Advertising, Mass Consumption and Capitalism*

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1 Introduction and Motivation

Western societies have developed into a historically new stage in the evolution of capitalism, one which is characterized by corporations exercising monopolistic power and sustaining demand by advertising through the media. While this theme has been emphasized e.g., by J. A. Schumpeter in *Business Cycles; A Theoretical, Historical and Statistical Analysis of the Capitalist Process*, chapter III, [1] and by J. K. Galbraith in the *Affluent Society*, it seems to have become a fundamental tenet of some of the most recent theoretical work in sociology, and in Postmodernist circles.

The importance of monopoly power in the recent development of capitalist society has also been forcefully stressed by Marxist historians, e.g., from P. Baran and P. Sweezy, in *Monopoly Capital* to E. Mandel, in *Late Capitalism*, and G. Arrighi, *The Long Twentieth Century*. Postmodernist theory, on the other hand, has been constructed around Marxist historicism and "social constructionism", the view that the individual self is socially constituted (see Leonard (1997) and Anderson (1998)). As a consequence, the interaction of monopoly power and advertising has taken a new meaning in the Postmodernist literature, and concepts like "consumerism", "commodification" of culture, and "manipulation of preferences" have become the central core what could be called a Postmodernist Critique of the organization of society. D. Harvey's *The Condition of Postmodernity* is a good example of such a critique, where, it is argued for instance, that "the promotion of a culture of consumerism" is needed to "sustain sufficient buoyancy of demand in consumer markets to keep capitalist production profitable" (p. 61).[2]

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[1]Thanks to Andy Atkenson for this reference.

[2]See also, F. Jameson's *The Cultural Turn*. For a very radical anarchistic advocacy of this point of view, see C. Palahniuk, *The Fight Club,* , Holt and Co., 1996, and particularly the 1999 movie of the book by the same title, directed by David Fincher. A good survey of the positions of the Postmodernist literature on "consumerism" is Lee (2000), and especially

Monopoly power and advertising are intended as a form of "manipulation". They interact to "manufacture individual identities," to induce a system of values and preferences on the part of consumers ("consumerism" together with "preferences for status" and "conspicuous consumption") which is not "natural" as, e.g., it is not supported by psychological and anthropological data (see e.g., M. Douglas and B. Isherwood, *The World of Good*, D. Rushkoff, *Coercion*, M. Sahlins, *Culture and Practical Reason*). As a consequence, the consumption and leisure choices of agents go against their more "fundamental" will ("spontaneous consumer needs" in Galbraith, 1958): consumers are in "psychological denial" regarding their consumption and leisure habits (Schor, 1998, p. 19), and desire commodities which are "useless, altered in a senseless way from the point of view of the rational consumer" (Mandel, 1972, p. 394 of the English 1978 edition). Consumers' "judgement(s) of taste" are socially determined (through the influence of cultural capital on the set of preference predispositions, called"habitus") to seek "distinction" through "conspicuous consumption", even though consumers experience such tastes as natural, personal and individualized (Bourdieu, 1979; p. 101 of the English edition, 1984; the intellectual roots of this argument are in Veblen, 1899, and Duesenberry, 1949). In particular, such "manipulation of preferences", it is argued, induces consumers to reduce the time devoted to leisure activities, and to enter a "work and spend cycle" (J. Schor, *The Overworked American: The Unexpected Decline of Leisure*, and *The Overspent American: Why We Want What We Don't Need*). Finally, another important aspect of the Critique is the consideration of leisure itself as "commodified": "private corporations have dominated the leisure 'market,' encouraging us to think of leisure as a consumption opportunity" (Schor (1992), p. 162).

To summarize, the basic argument of the Postmodernist Critique can be reconstructed as follows (obviously considerably simplifying across the wide range of different positions). Exploiting their monopoly power, firms manipulate the preferences of consumers through advertising in order to create new (false) needs, often for "conspicuous consumption." As a consequence profits increase and consumer spending rises, to the point where consumers enter a "work and spend cycle," where they reduce the time devoted to leisure activities, or at least they curtail the increase in leisure that would have accompanied productivity and wage increases. Leisure itself is "commodified," and transformed into a form of consumption (e.g., in exotic vacations, eating out, etc.). Such patterns of behavior, characterized as the "work and spend cycle" and the "commodification of leisure," reduces consumers' overall welfare when welfare is evaluated according to the consumers' ex-ante preferences, that is before advertising takes place.

The existing evidence on the "work and spend cycle" in the U.S. is far from conclusive, and needs to be disentangled from labor supply effects of the real wage and productivity increases since the $60's$ [3] A favorable if not literal

the paper by Campbell, p. 48-72. For an excellent general discussion of the development of postmodernist ideas, see also Anderson (1998).

[3]The average weekly hours of market work per person in the U.S. has been roughly constant

interpretation of the Postmodernist Critique would argue that the "work and spend cycle" operates to at least partially offset the tendency for an increase in leisure induced by the growth in labor productivity.

While it is easy for economists to ignore the Postmodernist literature, especially because of its associated methodological positions,[4] what we have identified as the Postmodernist Critique nonetheless constitutes a coherent statement about economic quantities that can be studied with the tools of economists. Moreover, even if the Postmodernist literature per se is ignored, the Critique we have identified is receiving large attention in the academic profession at large, in the humanities as well as in the social sciences, and in the analyses of many social observers.

We study a simple general equilibrium model economy with advertising and monopolistic competition, with the objective of evaluating the effects of advertising on the consumers' welfare and its implications on their consumption/leisure decisions. Our exercise is aimed at identifying, in a neoclassical model at the center of the "economic paradigm," some of the conditions under which the consumption/leisure patterns as well as the welfare implications associated with the Postmodernist Critique can indeed arise.[5]

To this end, our economy is constructed to embed all the elements of the Postmodernist Critique. Firms have monopoly power: they set prices of consumption goods and extract rents from leisure activities. They also advertise in order to change the demand of consumers for the commodities that they produce and the leisure activities that they sell. The only objective of advertising is to influence preferences: the purpose of advertising is not to provide consumers with information about the commodities in the market. Consumers passively accept advertising and by no means are they able to limit its influence on their preferences.

