

# **Title: Consumption externalities, spontaneous change, and unpredictability**

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## **Abstract**

This paper presents a dynamic model of consumer choice incorporating consumption externalities. Individual acts of choice are seen as part of a sequential process rather than as part of an equilibrating system. The paper extends the methodology initially adopted by W.B.Arthur to explain the phenomenon of technological lock-in. This is done by adopting selection functions which include non-linearities, with a consumer's current choice influenced by the past choices of other consumers. The model is deliberately minimalist and symmetric. Consequently, there are no endogenous or exogenous factors causing consumers in aggregate to favour one particular commodity rather than another. Yet, through computer simulations, it is shown that remarkable switches and re-switches in patterns of demand take place. These arise spontaneously and in ways that are emergent and unpredictable. The results lend force to the view that, distinct changes in economic and social activity could occur even in the absence of any identifiable catalyst of change. The implication is that, observance of discontinuities or marked changes in real economic and social systems need not necessarily imply the existence of some knowable or discoverable cause. In some cases change can just occur with neither 'rhyme nor reason'