Economic Modelling 47 (2015) 12–17

Contents lists available at ScienceDirect

Economic Modelling

journal homepage: www.elsevier.com/locate/ecmod

A model of fashion: Endogenous preferences in social interaction

Viviana Di Giovinazzo [a,*], Ahmad Naimzada [b]

[a] Department of Sociology and Social Research, University of Milano Bicocca, Viale Bicocca degli Arcimboldi, 8, 20126 Milano, Italy
[b] Department of Economics, DEMS (Dipartimento di Economia, Metodi quantitativi e Strategie di impresa), University of Milano Bicocca, Piazza dell'Ateneo Nuovo, 1, 20126 Milano, Italy

ARTICLE INFO

Article history:
Accepted 9 December 2014
Available online xxxx

Keywords:
Fashion cycles
Endogenous preferences
Snob and bandwagon effects
Bifurcation
Complex dynamics

ABSTRACT

The aim of this paper is to investigate the dynamics of the fashion cycle as originally described by Simmel (1904). The theoretical models used in the more recent economic literature (Coelho and McClure, 1993; Corneo and Jeanne, 1997; Karni and Schmeidler, 1990; Matsuyama, 1992; Stigler and Becker, 1977) have the undeniable advantage of making the cycle widely applicable, and consequently appropriate for the analysis of the most varied fields of consumption activity. However, in the process, the originality of Simmel's thought has been lost. Since they are built on the principles of standard economics, the above-mentioned models generally assume that preferences are exogenous and overlook the fact that individual tastes change in time, partly in line with choices previously made by the social group. The present paper proposes a model of the fashion cycle in which conspicuous consumption 'snob' and 'bandwagon' preferences (Leibenstein, 1950) are determined endogenously and depend on previous consumption experience, both personal and that of other consumers. Thus the particular contribution of this work in comparison to the preceding economic literature is dual in nature. By assuming preferences to be endogenous, it reflects more accurately the dynamics causing perpetual motion in the fashion cycle. By assuming preferences to be shaped through the social interaction of a heterogeneous community of individuals, the model manages to identify more closely the psycho-sociological nuances that, according to Simmel, give rise to the cycle.

1. Introduction

Fashion is, of course, an important social phenomenon, as has been documented by numerous studies in sociology and economics. In sociology, the treatment of subject was made famous by Simmel (1904), who held that the fashion cycle is driven by the masses' imitation of the *élite*. According to Simmel, the upper classes seek to set themselves apart from the masses by adopting a new style, which the masses then imitate. The tendency to imitate expresses a primary need for social approval, while the tendency to stand out expresses the exact opposite, the fundamental need to affirm one's personality.

In early economics, the fashion cycle gained the attention of researchers such as Veblen (1899) who studied sudden shifts in consumer behavior and wrote patterns of conspicuous consumption in which individuals motivate their purchases by making comparisons with their slightly better-off peers, in order to express their buying power. Half a century later, Leibenstein (1950), who was primarily interested in welfare analysis, classed aggregate consumption phenomena as a 'non-functional demand' comprising 'bandwagon effects', deriving from a desire to join the others, and 'snob effects', originating in a desire to stand apart. Drawing on the field of motivational psychology, Scitovsky (1976) then explained the fashion cycle as the result of balancing two opposed human drives, namely, the pursuit of novelty and the need to conform to collective standards. A different explanation of fashion demand can be found in Stigler and Becker (1977), who claim that tastes are stable over time and need not be part of a theory of demand, as long as they are held in common by consumers. Karni and Schmeidler (1990) have instead pointed out that equilibrium selection in a dynamic game of complete information with overlapping generations of players divided into different classes can also lead to cyclical demand variations.

The main focus of the recent literature on fashion is on inter-temporal mechanisms that, coupled with externalities, may give rise to fashion dynamics. In an evolutionary framework, Matsuyama (1992) identifies the social environments that give rise to limit cycles, in which non-conformists act as fashion-leaders and conformists as fashion-followers. Coelho and McClure (1993) stress the potential role of consumer expectations in generating the fashion cycle. Corneo and Jeanne (1997) develop a model in which the signaling value of conspicuous consumption depends on the number of consumers, with consumer behavior being characterized by either snobbism or conformism. The models of the fashion cycle developed from Becker onwards have the undeniable advantage of generalizing the fashion cycle and therefore making it appropriate for the analysis of the most varied fields of consumption activity.

However, the originality of Simmel's thought does not emerge from the above papers, given that they are constructed on the principles of standard economics and generally assume that fashion cycle models

* Corresponding author.
E-mail addresses: viviana.digiovinazzo@unimib.it (V. Di Giovinazzo), ahmad.naimzada@unimib.it (A. Naimzada).

http://dx.doi.org/10.1016/j.econmod.2014.12.029
0264-9993/

are exogenous, overlooking the fact that tastes both change over time and vary in reaction to choices previously made by the social group.