Our economy is nonetheless a standard general equilibrium economy: consumers simultaneously choose how much to consume and how much time to devote to leisure vs. working, and their choice is restricted by their budget constraint which links consumption expenditures to earned wages. The firms' and the consumers' choices result in an economic equilibrium in which consumers face advertising and the prices set by firms, firms face the consumers' demand for consumption and leisure activities and their labour supply, and markets clear: the commodities produced by the firms are consumed, the labour supplied by consumers is demanded by firms, the leisure activities offered by firms are demanded, and the profits of the firms, if any, are distributed to (and consumed

since the $50's$. But large shifts have occurred in the the composition of average weekly hours across the population; McGrattan-Rogerson (1998) extensively document trends in average weekly hours, disaggregated along demographic lines; Leete Guy-Schor (1992) document average yearly hours and decompose the trends in hours with respect to employment status; see Section 5 for further discussion of this evidence.

[4]The improper use of scientific jargon in the Postmodernist literature, for instance, has been exposed by Sokal-Bricmont (1998).

[5]We do not concern ourselves here with the direct empirical validation of the critique. In Section 6 however we will however discuss some empirical evidence which pertains to the parametrization of our model.

by) their owners.

In order to assess whether the negative welfare consequences of advertising surmised by the Postmodernist Critique are correct, our first task must be to define an appropriate welfare ordering when preferences change in response to advertising. We adopt the stringent convention that a consumption plan is inferior (superior) to another one if it yields a smaller (larger) utility both according to pre-advertising and post-advertising preferences (see Section 2.2). Under such convention it is more difficult for the welfare implications of the Postmodernist Critique to be satisfied, as we require advertising to have negative welfare effects not just, as the Critique would require, with respect to ex-ante preferences, but also with respect to ex-post preferences. We adopt this convention because the Postmodernist literature is not clear, in our understanding, about how welfare judgements based on ex-ante preferences (before society's influence and advertising) can be logically sustained in a conceptual system based on "social constructionism". Why should ex-ante preferences represent the consumers' "fundamental will" ? In other words, is it necessarily bad if advertising makes consumers "better utility machines" ?[6]

Even based on such demanding welfare criterion, we show that, when all the aspects of the interaction of monopoly and advertising are taken into account, it is possible to construct equilibria which support the Postmodernist Critique. In particular we shed light on which model specifications and which parameter configurations give rise to such equilibria, and we assess their plausibility.

The key to the analysis of the effect of advertising on welfare in an economy in which prices are distorted by monopoly power of firms is that advertising might, depending of the parameters of the economy, either exacerbate effects of advertising, or it might introduce a form of non-price competition across firms which mitigates the effects of monopolistic distortions and Pareto improves welfare. In fact if monopoly power raises market prices above their competitive levels and restricts output, advertising that results in higher aggregate output and less leisure can improve welfare by bringing the economy closer to the competitive equilibrium. The negative welfare consequences of advertising tend to occur precisely in those cases which lead to output levels that are even lower than the monopolistic level without advertising. The key question for the full Postmodernist Critique then, is whether the possible negative welfare effects of advertising can also be accompanied by higher consumption expenditures and less leisure.

Such outcomes are possible, and they present the strongest case in favor of the Postmodernist Critique, either when the distribution of profits is highly unequal, or when there is free entry under monopolistic competition. In the first case higher profits that result from higher post-advertising prices do not accrue to the segment of the population with little or no stock ownership. The fall of real income due to higher prices not only reduces the welfare of this segment of the population, but also induces them to work harder and to spend more.

In the case of free entry, even if the ownership of firms is uniformly dis-

[6]This terminology is due to Becker; see Becker (1996).

tributed, profits are dissipated on fixed costs, as entry expands product variety until profits are exhausted. When advertising is introduced, not only can the monopoly distortion increase further, but the potential profits from higher prices are further dissipated on fixed costs due to entry. So the net effect is identical to the case with unequal profit distribution, except that in this case everyone works harder, spends more, and everyone is worse off.

At first we focus on a benchmark economy in which leisure is a non-market activity, and hence the "commodification of leisure" is impossible by assumption, and in which there is no preference for "status" or "conspicuous consumption." We concentrate on the "work and spend cycle" and on the negative welfare effects of advertising, to conclude the following:

When advertising affects the intensity of preferences, it might generate a "work-spend cycle". This however requires a large elasticity of substitution between consumption and leisure, and will in general have positive welfare effects for the consumers, even if their welfare is evaluated according to the preferences consumers are endowed with before advertising "manipulates" them. Such a positive welfare effect is a direct consequence of the monopoly power of firms. Monopoly power in fact inefficiently distorts the prices of consumption goods and generates too much leisure in equilibrium. Advertising generates a "work and spend cycle," thereby favoring competition across firms, and mitigating the effects of the distortions due to monopoly power.

Under the alternative specification in which advertising affects the elasticity of substitution across goods, advertising does have unambiguous negative welfare effects. Moreover, in equilibrium a "work and spend cycle" is generated in such a formulation either if a) firms make positive profits (entry is restricted) and the distribution of the titles to the ownership of the firms across the consumers is very unequal (the "work and spend cycle" operates only for the fraction of consumers with low or no stock ownership); or, b) the free entry of monopolistically competitive firms expand, at a fixed cost, the variety of goods produced until profits are driven to zero.

