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# Locally interdependent preferences in a general equilibrium environment

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## Abstract

This paper explores the consequences of interdependent preferences for consumer goods, that is, preferences that evolve in response to the consumption decisions of neighboring agents. The key feature is that the interdependence of preferences coexists and interacts with the price mechanism in a general equilibrium environment. The interaction between the negative feedback operating through the price system and the positive feedback expressed in the bandwagon effect creates distinct geographic patterns of consumption on the micro-level and a characteristic evolution of average preferences and production on the macro-level. In equilibrium, agents' preferences and consumption are completely polarized into stable regions in which every agent consumes the same good exclusively. © 2002 Elsevier Science B.V. All rights reserved.

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## 1. Introduction

As any parent or marketing specialist can confirm, an individual's preferences for a good are often influenced by other people's consumption choices. No fashion is so outrageous that repeated exposure to it cannot persuade some segment of the population of its desirability. Preferences for goods such as pungent cheeses or opera are often referred to as "acquired tastes". The prevalence of "product placement", a promotion tactic which involves use of branded consumer items as background props in movies and television programs, suggests that exposure to other people's consumption effectively sways consumer opinion.

This paper explores the individual and aggregate consequences of a bandwagon effect, or a process of "acquiring tastes" in which preferences for a good increase because other

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agents have purchased it. The behavioral assumption is straightforward: the more agents see of a good, the more they like it. Agents do not attempt to “keep up with the Jones,” nor do they wish to conform to their neighbors’ consumption patterns,<sup>1</sup> rather, their tastes passively respond to repeated exposure to a good. The interdependence of preferences and observed consumption is local and spatially-based, occurring between agents in fixed reference groups. For example, the reference groups might be teenagers involved in the same high school activities or doctors practicing in the same hospital or clinic.

A bandwagon effect, or imitation in preferences, can also result from increasing returns to consumption across agents or from network externalities in consumption. For example, neighbors who play a similar style of music can critique each others’ performance, and users of the same software packages can exchange files easily and share information about short-cuts or bugs. Consequently, agents may alter their preferences to reflect their neighbors’ previous consumption decisions. A historical example is the “QWERTY” layout of keyboards discussed by David (1986). Arthur (1989) utilizes VHS and Beta video formats as an example of goods with network externalities or increasing returns to adoption across agents. Leibenstein (1970) provides an early treatment of a bandwagon effect that results from network externalities in consumption.

This paper shows how a bandwagon effect, or imitation in preferences, interacts with traditional market-based forces to create distinct geographic patterns of consumption on the micro-level and a characteristic evolution of average preferences and production on the macro-level. In equilibrium, agents’ preferences and consumption are completely polarized into stable regions in which every agent consumes the same good exclusively. The production technology is the key determinant of the evolution of aggregate quantities such as the price; the initial configuration of preferences typically plays a subordinate role. In particular, when production exhibits constant or decreasing returns to scale, average preferences evolve so as to minimize the per unit cost of production or, equivalently, to maximize the total quantity of goods produced from a fixed input. In an exchange economy, the evolution of average preferences reflects the availability of goods: greater relative availability of a good causes more agents to prefer that good exclusively in equilibrium. The initial configuration of preferences is the key determinant of the evolution of preferences only when the two goods are equally easy to produce with a constant returns to scale technology.

### *1.1. Global interactions and general equilibrium*

One of the critical features that distinguishes the models presented here from previous treatments of interacting preferences is that the interaction of preferences and observed consumption occurs in the context of a competitive general equilibrium environment. Agents interact globally in a centralized market for goods and locally through the interdependence of agents’ preferences and neighborhood consumption.

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<sup>1</sup> Several recent papers model the desire for conformity. Bernheim (1994) considers how uniform behavior can arise despite heterogeneous preferences for actions when agents care about other’s perceptions of their preferences. (Kuran, 1987, 1989) demonstrates that large, sudden changes in group behavior can occur when people conceal their preferences in order to (apparently) conform with the prevailing regime. (Jones, 1984) also examines the economic consequences of conformism.

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