

1 Introduction

The past twenty years have witnessed a significant increase in earning inequality; more precisely, “income polarisation” or “shrinking middle-class” phenomena have occurred – see, e.g., Levy and Murnane (1992), Atkinson *et al.* (1995), Jenkins (1995). This trend has been common to most OECD countries, as well as to many less developed countries.

The effects of income distribution on households’ behaviour and growth performance are widely discussed: see, e.g., the recent contributions by Benabou (1996) and Gottshalk and Smeeding (1997), as well as the comprehensive article by Aghion *et al.* (1999). By contrast, the body of research about the effects of this change upon the firms’ behaviour and market structure is much more restricted. This is a little bit surprising, given that income distribution affects market demand functions, and hence should in principle influence the optimal behaviour of firms.

In this paper we show that, if the firms’ fixed costs are below a critical threshold, income polarisation may lead to market concentration, that is, to a smaller number of firms able to survive in the long run. This result is obtained for any unimodal density function describing income distribution of the consumers, in the framework of discrete consumers’ choices. Competition among firms is modelled as Cournot oligopoly, which obviously includes perfect competition and monopoly as limiting cases.¹

In a theoretical perspective, the set-up we work with is fairly general, within the limits imposed by a discrete choice model:² it deals with any income distribution (the limitation that it is unimodal seems acceptable), and with any market form covered by the Cournot setting. In this respect, the paper encompasses recent studies dealing with related points, but limited to specific forms for the density function of income or to peculiar forms of imperfect competition (Benassi *et al.*, 1999).

In the perspective of the empirical relevance of our contribution, several studies show that Western economies have witnessed increasing market concentration over the last decades in many sectors, and especially in the large-consumption goods sector: see De Jong (1993), and Lyons and Matras (1996). Well established explanations rest on the increased competition due to trade liberalisation. Here we argue that, for some sectors, income polarisation may well be among the reasons why market concentration has

¹A recent study on the reaction of oligopolistic firms to shifts in market demand is Hamilton (1999); like the present paper, it focuses on free-entry equilibria.

²The discrete-choice structure of demand, which is clearly most appropriate in the case of durables, is quite common in the literature (e.g., Deaton and Muellbauer, 1983, ch.13; Anderson *et al.*, 1992).

been increasing: in this sense, there might be a link running from income distribution to market structure, consistent with the observed data.

Two final points should be noticed: first, we treat income polarisation as an exogenous shock; secondly, we do not take into account possible income increases. Exogeneity of the income distribution is consistent with our partial equilibrium approach, in the sense that we assume away any feedback effects from market concentration to aggregate income distribution. As far as the second point is concerned, in the real world income polarization has been associated with increases in average income; however, we abstract from the latter and focus on mean-preserving shocks to income distribution, in order to sort out the effects of purely distributive changes.

The outline of the paper is as follows: section 2 presents the basics of the model; section 3 performs comparative statics exercises, taking into account the effects of income polarisation; comments and conclusions are gathered in section 4.

2 The basic model

We consider, in turn, (i) the demand side, describing the income distribution, the optimal decision of consumers, and the resulting market demand function; (ii) the optimal decision of symmetric firms in an oligopoly setting *à la* Cournot.

2.1 Income distribution and demand

We model the demand side of the market as a *continuum* of consumers, each of whom is identified by the income y he is endowed with. The latter is continuously distributed as $F : [y_{\min}, y_{\max}] \rightarrow [0, 1]$ over some support such that $0 \leq y_{\min} < y_{\max}$. The *only* assumptions we impose on F (apart from differentiability) are that (a) the density $f(y, \theta) = \partial F(y, \theta) / \partial y$ is unimodal; (b) it is subject to mean preserving shocks – i.e., if we take a real parameter θ as a mean preserving spread, an increase in θ translates itself into the distribution $f(\cdot, \theta)$ being more dispersed around the given mean.³ If we denote the interior mode by $m \in (y_{\min}, y_{\max})$, we can write formally (a) and (b) as the following properties:

³Using a mean preserving spread amounts to ranking equal-mean distributions by second-order stochastic dominance. It is well known that such ranking is equivalent to Lorenz dominance: θ is thus an inequality index satisfying the Pigou-Dalton’s “principle of transfers” (Atkinson, 1970).