In the model where firms can extract monopoly rents from the consumers' leisure activities ("commodification of leisure") we find the following:

Advertising which affects the elasticity of substitution across leisure activities has unambiguously positive welfare effects, as it offsets the distortions introduced by monopoly power and advertising in consumption goods (and it limits the "work and spend cycle" if it exists). Again, these results depend on the assumption that stocks distributed across consumers are in proportion to their wealth, and that firms' entry to expand variety is restricted, so that they make positive profits. If a large fraction of consumers hold no stocks, or if entry is free, then the "commodification of leisure" exacerbates the "work and spend cycle" for such consumers, and has an unambiguously negative effect on their welfare. Similar implications arise in the corresponding economy with free entry and expanding variety.

In the model in which consumption goods carry a significance in terms of "status", and are therefore identifiable as "conspicuous consumption," we find that advertising that decreases the elasticity of substitution across conspicuous

consumption goods (that is, advertising that generates a "quest for distinction" in Bourdieu's terminology) tends to have positive welfare effects on the representative consumer. This is because as a consequence of advertising, firms extract monopoly profits from the consumers and charge higher prices for conspicuous consumption, thereby partially shifting demand away from the (inefficient) "conspicuous consumption" and towards leisure. (Here again the firms' monopoly profits are redistributed to consumers in general equilibrium and hence an increase in the profitability of firms has no effect on the representative consumer's welfare. Once again, and as in the case of "commodification of leisure", distributional issues are important and may affect the interpretation of these results).

The case most consistent with the patterns of consumption, leisure, and welfare associated with the Postmodernist Critique then is where advertising targets product differentiation, the elasticity of substitution between consumption and leisure is low, and either there is a largely unequal distribution stock ownership across the consumers, or there is free entry and expanding variety driving excess profits to zero. We attempt a discussion of this evidence in Section 7, as a first step towards a more coherent empirical analysis.

Our analysis postulates a demanding form of psychological sophistication for consumers: they must anticipate future advertising and hence they must understand that their preferences will evolve over time. But what if consumers are not endowed with such psychological sophistication ? In this case their behavior will be time inconsistent: at any moment, consumers will make plans for future consumption and leisure which they will not want to abide by. Advertising might for instance make present consumption particularly desirable, and as a consequence consumers will accelerate current consumption and postpone saving. At each future date however advertising makes present consumption particularly desirable. The consumer is "surprised," and may continue current consumption and keep postponing savings to future dates. The result may be that consumers will go into debt, until eventually they will have to consider repaying their debt, reducing consumption, and possibly increasing their labor supply as well.

It can be argued that such myopic behavior is just what the Postmodernist Critique envisions.[7] Even though we did not find any consistent statement of time inconsistency of preferences in the Postmodernist literature (but Jameson, 1998, refers to the "fragmentation of time into a series of perpetual presents", p. 20), the "dependence on debt" is an important part of the explanation of the "work and spend cycle" (see Schor, 1992, chapter 5, and Sullivan-Warren-Westbrook, 2000; but see also Galbraith, 1958, chapter 13).

Our analysis shows though that the "work and spend (and debt) cycle" is the equilibrium outcome for consumers who are not psychologically sophisticated enough to anticipate future advertising only when advertising affects the

[7] *The Fight Club* for instance ends emphatically with the bombing of all credit card companies' corporate centers, to "free society from the slavery of debt."

intensity of the consumers' preferences for the consumption goods. But, when advertising targets the elasticity of substitution between the goods, the opposite holds. In this case the consumer may observe higher prices today as a result of advertising, but fail to expect that in future advertising will continue, and that prices will remain high. Expecting prices to revert to their pre-advertising levels, the consumer will then postpone consumption and instead of going into debt, will have higher savings.

This contrasts with our results for rational agents, where the Postmodernist Critique is mostly supported when, among other conditions, advertising has the more plausible effect of differentiating commodities from their substitutes. In other words, allowing for consumers which are not psychologically sophisticated to anticipate future advertising does not complement the arguments in favor of the "work and spend cycle" derived for rational agents, as the "cycle" is rationalized under different sets of parameters.

2 The Benchmark Economy

A representative consumer consumes a continuum of goods indexed by i, $0 \leq i \leq 1$.[8] Let $x_i \geq 0$ denote his consumption of good i. The consumer is endowed with one unit of time. Let L, $0 \leq L \leq 1$, denote the share of his/her time he/she devotes to work (hence $1-L$ denotes the share of time devoted to leisure). The consumer evaluates consumption and leisure plans with a constant elasticity of substitution utility function. He/she maximizes his/her utility in terms of aggregate consumption and leisure goods:

$$\max_{[x_i]_{0\leq i\leq 1},\, L} \quad \left[(X)^{\frac{\sigma-1}{\sigma}} + (1-L)^{\frac{\sigma-1}{\sigma}}\right]^{\frac{\sigma}{\sigma-1}} \tag{1}$$

where

$$X := \left[\int_0^1 \alpha_i \left(x_i\right)^{\frac{\theta_i-1}{\theta_i}} di\right]^{\frac{\int_0^1 \theta_i di}{\int_0^1 \theta_i di - 1}}, \quad \theta_i > 1 \tag{2}$$

The parameter σ represents the elasticity of substitution between aggregate consumption and aggregate leisure. The parameter θ_i represents the elasticity of substitution associated with good i; finally α_i represent the intensity level of utility associated to good i.[9]

[8] The set of goods consumed is exogenously fixed; we will study in Section 4 an economy with expanding variety in which the set of goods produced and consumed is endogeneized.

The consumption problem is static; we will study in Section 8 an economy in which consumers are faced with a non-trivial dynamic choice.

