

# Comparative analysis of selected neo-schumpeterian models of industrial dynamics

(The first ('working') version)

Witold Kwasnicki  
Institute of Economic Sciences  
Wroclaw University  
ul. Uniwersytecka 22/26  
50-145 Wroclaw, Poland  
e-mail: kwasnicki@ci.pwr.wroc.pl  
<http://www.prawo.uni.wroc.pl/~kwasnicki>

To be presented at the *Nelson and Winter Conference*  
Aalborg, Denmark, 12-15 June, 2001

Since publication of a seminal work by Richard Nelson and Sidney Winter in 1982 evolutionary models proliferated enormously. After two decades of experience it is possible to distinguish two main streams of development within an evolutionary modelling of economic processes. The first one relates to the work of Schumpeter and the second one is based on the concept of cellular automata, within a general framework of artificial life and Agent-based Computational Economics (ACE). Schumpeterian tradition seems to be closer to the work of Nelson and Winter therefore in this paper I will focus on models which can be called neo-schumpeterian ones. My intention is to make comparative analysis of selected models much more from technical point of view than to make a review of evolutionary, neo-schumpeterian models. Matter presented in this paper ought to be considered as the first trial to describe this stream of evolutionary modelling of economic processes and it is my hope that it will be discussed later on with participants of the conference.

The paper will begin with short review of the models accompanied by identification of crucial characteristics of evolutionary models. All models are dynamical ones so the first important feature to call them evolutionary ones is fulfilled by all selected models. Similarly all models are focused on far-from-equilibrium analysis but it is interesting to see to what extent this feature is really used in the process of simulation analysis of the models. Other crucial features of evolutionary process are not present not in all models. The question to what extent other 'evolutionary features' are present in the models will be the main aim of this paper. The features which I have in mind are: diversity and heterogeneity of economic agents (firms) and their behaviour, search for innovation based on the concept of hereditary information (knowledge), selection process which leads to diversified rate of growth and spontaneity of development. Interesting feature of evolutionary models is also the problem of describing the process decision making by economic agents. In many models this feature is not present in many other it has more or less complicated form.