or storage. The access to these critical materials might be one of the reasons why countries decide to provide ODA to developing countries with high reserved of minerals like lithium, cobalt and/or rare earths. Therefore, the goal of this paper is to analyse how bilateral aid for RE projects i.e. mitigation energy projects for energy generation with renewable sources, is allocated. This is essential to understand if donor countries prioritize social and environmental goals or if their motives are less altruistic and more focused on their own economic and strategic benefits. This paper will contribute to the current debate on ODA in several ways. First, using network analysis, we will disentangle the current bilateral links in terms of ODA among countries and the evolution of this network during the last decade. This paper is the first, to the extent of our knowledge, analysing mitigation aid for RE projects through social network analysis. Social networks have been used though to analyse adaptation aid (See, Horowitz, 2021; and Weiler and Klock 2021). Second, using the indegree centrality of the recipient to measure the importance of a donor within the recipient's network, we analyse the strategic investments of donor countries and in which ways they are related to environmental, technical, economic or geopolitical motives.

Methods

We use a methodology in three steps combining social network analysis and panel data models to analyse the flows of bilateral aid for projects on non-emitting energy sources from 2009 to 2018 from donor to recipient countries and in which ways they are related to technical, economic or geopolitical motives. First, we use the foreign aid data for RE projects to see the evolution of the bilateral ODA network from 2009 to 2018, and to develop, using network-based measures our main independent variable: the indegree of centrality of the recipient. To quantify the relative importance of a recipient in the bipartite node, we will calculate the simplest form of centrality measure which is the degree measure. The degree measure of centrality is the number of nodes that a focal node is connected to and measures the involvement of the node in the network (Opsahl et al., 2010). Given that our purpose is to explore the effect of the relative power of a donor regarding the flows of ODA into the recipient, the indegree of centrality of the recipient as a focus node allows us to quantify how many different donors are giving aid to a recipient i.e, how many edges come in to into the recipient. This metric is included in our panel regression as our main independent variable to test the hypothesis whether donor countries would provide higher aid if they are in a position of power in a recipient's aid network. Robustness checks are included using alternative measures to proxy the power of the donor in the recipient's aid network. Second, we calculate the probability of a donor country to invest in a developing country (selection phase). Lastly, we will analyse the drivers of such investments (allocation phase). This study uses the OECD Development Aid Committee (DAC) data at the country level collapsed to the triadic donor-recipient-year level. We use the Rio Markers to filter for our dependent variable represented by the bilateral development aid from donor countries directed to energy generation with renewable sources i.e., biofuels,

geothermal, hydro-electric, marine, solar for centralised grids and wind energy. Data is complemented with information from the World Governance Indicators, COMTRADE, IRENA, the US Geological survey and REN21. Following previous research in development aid (Betzold and Weiler 2017; Weiler et al. 2018; Peterson and Skovgaard 2019), we use data on commitments, i.e. the full amount of expected transfer, irrespective of the time required for the completion of disbursements, as it shows better the donor goals.

Results

Preliminary results show that the decision of a donor country to provide bilateral ODA to a recipient country is tied to both geopolitical and economic reasons. The probability of providing ODA to a recipient country for RE projects will be higher if the recipient country is a rare earth producer, there are former energy trade relationships between donor and recipient, and the donor has established deployment subsidies for RE in the form of energy actuions, very common among developing countires in the last years. Therefore, the selection stage is guided by strategic and economic motives. Once the decision has been made, the amount of ODA for renewable energy projects provided will be higher in those countires in the network of the donor in which the donor perceives they can have a more exclusive relationship with the recipient, i.e. other countries are not investing in the same country in the same type of projects. This shows that the donor may compete for political and economic influence through the provision of ODA in the recipient countries. Variables related to the needs of the country only play a role in the allocation phase with those more vulnerable to environmental problems, and with a higher energy consumption per capita, receiving higher amounts of ODA for the development of RE projects. The policy support in the country at hand is a relevant factor for both stages, selection and allocation of development aid, as well as the regulatory quality which capture the perception of the government capabilities to formulate and implement regulation that allows private sector development.

Conclusions

Policy implications can be derived from the analysis and are relevant in a context in which partner countries, i.e. recipient of ODA may find difficulties in accessing finance for capital intensive investments in RE projects. ODA in those contexts can act as a catalyser to mobilize additional funds and reduce risks for private investments. Also, by modelling the ODA provided for RE projects as a network, we are able to disentangle if there is evidence of strong concentration in particular countries that are strategic for the interests of the donors or not. As argue by Weiler and Klock (2021) this empirical results can have implications for climate, and energy, justice in the coming years. On that front, given the strategic importance of energy and, in particular of RE, for development, a modernisation of the regulations for ODA provision may be needed to actually target economic development and welfare of developing countries as their primary purpose for such provision.

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