[9] Imperfect substitability of the consumption and leisure aggregators can be incorporated into the analysis, by having preferences written as

$$\frac{\left[\left[(X)^{\frac{\sigma-1}{\sigma}} + (1-L_t)^{\frac{\sigma-1}{\sigma}}\right]^{\frac{\sigma}{\sigma-1}}\right]^{1-\rho} - 1}{1-\rho}$$

without affecting on the results. The case in which $\sigma = 1$ corresponds to the Cobb-Douglas aggregator between consumption and leisure, the special case often used in macroeconomics;

The consumer's utility maximization is subject to his/her budget constraint, as his/her total expenditures must be financed by earned wages, wL, and by the firms' aggregate profits, π, as firms are owned by the representative consumer:[10]

$$\int_0^1 p_i x_i \, di \; = w \; L + \pi \tag{3}$$

Let E denote the representative consumer's nominal expenditures. Let $x_i = x_i(p_i, p, E; \alpha, \theta)$ denote the demand of good i, evaluated at $p_j = p_{j'} := p$, for all $j, j' \neq i$, and $\alpha_i = \alpha$, $\theta_i = \theta$.[11] Each good i is produced using labour by a firm who is monopolistically competitive in the good's market and perfectly competitive in the labour market. The wage rate has been denoted w. We adopt the normalization that the production of one unit of good requires $\frac{1}{w}$ units of labor. The parameter w is then an index of the marginal product of labor, as well as the wage rate. Later, we will investigate the comparative statics with respect to w.

Any firm producing good i chooses price p_i to maximize profits

$$p_i = p(p, E; \alpha, \theta, w) = \text{argmax} \; (p_i - 1) \, x_i$$

subject to

$$x_i = x(p_i, p, E; \alpha, \theta)$$

If the representative consumer has symmetric preferences, $\alpha_i = \alpha$, and $\theta_i = \theta$, independent of i, the economy has a symmetric equilibrium.

Definition 1 *A symmetric monopolistically competitive equilibrium is composed of allocations $x_i = x$, $X = (\alpha)^{\frac{\theta-1}{\theta}} x$, L, prices $p_i = p$ such that:*

$$x_i(p, p, wL + \pi; \alpha, \theta) = x, \;\; \pi = (p-1)x, \;\; p = p(p, wL + \pi; \alpha, \theta), \;\; x = wL.$$

In the general equilibrium context of our model, the firms' profits are redistributed to (and spent by) their owners. (In section 4.2 we will also consider the case in which there is free entry that leads to expanding product varieties: new brands are introduced at a fixed costs until profits are zero in the economy.) The representative agent framework then implies that expenditures are equal to total wages plus total profits: $E_t = E = px = wL + \pi$. As a consequence, in equilibrium, consumption and the time devoted to labour are perfectly correlated, $x = wL$.

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see Browning-Hansen-Heckman (1999) for a survey; our more general CES aggregator is used e.g., by Auerbach-Kotlikoff (1987).

[10] We study in a later section economies populated by heterogenoeous consumers in which the issue of the distribution of profits can be analyzed, and "capitalist" and "workers" can be distinguished.

[11] I.e, formally, $x(p_i, p, E, \alpha, \theta) := \; \text{argmax} \left[\int_0^1 \; \alpha \, (x_i)^{\frac{\theta-1}{\theta}} \; di \right]^{\frac{\theta}{\theta-1}}$ subject to $\int_0^1 p_i x_i \, di \leq E$, and, as we focus on symmetric equilibria, $p_j = p_{j'} := p$, for all $j, j' \neq i$.

In turn, each firm producing an arbitrary good i sets prices

$$p = \frac{\theta}{\theta - 1}$$

and the equilibrium price depends negatively on the elasticity of substitution θ.

We assume, as a benchmark, that if firms do not advertise, the representative consumer has symmetric preferences, and $\alpha_i = 1$, $\theta_i = \theta > 1$. In this case the equilibrium ratio of labour to leisure that the representative consumer chooses solves the following equation,

$$\frac{L}{1-L} = \frac{1}{w}\left(\frac{p}{w}\right)^{-\sigma}$$

so that L decreases with the price p. Also, L decreases (increases) with the productivity of labour, w, if the elasticity of substitution between goods and leisure, σ, is less than (greater than) 1.

2.1 Advertising

We model advertising as directly affecting consumers' preferences: consumers are passively subject to firms' advertising. In other words, we do not take the view that advertising represents simply "a good or a bad" as in Becker-Murphy (1993), and as a consequence that the amount of exposure to advertising can be freely chosen by the consumer. In such an approach the consumer controls the intake of advertising and the equilibrium output of advertising is determined by market supply and demand. This view of advertising, while quite compelling, is at odds with the Postmodernist view of the world that we aim at analyzing in this paper.[12]

In the main body of the paper we concentrate on advertising for consumption goods (without a "conspicuous consumption" component), and model leisure as a non-market activity. Advertising will affect the preference parameters α and θ (respectively, the intensity of preferences, and the elasticity of substitution across consumption goods), but not σ (the elasticity of substitution between consumption and leisure). In section 5 however we will consider an extension of the model to analyze the effect of the "commodification of leisure;" in Section 6 we will instead extend the analysis to include preferences for "status" and "conspicuous consumption."

[12] In fact the modelling of "advertising as a good or bad" has striking implications when accompanied with perfect competition in the advertising industries, but should not significantly affect the qualitative results when adopted in a monopolistic competition setting like ours, as the compensation for being exposed to advertising "as a bad" (for instance, free TV), would not completely compensate the consumers at the margin.

Also, and again for the sake of our analysis of the Postmodernist critique, we do not either consider informational advertising, i.e., advertising conveying useful information about consumer products. The literature on advertising aimed at informing consumers about products is quite extensive; see Becker (1996), especially ch. 1, for a view of advertising which stresses its informational aspect, and Tirole (1990), p.290), for an overview.

