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Quota markets and technological change

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Quota or permit markets have become an important tool for climate and energy policy, as they not only promise allocative efficiency but also provide a market-based selection of the best new technological options. We analyze their effect on technological change in a case where several technologies could be developed and where R&D firms are granted patents with a finite lifetime. We show that R&D incentives are not only too low, as is well known, but incentives are also distorted across technologies, which is a new result. Compared to the social optimum, the best technology is developed in too few cases, whereas a less promising technology might be developed too often. This distortion is difficult to correct, as information about new technologies is usually missing. However, we show that combining a quota market with a simple tax-subsidy scheme can correct some of these distortions, even if the regulator has no information regarding the properties of new technologies.

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