

Nash Equilibrium in Evolutionary Competitive Models of Firms and Workers under External Regulation

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Abstract:

The object of this paper is to study the labour market using evolutionary game theory as a framework. The entities of this competitive model are firms and workers, with and without external regulation. Firms can either innovate or not, while workers can either train or not. Under the most simple model, called normal model, the economy sticks in a poverty trap, where workers do not train and firms do not innovate. This Nash equilibria is stable even when both entities follow the optimum strategy in an on-off fashion. This fact suggests the need of an external agent that promotes the economy in order not to follow in a poverty trap.

Therefore, an evolutionary competitive model is introduced, where an external regulator provides loans to encourage worker training and firm innovation. This model includes poverty traps but another Nash equilibria, where firms and workers jointly innovate and train.

The external regulator, in a three-phase process (loans, taxes and inactivity) achieves a common wealth, with a prosperous economy, with innovative firms and trained workers.