We assume that advertising is costly. For simplicity we will not explicitly model such costs. Instead we will derive conditions which guarantee that if a firm, say the firm producing good i, expects all other firms not to advertise, then it will have an incentive to advertise. As a consequence, under such conditions a Nash equilibrium with no advertising does not exist, and explicit cost functions, with increasing marginal costs ranging from 0 to ∞, can be constructed such that a Nash equilibrium with symmetric advertising across all firms does exist. Consequently, before advertising takes place, $\alpha_i = 1$ and $\theta_i = \theta > 0$, but after advertising takes place, $\alpha_i = \alpha_+ > 1$ and $\theta_i = \theta_+ < \theta$.

While our analysis is static all our results extend to an explicit dynamic model (see our earlier working paper version) as long as we assume that at any moment consumers are sophisticated in anticipating advertising in the future, and hence the dynamics of their own preferences. We study later, in Section 8, the case in which consumers do not anticipate the change in their own preferences and advertising introduces time inconsistency into the consumer's choice.

2.2 Welfare Analysis

An important part of our analysis will consist of studying the effects of advertising on consumers' welfare. As advertising changes consumers' preferences, it is not at all obvious what the reference welfare criterion should be. This is a controversial issue. There is ample evidence that the Postmodernist literature favors welfare comparisons in terms of ex-ante preferences. (We argued in the introduction however, that such position may-be inconsistent with the philosophical foundation of Postmodernist theory, the social construction of the individual self.) The requirement that the consumer be worse off, as an effect of advertising, according to ex-post preferences seems unlikely to hold if advertising makes the consumer a "better utility machine." If the choice set of the consumer is not changed or restricted too much due to the general equilibrium effects of advertising, a revealed preference argument would suggest that the consumer may indeed be better off according to ex-post preferences. We will show though that several of our welfare comparisons are in fact unambiguous, in the sense that they hold for the partial ordering induced by both ex-ante as well as for ex-post preferences. In an economy in which prices are distorted by monopoly power of firms, in fact, advertising might, depending of the parameters of the economy, either exacerbate such effects, and hence possibly reduce welfare with respect to both ex-ante and ex-post preferences, or it might introduce a form of non-price competition across firms which mitigates the effects of monopolistic distortions and hence on the contrary unequivocally improves welfare.

Given the preference parameters α, θ (we use for simplicity a notation which abuses by postulating symmetry), the representative consumer's equilibrium allocations are denoted by $x(\alpha, \theta)$, $L(\alpha, \theta)$; and his/her equilibrium utility is denoted $\mathcal{U}(x(\alpha, \theta), L(\alpha, \theta); \alpha, \theta)$. Suppose advertising has the effect of changing his/her preference parameters (α, θ) into (α_+, θ_+).

Definition 2 *We say that the consumer's welfare unambiguously increases due to advertising if and only if it increases with respect to ex-post preferences so that*

$$\mathcal{U}(x(\alpha_+,\theta_+),L(\alpha_+,\theta_+);\alpha_+,\theta_+)\geq\mathcal{U}(x(\alpha,\theta),L(\alpha,\theta);\alpha_+,\theta_+) \tag{4}$$

and it also increases with respect to ex-ante preferences

$$\mathcal{U}(x(\alpha_+,\theta_+),L(\alpha_+,\theta_+);\alpha,\theta)\geq\mathcal{U}(x(\alpha,\theta),L(\alpha,\theta);\alpha,\theta), \tag{5}$$

with at least one inequality holding strictly.[13]

It is important to note that our welfare analysis disregards the direct costs of advertising. Even though such costs are potentially empirically relevant, we abstract from them because they are not an essential element of the Postmodernist Critique.

3 The Equilibrium Effects of Advertising

We distinguish between two forms of advertising. We study economies in which an arbitrary firm producing good i can, by advertising its product either affect the intensity of consumers' preferences for the product, that is increase α_i, and/or it can differentiate the product from its substitutes, that is decrease its elasticity of substitution θ_i in the consumer's preferences.

Consider first an arbitrary firm, say the firm producing commodity 0. Suppose that by advertising the firm can affect the intensity of the consumer's utility associated to the consumption of the commodity it produces (resp. the elasticity of substitution associated to the commodity it produces); i.e., it can increase α_0 (resp. decrease θ_0). Consider such a firm's incentive to advertise if all other firms do not. We show in the Appendix, Proposition A.1-A.2, that, modulo some qualifications, such firms would in fact want to advertise.

We now consider a symmetric equilibrium with advertising in which $\alpha_i=\alpha_+>1$ (resp. $\theta_i=\theta_+<\infty$), for any i. We consider first the case in which advertising affects the intensity of preferences and in turn the case in which it affects the elasticity of substitution across goods.

3.1 Intensity of Preferences

Let $\alpha_i=\alpha_+>1$, for any i. Then in equilibrium $X=\alpha_+^{\frac{\theta}{\theta-1}}x$, and x, L solve:

[13] Dixit and Norman (1978) suggest that such partial ordering can be surprisingly effective for the analysis of the effects of advertising. Stigler-Becker (1977) compellingly argue in favor of the formulation of metapreference orderings which depend on advertising (see also Becker (1996)). The partial ordering just introduced is robust to such formulation in the sense that, in our set up, it generates welfare comparisons which hold for all metapreference orderings increasing in ex-ante and ex-post preferences (Harsanyi (1954) notes that this is not necessarily the case in general.)

$$\max_{x,L} \left[\left(\alpha_+^{\frac{\theta}{\theta-1}} x \right)^{\frac{\sigma-1}{\sigma}} + (1-L)^{\frac{\sigma-1}{\sigma}} \right]^{\frac{\sigma}{\sigma-1}}$$

subject to

$$px \leq wL + \pi$$

The first order conditions for this problem imply

$$\alpha_+^{\frac{\theta}{\theta-1}\frac{\sigma-1}{\sigma}} x^{-\frac{1}{\sigma}} = (1-L)^{-\frac{1}{\sigma}} \frac{p}{w}$$

Market clearing requires $x = wL$, and hence, substituting,

$$\frac{L}{1-L} = \frac{1}{w} \left(\frac{p}{w} \right)^{-\sigma} \alpha_+^{\frac{\theta(\sigma-1)}{\theta-1}}$$

The effect of advertising is to increase α from 1 to $\alpha_+ > 1$, and hence to increase the labor supply L if $\sigma > 1$ (advertising has no effect on labor supply L if $\sigma = 1$, i.e., if preferences are logarithmic).

