

## Toward a Multiactivity Generalisation of the Nelson–Winter Model

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Version: 15 May 2001. Comments and corrections are welcome.

**Abstract** This paper proposes a multiactivity generalisation of the Nelson–Winter model, or the NW model, in order to turn the attention of evolutionary minded economists toward specialisation and exchange, the emergence of markets for intermediate goods, the specialisation of R&D, and other issues of multisectoral growth and development. The argument and the solution is presented in four steps. First, there is a discussion of some practical difficulties and core theoretical problems in relation to the standard NW model of Schumpeterian competition. The conclusion is that this model gives an ad hoc solution to the tendency of evolutionary models to produce monopoly and that it has not really confronted the ‘knife-edge’ problems of the underlying Leontief technology. Thus there is still a need to confront what may be called the diversity paradox and the Leontief technology paradox of evolutionary modelling. Second, the paper develops a condensed version of the NW model that serves to highlight the theoretical problems and as a platform for the proposed generalisation. This version of the NW model, the LNW model, includes only labour and knowledge. With given technologies the LNW model shows standard replicator dynamics while it can also be used as a testbed for exploring different R&D regimes. Third, the bare bones of the multiactivity generalisation of the NW model, the MNW model, is presented. This presentation starts from firms that produce their intermediate goods by means of labour and knowledge. Then the focus turns to exchange in intermediate goods and the related problems of the specialisation of R&D. Fourth, the paper discusses the MNW model’s partial solutions to the diversity paradox and the Leontief technology paradox as well as the possibilities of further developing and applying the MNW model.

**Key words** Evolutionary modelling – Nelson–Winter models – diversity paradox – Leontief technology paradox – labour-based evolution – multiactivity production – specialisation and exchange – markets for intermediate goods – specialisation of R&D – multisectoral growth and development

**JEL-classification** D2, L1, O3