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Impact of flexibility in public R & D funding: How real options could avoid the crowding-out effect

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ABSTRACT

This paper explores new mechanisms to ensure grants are additional to private research and development investment with no displacing or crowding-out effect. Our results indicate that by studying the flexibility embedded in these type of projects, using the real options framework, it is possible to reduce the size of grants given by financing bodies while remaining equally attractive to companies. This result is reached due to the higher flexibility provided in potential new grant schemes. In addition to the obvious consequence of less expensive public R & D funding, there are other side benefits to this new scheme, such as avoiding the crowding-out effect while also allowing more honest and sincere research and development investment by companies because they are sharing the risk with the funding body. This paper presents a case study - an R & D project carried out in the Concentrated Solar Power sector - in which we propose and calculate the effect of providing the grant 2 years earlier with a sensitivity analysis performed over the discount rate, volatility and first commercial revenue. This paper may encourage funding bodies to consider implementing alternative grant schemes valuing the flexibility embedded in R & D projects.