Proposition 1 *In a symmetric equilibrium, the representative consumer's labour supply and consumption increase (resp. decreases) if $\sigma > 1$ (resp. $\sigma < 1$) with advertising on the intensity of preferences.*

The result has a simple intuition. First of all, as already argued, in equilibrium, consumption and time devoted to labour are identical in the normalization adopted in this paper, $x = L$. Also, the elasticity of substitution between aggregate consumption X and leisure, $1 - L$, is σ; advertising augments the value of aggregate consumption at the margin, and an high elasticity of substitution implies that the consumer is willing to accept to work more to consume more.

The result has an important welfare implication:

Proposition 2 *In a symmetric equilibrium, if $\sigma > 1$ and α_+ not too high, the representative consumer is unequivocally, with respect to ex-ante as well as ex-post preferences, better off with advertising on the intensity of preferences than with no advertising. If instead $\sigma < 1$, or $\sigma > 1$ but α_+ very high, the representative consumer is better off with respect to ex-post preferences, but worse off with respect to ex-ante preferences.*

The intuition is straightforward.[14] First of all, advertising on the intensity of preferences increases welfare with respect to ex-post preferences since it uniformly increases utility levels (ex-post "consumers are better utility machines", that is they transform commodities into utility levels more efficiently). But, most importantly, if $\sigma > 1$ advertising on the intensity of preferences

[14]See Dixit and Norman, 1978, for a related argument. The reader will verify that any metapreference ordering increasing in ex-ante and expost preferences will give the same conclusions.

has competitive effects: it increases welfare with respect to ex-ante preferences because it reduces the distortion towards leisure that is induced by monopolistic competition. Monopoly power has the effect of increasing equilibrium prices above marginal cost ($p > 1$) and, as a consequence, labour supply L is lower than it would be in an efficient equilibrium (which would be achieved at prices $p = 1$). Advertising has the effect of increasing the labour supply, L, and hence it moves the economy's equilibrium allocations towards efficiency even with respect to ex-ante preferences (provided α_+ is not too large, in which case it overcompensates the monopoly distortion, and the labour supply increases too much with respect to ex-ante preferences).

In summary, in the case in which advertising affects the intensity of preferences for consumption, consumption/leisure patterns which support a "work and spend cycle" are possible, but they do require a high elasticity of substitution between consumption and leisure, $\sigma > 1$, which implies an increase in the consumer's welfare. Moreover, if $\sigma > 1$ an increase in hours worked, L, could be simply due to an increase in labour productivity, w, rather than to the effects of advertising.

3.2 Product differentiation

We consider now a symmetric equilibrium with advertising on product differentiation, in which $\theta_i = \theta_+ < \theta$. Decreasing the elasticity of substitution θ_0 has the effect of differentiating commodity 0 from all other commodities in the consumer's preferences; in other words, the consumer's compensation required for a unit percentage decrease in the consumption of good 0 increases with the elasticity of substitution associated to the good. Let $p_+ = \frac{\theta_+}{\theta_+ - 1}$. In equilibrium then $X = x$, and x, L solve:

$$\max_{x,L} \left[(x)^{\frac{\sigma-1}{\sigma}} + (1-L)^{\frac{\sigma-1}{\sigma}} \right]^{\frac{\sigma}{\sigma-1}}$$

subject to

$$p_+ x \leq wL + \pi$$

The first order conditions of such a problem, using the market clearing condition $x = wL$, implies that L solves:

$$\frac{L}{1-L} = \frac{1}{w} \left(\frac{p_+}{w} \right)^{-\sigma}$$

In equilibrium, $x = wL$, and advertising directed to the elasticity of substitution has the effect of increasing the price, from p to p_+, and hence to decrease L.

Proposition 3 *In a symmetric equilibrium, the representative consumer's labour supply and consumption decrease with advertising as product differentiation.*

As firms advertise to differentiate the commodities they produce from the others, and all firms do the same, the effect is an overall lower elasticity of substitution, $\theta_+ < \theta$. As a consequence, the consumer's demand is less elastic and

firms exploit their monopoly power by increasing the price of consumption goods ($p_+ > p$) and hence profits. Profits however are redistributed to agents, and our formulation of preferences has the property that each firm, by advertising to differentiate its own product from its substitutes, offsets the effect of advertising by other firms on the preferences of consumers. Hence in equilibrium the marginal substitutability of aggregate consumption and leisure remains unaffected. The only effect of advertising as product differentiation is due to the price increase on the margin. As the relative price of consumption increases, the representative consumer's allocation is distorted towards leisure. As we argued in the previous section, the firms' monopoly power, independently of advertising, inefficiently distorts the consumer's allocation towards leisure. With advertising affecting the differentiation of commodities, the consumer's equilibrium allocation is distorted further away from the efficient allocation, and the consumer's welfare unambiguously declines.

Proposition 4 *In a symmetric equilibrium, the representative consumer is unequivocally, with respect to ex-ante as well as ex-post preferences, worse off with advertising as product differentiation than with no advertising.*[15]

In this case the decrease in welfare is in line with the Postmodernist view, but it is the consequence of the decrease in consumption and work, rather than because of a "work and spend" cycle that is associated with the Postmodernist position.

