

## Abstract

This thesis describes the close relationship between dynamic programming and reinforcement learning algorithms on the example of a model of a dual currency economy. Dynamic programming is the methodology used for deriving equilibria of Search-Theoretic equilibrium monetary models, which provide evidence for the emergence of fiat currency or the emergence of internationally circulating currencies without any human institutions. The particular previously published Search-Theoretic framework of a dual currency economy is used as a background for the development of an Agent-based Computational model. Both models are compared based on their ability to reach specified equilibria and their assumptions, with the conclusion that the models are closely related and with the same assumptions would have the same results. The Agent-based model also provides the possibility of relaxing assumptions on perfect information distribution and a static environment. In this setting, the model will reach different equilibria, that correspond better to the real human behavior, observed in previously published laboratory experiments.

**JEL Classification** D83, E40

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