

A Dynamic Programming Approach to Learning-by-Doing

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The concept of learning-by-doing (LBD) rests on the assumption that production costs of a product goes down as experience is accumulated. These non-convex LBD cost curves sometimes cause the appearance of multiple local optimal solutions in our models. In the realm of energy modeling, this translates into a "lockout" of certain technologies. We present a dynamic programming version of a model originally proposed by Manne and Barreto. The dynamic program is then solved numerically and refined using CONOPT. We also give an example where this procedure finds a global optimal solution while a CONOPT solve using the default starting point does not.

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