4 The Role of Profits

The analysis of the previous section shows that, when advertising targets the differentiation of commodities in the consumer's preferences, it does have negative welfare effects, but through the opposite of a "work and spend cycle." Lower welfare for the consumer is the result of lower consumption and higher leisure in equilibrium. This analysis relies on our assumption regarding the distribution of profits. The representative agent formulation requires that profits be uniformly distributed across the consumers of the economy, and implies the equilibrium condition $x = L$. However, is it possible that in an economy in which consumers are heterogeneous (no agent is representative), in the sense that a large fraction of consumers do not hold stocks and hence receive no profits from firms, advertising has negative welfare effects and the labour supply of the consumers with no stocks increases? We turn now to this question in Section 4.1.

Also, in the economy studied in the previous sections, producers gain positive profits in equilibrium, and profits are distributed to the agents who own the firm. Furthermore, the set of goods (the number of varieties of goods) produced in the economy is fixed in advance. In the long run, such assumptions may not be tenable, unless there are barriers to the entry of new firms producing (imperfect)

[15]Note that in this case ex-ante and ex-post preferences actually coincide. Any metapreference ordering increasing in ex-ante and ex-post preferences will then necessarily give the same conclusions.

substitutes for the goods already produced in the economy. In Section 4.2. we study an economy in which firms face no barriers to entry, the production of each good entails a fixed cost, and in equilibrium there are no profits, as new firms enter the market and expand the varieties produced until it is no longer profitable to do so.

4.1 Unequal Distribution of Profits

Suppose that the economy is populated by two groups of consumers: workers, in measure $1-\lambda$, who do not own stocks to the firms, and capitalists, in measure λ, who do. The representative worker's (resp. capitalist's) labour supply is denoted L_w (resp. L_c). Workers face the budget constraint (3) , with $\pi = 0$. Let $x_{wi}(p_i, p, E_w; \alpha, \theta)$ define the demand of workers, where E_w is their nominal expenditure. Capitalists face the budget constraint (3). Let $x_{ci}(p_i, p, E_c; \alpha, \theta)$ denote their demand, where E_c is their nominal expenditure.

Definition 3 *A symmetric monopolistically competitive equilibrium with unequal distribution of profits is composed of allocations* $x_{si} = x_s$, $X_s = (\alpha)^{\frac{\theta-1}{\theta}} x_s$, $L_s = L_s$, *for* $s = w, c$, *prices* $p_i = p$ *such that:*

$$x_{wi}(p, p, wL_w; \alpha, \theta) = x_w; \quad x_{ci}(p, p, wL_w + \pi; \alpha, \theta) = x_c$$

$$p = p(p, (1-\lambda)wL_w + \lambda\left(wL_c + \pi\right); \alpha, \theta)$$

$$x_w = \frac{wL_w}{p}, \quad x_c = \frac{wL_c + \pi}{p}$$

$$\pi = (p-1)\left(\lambda x_c + (1-\lambda)\, x_w\right)$$

Since workers and capitalists face different budget constraints, we need to distinguish their consumption and labour supply patterns. We concentrate on the effects of advertising as product differentiation on the workers. Advertising then has the effect of increasing the price level from p to p_+. Using the budget constraint of workers, equation (3) with $\pi = 0$, we have $x_w = \frac{wL_w}{p_+}$. By the first order condition of the workers' maximization problem, L_w solves:

$$\frac{L_w}{1 - L_w} = \left(\frac{p_+}{w}\right)^{1-\sigma}$$

The analysis of the first order condition of workers shows:

Proposition 5 *In a symmetric equilibrium with unequal distribution of profits, the labour supply of workers increases for any* $\sigma < 1$ *with advertising as product*

differentiation; also, in this case, the workers' consumption decreases and their consumption expenditures increase. [16]

It follows that the welfare conclusions of the previous section, obtained for an economy with uniformly distributed profits, still hold for workers (but not necessarily for capitalists).[17]

Proposition 6 *In a symmetric equilibrium with unequal distribution of profits, if $\sigma < 1$, the workers are unequivocally, with respect to ex-ante as well as ex-post preferences, worse off with advertising as product differentiation than with no advertising.*

If $\sigma < 1$, workers who do not own stocks will experience a "work and spend cycle" as well as a decrease in welfare when advertising targets the elasticity of substitution across goods (advertising as product differentiation). In our previous specification, workers shared in the higher profits of the firm which were the result of the higher post-advertising prices. Facing the higher prices in the market, they could substitute towards leisure. When they do not own enough stocks to share in the higher profits and their real income is lower, they must compensate by working more and of course spending more to buy the higher-priced goods.

Note also that in this case, if $\sigma < 1$, productivity gains (higher w) tend to decrease the labour supply L. Therefore the effects of advertising and of productivity gains on the labour supply go in opposite direction and hence tend to compensate each other. The real wage rate $\frac{w}{p_+}$ determines the labour supply in equilibrium.[18]

4.2 Free Entry and Expanding Varieties

Consider an economy in which firms face no barriers to entry, and the production of each good entails a fixed cost c, which can consist of fixed production costs as well as advertising costs. In equilibrium there are no profits, as new firms enter the market and expand the varieties produced until it is no longer profitable to

[16] It is easy to see the labour supply of capitalists decreases (or remains unchanged in the extreme case in which they do not work in equilibrium for any $\sigma > 0$). As for the aggregate labour supply: If $L_c > 0$, then advertising directed at the elasticity of substitution (an increase in p_+) has a negative effect on the aggregate labor supply, $L := \lambda L_c + (1-\lambda)L_w$. Of course, if $\sigma < 1$ and λ is small enough, $L_c = 0$. In that case for advertising directed to the elasticity of substitution, an increase in p_+ has the effect of increasing the aggregate labour supply L because L_c remains constant at 0 and L_w increases. (The proof of these statements is reported for completeness in Appendix B)

[17] Note also that the analysis of the effect of advertising directed to the intensity of preferences remains valid for economies with unequal distribution of profits (see Appendix B for the proof).

