



UNIVERSITÀ DEGLI STUDI
DI CAGLIARI

Economics Seminars

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Aula Magna Edificio Baffi

Facoltà di Scienze Economiche Giuridiche e Politiche - Viale Sant'Ignazio 74

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Green FDI and technological spillovers in host economies

with Vito Amendolagine and Dalila Ribaudò



Abstract. The paper aims to extend the evidence on the role of green foreign direct investment (FDI) in renewable energy (RE) technologies to spread innovation in the host economies. It is based on two previous articles aimed at exploring the impact of green FDI on the development of green technologies by investors (Amendolagine et al., 2021) and by their foreign subsidiaries (Amendolagine et al., 2023). Here we aim to investigate the relevance of green FDI to trigger technological spillovers in the host economies, by transferring green knowledge to local companies. The international diffusion of RE technologies is key for mitigating climate change (Iyer et al., 2015; Rempel & Gupta, 2021) and multinational enterprises (MNEs) can play an important role in spreading these technologies across borders. Noailly and Refish (2015) show that a large share of green patents worldwide relies on MNEs' cross-border R&D activities. With respect to non-globalized firms, MNEs are in a privileged position to develop green capabilities since they have direct access to relevant pools of green knowledge in the global economy. However, it remains unexplored whether MNEs spread green technologies not only across country-borders but also across firms, going beyond MNEs' boundaries. With a focus on green FDI, Amendolagine et al (2023), show that (i) foreign ownership positively impacts on the companies' innovative capabilities – measured by the quality and quantity of green patents; (ii) this green advantage vis-à-vis domestic companies is larger in less developed countries; (iii) green FDI is more effective when technologies are characterized by low tradability and a large component of Doing-Using-Interacting (DUI) in knowledge production. Moreover, their analysis shows that that over time, bi-directional knowledge flows based on continuous interactions and Amendolagine et al. (2021) and Amendolagine et al. (2023). Green FDI is defined as foreign direct investments undertaken by firms with at least one climate change-related technology patent in the following RE technologies: geothermal; hydro; marine; solar (including thermal, solar photovoltaic; solar thermal-PV hybrid); wind; biofuels; and fuel from waste. The database includes 1,055 green FDI in the period from 2003 to 2015: 73 percent greenfield investments and 27 percent mergers and acquisitions (M&A). This paper aims to extend Branstetter (2006) to estimate the impact of green FDI on the number of citations to foreign investors' green patents by green patents invented in the host economy. Different potential moderating factors are tested: (i) the type of green FDI, i.e., greenfield or cross-border acquisition; (ii) the green technology specialization of the foreign investor (e.g., solar or wind); (iii) the technological and economic development level of the host economy; (iv) the direction of green FDI (e.g., North-South or South-North). Given the count nature of the output variables, the impact of green FDI on technological spillovers in host economies is measured by a negative binomial estimator.