The goal of this paper is to offer an explanation for collective behavior that presents the characteristics of fashion as originally described by Simmel. The study models fashion as a dynamic phenomenon in the presence of conspicuous consumption 'bandwagon' and 'snob' effects (Leibenstein, 1950). In particular, it proposes a model in which agents' consumption preferences are determined endogenously and depend on the experience of previous consumption by oneself and others. Originally proposed by Benhabib and Day (1981), the model has been utilized to study local and global interdependent preferences (Naimzada and Tramontana, 2009) and public goods dynamics (Di Giovinazzo and Naimzada, 2012). As in fact will be shown, the endogenous nature of preferences and social interaction is a necessary precondition for setting off a fashion cycle. The model demonstrates that a fashion cycle emerges when both types of agents – snobs and 'bandwagoners' – co-exist in a meaningful way. As far as we know, no-one has yet tried formalizing the fashion cycle with endogenous preferences in social interaction.

The remainder of the paper is structured as follows. Section 2 presents the basic model and provides conditions for the formation of a fashion cycle. Section 3 discusses some examples, while the last section offers our concluding remarks.

2. The model

In this study, we experiment with modeling the fashion cycle on the basis of the work of Benhabib and Day. The latter model assumes agents' preferences to be endogenous, in particular with preferences in any given period depending on past consumption experiences. It does not contemplate, however, the possibility of consumption being determined by social interaction, even though the latter is likely fundamental in the fashion world, where social influence is critical. The model proposed here is the result of continuous interaction between two types of agent, known as the 'snob' and the 'bandwagoner', via an endogenous transformation of the parameter representing the preference for conspicuous consumption. For the bandwagoners, it is assumed that preference for a particular kind of consumption increases with the rise in the social group's average consumption of the previous period. For the snobs, preference for a certain purchase is believed to drop with the rise of the average collective consumption of the preceding period.

We consider a discrete-time economy populated by N agents, where preferences are defined by Cobb–Douglas utility functions:

$$U^i\left(u,y,a^i\right)=x^{\alpha^i}y^{(1-a^i)},\ 0<\alpha^i<1, \tag{1}$$

where U_i represents the utility of the i-th agent and is defined by: an observable good x, referred to as the conspicuous good, and a numéraire good y (Corneo and Jeanne, 1997), where α^i represents the preference of i-th agent for the good x. The budget constraint is indicated by:

$$m^i=px^i+qy^i,$$

where m^i is the income of the i-th agent, p is the price of the good x and q is the price of the good y. The economy is populated by two types of individual: the snob and the bandwagoner. We define bandwagoners as agents whose preference for a conspicuous purchase increases with the rise in social group's past average consumption of the good x. We then define as snobs the agents whose preference for a good falls with the social group's past increase in consumption. The population is composed of a share ω of individuals of the bandwagon type and $(1-\omega)$ individuals of the snob type, with $0<\omega<1$; ωN, therefore, is the number of bandwagon agents and $(1-\omega)N$ the number of snob agents. It is hypothesized that, within each group, agents are homogeneous in both income, m^i, and preferences, α^i. For the bandwagoners we have $m^i=m^B$ and $\alpha_t^i=\alpha_t^B$ for $i\in(1,2,\ldots,\omega N)$. For the snobs we have $m^i=m^S$ and $\alpha_t^i=\alpha_t^S$ for $i\in(\omega N+1,2,\ldots N)$. The optimality condition calls for the first order conditions to be satisfied, as follows:

$$\begin{cases}\dfrac{a^i x^{(\alpha^i-1)}y\left(1-\alpha^1\right)}{(1-a^i)x^{\alpha^i}y^{-\alpha^i}}=\dfrac{p}{q}\\ m^i-px^i-qy^i=0.\end{cases} \tag{2}$$

$i=1,\ldots,N$.

Solving the optimization problem we obtain the demand functions of the two goods:

$$x^i=\frac{a^i m^i}{p}$$

and

$$y^i=\frac{\left(1-\alpha^i\right)m^i}{q}.$$

The dependence of these demand functions upon experience is obtained by supposing that the parameter of the utility function representing preferences depends endogenously on the social group's past choices concerning the conspicuous good. It is hypothesized that the parameter α_i^i depends on the social group's average past consumption choices of the conspicuous good: $\alpha_{t+1}^i=f(\bar{x}_t)$, where the average consumption of good x at time t is therefore:

$$\bar{x}_i=\omega x_i^B+(1-\omega)x_i^S. \tag{3}$$

The dependence of the parameters that determine the preference for the conspicuous good of the two groups of agents on the past average social group's consumption is then considered. For the bandwagoners the dependence is given by $\alpha_t^B=f^B(\bar{x}_{t-1})$; with the following characteristics:

1a) $f^B:\Re_+\to[0,1]$;
2a) f^B continuous;
3a) f^B increasing.

For the group of the snobs the function $\alpha_t^S=f^S(\bar{x}_{t-1})$; has the following characteristics:

1b) $f^S:\Re_+\to[0,1]$;
2b) f^S continuous;
3b) f^S decreasing.

The mass of the population is normalized to unity, $N=1$. Introducing the dependence of the preferences with respect to the average consumption of the previous period, we obtain the following equation:

$$\bar{x}_t=\frac{\omega m^B}{p}f^B(\bar{x}_{t-1})+\frac{(1-\omega)m^S}{p}f^S(\bar{x}_{t-1}). \tag{4}$$

The above equation defines a discrete dynamic system of the first order in the variable $\bar{x}$.

3. Dynamic analysis

To develop the dynamic analysis two specific functional forms will be used, which reflect the assumptions previously made concerning α_t^B e α_t^S.

For the snob group (Fig. 1), the dependence of the parameter representing their preferences with respect to the average past