

The Bayesian Foundations of Learning by Doing

by

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Abstract. This paper explores a one-agent Bayesian model of learning by doing and technological choice. To produce output, the agent can choose among various technologies. The beneficial effects of learning by doing are bounded on each technology, and so long run growth in output can take place only if the agent repeatedly switches to better technologies.

As the agent repeatedly uses a technology, he learns about its unknown parameters, and this accumulated expertise is a form of human capital. But when the agent switches technologies, part of this human capital is lost. It is this loss of human capital that may prevent the agent from moving up the quality ladder of technologies as quickly as he can, since the loss is greater the bigger is the technological leap.

We analyze the global dynamics. We find that a human-capital-rich agent may find it optimal to avoid any switching of technologies, and therefore to experience no long run growth.

On the other hand, a human-capital-poor agent, who because of his lack of skill is not so attached to any particular technology, can find it optimal to switch technologies repeatedly, and therefore enjoy long-run growth in output. Thus the model can give rise to overtaking.

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