

## Research Project

# Learning Abatement Costs: On the Dynamics of Optimal Regulation of Experience Goods

### Project funded by own resources

**Project title** Learning Abatement Costs: On the Dynamics of Optimal Regulation of Experience Goods

**Principal Investigator(s)** [Hintermann, Beat](#) ;

#### Organisation / Research unit

Departement Wirtschaftswissenschaften / Public Economics / Public Finance (Hintermann)

**Project start** 01.01.2010

**Probable end** 01.06.2013

**Status** Completed

We study the introduction of new technologies when their costs are subject to idiosyncratic uncertainty and can only be learned through individual experience. We set up a dynamic model of clean experience goods that replace old polluting consumption options and show how optimal regulation evolves over time. In our base setting, the optimal tax or subsidy is increasing over time both under first-best and second-best policy conditions, although the exact time paths of the regulation will differ. This result is driven by initially very high but rapidly decreasing learning rates that counteract the effect of an increasing state of knowledge such that the number of users of the clean technology actually decreases over time.

Placing a high fixed cost on expansion of the clean new alternative will limit per-period learning and may reverse the dynamics: If increasing knowledge dominates the (constant or decreasing) learning rate, the optimal subsidy will fall over time. Lastly, if the social planner believes that consumers are myopic in the sense that they apply a too high discount rate, it may be optimal to keep the tax above net marginal damages to induce learning during the approach path but to adjust it downward once the steady-state level of learning is reached.

#### Financed by

University funds

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ID	Kreditinhaber	Kooperationspartner	Institution	Laufzeit - von	Laufzeit - bis
978089	Hintermann, Beat	Lange, Andreas, Professor for Public Finance	University of Hamburg	01.01.2010	31.12.2020