The simple analysis of this section shows clearly that in the standard Dixit-Stiglitz framework of product differentiation, income dispersion plays indeed a role in the long run configuration of market structure, in that it affects the number of available varieties; but it seems to be irrelevant as far as the competitiveness of market is concerned: the price over cost ratio and each firm long run equilibrium output are independent of the distributive parameter.

It may be noticed that, in a love-for-variety framework, this effect on the degree of product differentiation is a non negligible, side welfare effect of distributional shocks, which affects all consumers utility in the same direction, independently of their displacement in the scale of incomes.

4 Pricing and market equilibrium: the case with endogenous mark-up

In the simple model of the previous section income dispersion exerts only a size effect on demand, the direction of which depends on the concavity or convexity of the Engel's curve. However, there exists in principle an additional transmission mechanism of distributive shocks to the goods market, namely that of market demand elasticity. This issue has already been dealt with in a homogenous product setup: in that framework an increase in income dispersion reduces for a relevant price range both the size and the elasticity of market demand (e.g., Benassi, Chirco and Scrimitore, 2002).

Within the love-for-variety models of product differentiation, the CES formulation of preferences is consistent with an endogenous mark-up only if the above mentioned negligibility hypothesis is abandoned and the so-called price index effect is taken into account. The idea that firms do not neglect the change in the price index q induced by their own pricing decisions has been introduced by Yang and Heijdra (1993) and generates an endogenous mark-up behaviour in the macroeconomic analyses by Bratsiotis and Martin (1999), Wu and Zhang (2000), Linnemann (2001), Benassi, Chirco and Colombo (2002).

If the perceived elasticity of the price index with respect to the individual price is not nil, $\nu_{qp_i} = (p_i/q)\ \partial q/\partial p_i \neq 0$, then the own price elasticity (in absolute value) of market demand (3) becomes

$$\varepsilon_{ii} = \sigma - (\sigma - 1)\,\nu_{qp_i} + \frac{\partial S}{\partial q}\frac{q}{S}\nu_{qp_i} \tag{7}$$

Evaluated at the symmetric equilibrium, we can write (7) as

$$\varepsilon_{ii} = \sigma - \frac{1}{n}(\sigma - 1) + \frac{1}{n}\frac{\partial S}{\partial q}\frac{q}{S} \tag{8}$$

If we assume that the demand elasticity of the composite differentiated good with respect to q be unity, so that the elasticity of expenditure with respect to price is equal to zero,[5] equation (8) collapses to

$$\varepsilon(\sigma, n) = \sigma - \frac{1}{n}(\sigma - 1)$$

The short run profit maximization then yields the following symmetric equilibrium solution for price and production:

$$p_i = p = c\left(\frac{\varepsilon(\sigma, n)}{\varepsilon(\sigma, n) - 1}\right) \tag{9}$$

$$X_i = X = \frac{S(\theta)}{pn} \tag{10}$$

Equations (9), (10) and the zero profit condition determine the long run equilibrium price, quantity and number of firms:

$$\begin{aligned} p &= c\left(\frac{\sigma}{\sigma - 1}\right)\left(\frac{S(\theta)}{S(\theta) - a}\right) \\ X &= \left(\frac{a(\sigma - 1)}{c}\right)\left(\frac{S(\theta) - a}{S(\theta) + a(\sigma - 1)}\right) \\ n &= \frac{S(\theta)}{a\sigma} + \frac{\sigma - 1}{\sigma} \end{aligned}$$

[5] As is well known, this condition is satisfied when the U function is of the Cobb-Douglas type - as in most common macroeconomic applications of this framework. Indeed, it allows closed form solutions in the presence of a price-index effect (Yang and Heijdra, 1993, p.297). It is also satisfied by the utility functions used in the example of Section 2, which (like the Cobb-Douglas) yield the unit price-elasticity property, but (unlike the Cobb-Douglas) exhibit non-homotheticity.

Now, the distributive parameter θ influences not only the optimal number of varieties, but also the price over cost ratio and the individual level of production in the long run equilibrium. In particular, the following proposition holds:

Proposition 3 *If the differentiated good is a necessary (luxury) good, in the long run equilibrium an increase in income dispersion increases (decreases) the equilibrium price, while it decreases (increases) the number of varieties and the level of production of any firm.*

Proof. By noticing that

$$\begin{aligned}
\frac{\partial n}{\partial \theta} &= \frac{1}{a\sigma}\frac{\partial S}{\partial \theta} \\
\frac{\partial p}{\partial \theta} &= -c\left(\frac{\sigma}{\sigma-1}\right)\frac{a}{\left(S\left(\theta\right)-a\right)^{2}}\frac{\partial S}{\partial \theta} \\
\frac{\partial X}{\partial \theta} &= \frac{a^{2}\sigma\left(\sigma-1\right)}{c\left(S\left(\theta\right)+a\left(\sigma-1\right)\right)^{2}}\frac{\partial S}{\partial \theta}
\end{aligned}$$

and making use of Proposition 1, Proposition 3 follows immediately.□

Therefore, on the basis of this simple framework, we expect that in the market for a differentiated non luxury good a stronger concentration of incomes around the mean value (and therefore a lower degree of inequality) increases demand, the level of production and the spectrum of available varieties; still more interestingly, this is accompanied by an increase in demand elasticity and a reduction in the equilibrium mark-up. In these markets, concentration of personal incomes implies a reduction of the profit margins. The opposite applies in markets for luxuries, where a greater homogeneity in incomes implies a decrease in demand and production and an increase in profit margins.

The economic intuition behind these results is not difficult to capture. A lower degree of income dispersion and greater income concentration imply a growing share of demand coming from middle income consumers. For non-luxury differentiated goods, this change in the income-class composition of demand results into an increase in market demand, while the demand for luxuries shrinks. For a given number of firms, these demand shocks are accompanied by a positive comovement in the firms' production and