

# The Role of Carbon Taxes and R&D Subsidies in Climate Policy

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We study the role of technology subsidies in climate policies, using a simple dynamic equilibrium model with learning by doing. The optimal subsidy rate of a carbon-free technology is high when the technology is first adopted, but falls significantly over the next decades. However, the efficiency costs of uniform instead of optimal subsidies, may be low if there are introduction or expansion constraints for a new technology. Finally, supporting existing energy technologies only, may lead to technology lock-in, and the impacts of lock-in increase with the learning potential of new technologies as well as the possibilities for early entry and tight carbon constraints.