[18] It is straightforward to generalize our results to the case where the distribution of profits is less polarized. Suppose a fraction λ of the population receives a fraction $\delta < \lambda$ of the profits. Then there exists a non-negative cut-off for δ, depending on λ, say $\underline{\delta}(\lambda)$, such that, for $\delta < \underline{\delta}(\lambda)$, the fraction of the population λ is worse-off according to both ex-ante and ex-post preferences, and works and spends more.

do so. Therefore the number of varieties produced, n, is endogenous for this specification of the economy.

In such an economy, the consumption aggregator is:

$$X := \left[\int_0^n \alpha_i \left(x_i\right)^{\frac{\theta_i - 1}{\theta_i}} \, di\right]^{\frac{\int_0^n \theta_i di}{\int_0^n \theta_i di - 1}}, \quad \theta_i > 1 \tag{6}$$

as the agent derives utility for all the n varieties produced.

The budget constraint is similarly modified to:

$$\int_0^n p_i x_i \, di \; = wL + \pi \tag{7}$$

Let $x_i(p_i, p, E; \alpha, \theta)$ denote the representative consumer's demand, where E denotes the his/her nominal expenditures.

Definition 4 *A symmetric monopolistically competitive equilibrium with free entry is composed of allocations $x_i = x$, $X = (\alpha)^{\frac{\theta-1}{\theta}} x$, L, prices $p_i = p$ and varieties n such that:*

$$x_i(p, p, wL; \alpha, \theta) = x, \;\; p = p(p, wL; \alpha, \theta), \;\; nx = wL - nc$$

and profits $\pi = pnx - wL = 0$.

If the representative consumer has symmetric preferences, $\alpha_i = \alpha$, and $\theta_i = \theta$, independent of i, the economy has a symmetric equilibrium, in which prices, p, consumption and leisure choices, x and L, are constant over time. Each firm chooses $p_i = p = \frac{\theta}{\theta - 1}$. Agents face prices p, and hence consume $\frac{E}{p} = nx$ units of goods. Market clearing then requires that the goods consumed, nx, equals the goods produced in the economy, $wL - nc$.

At a symmetric equilibrium, firms will expand varieties until profits are driven down to zero:

$$pnx = wL$$

For such an economy we study the effects of advertising as product differentiation. The first order condition for for the choice of labor in the case of advertising on product differentiation is:

$$\frac{L}{1 - L} = \left(\frac{p_+}{w}\right)^{1-\sigma}$$

Proposition 7 *In a symmetric equilibrium with free entry, the representative consumer's labour supply increases for any $\sigma < 1$ with advertising as product differentiation; also, in this case, the representative agent's consumption decreases and his/her consumption expenditures increase.* [19]

[19] A proof that nx decreases and $p_+ nx$ increases with an increase in p_+ when $\sigma < 1$, is provided for completeness in Appendix B.

Also, obviously, the resources devoted to the production of new varieties nc increase.

In this case the welfare analysis is clear: if $\sigma < 1$, an increase in θ reduces the representative consumer's welfare both by worsening the price distortion due to the monopolistic competition, and by increasing n and decreasing consumption nx. Furthermore leisure decreases, agents work more, and consume less.

Proposition 8 *In a symmetric equilibrium with free entry, if $\sigma < 1$, the representative agent is unequivocally, with respect to ex-ante as well as ex-post preferences, worse off with advertising as product differentiation than with no advertising.*

This is the best case for the Postmodernist Critique. The results are similar to those derived for the corresponding economy with positive equilibrium profits for the agents with no stock ownership, but in this case apply to everyone. The intuition is clear: in an economy with unequal distribution of profits, the fraction of the agents who receive profits are better off in equilibrium after an increase in advertising directed to product differentiation, and tend to decrease their labour supply as a consequence. In an economy with free entry monopoly rents are "wasted" on the fixed costs in expanding product variety, rather than be redistributed to the agents . As a consequence all agents are worse off and tend to increase their supply of labour, giving rise to the "work and spend cycle."[20]

The two cases considered above, the unequal distribution of profits, and free entry with expanding varieties, seem to lend some support to the Postmodernist view. Under the plausible assumption on preferences that $\sigma < 1$, advertising directed to the elasticity of substitution results in lower leisure, and higher spending on consumption (though not in higher consumption). It also leads to lower welfare, for the agents without stock ownership in in the case of the unequal distribution of profits, and for all agents in the case of free entry. Note again however that even if advertising leads to a rise in the the price of consumption goods (from p to p_+), the secular rise in real wages ($\frac{w}{p}$) would imply a decline in the supply of labor, so that the effect of positive advertising on labor supply would be more than offset.

5 The Commodification of Leisure

We have modelled leisure as a non-market activity (as e.g., sleep); its cost consists only of foregone wages. Such modelling, while it simplifies the analysis, does not allow us to consider an important component of the Postmodernist

[20]It is easy to show that in a symmetric equilibrium with advertising as product differentiation and free entry, the representative agent's labour supply increases if $\sigma > 1$ (the proof is resported for completeness in Appendix B. The representative agent's consumption in equilibrium and the welfare analysis are in this case ambiguous. An increase in α due to advertising on intensity tends to increase the welfare of the representative consumer by reducing the price distortion due to monopolistic competition. However, it also increases the amount of resources which are devoted to the production of new varieties, nc, as n increases as a consequence of advertising in intensity.

Critique, the "commodification of leisure". Not only, it is argued, is the time devoted to leisure reduced as a consequence of advertising, but the mere distinction of consumption and leisure is blurred, as our preferences are "manipulated" to choose forms of leisure which are complementary to consumption; "private corporations have dominated the 'leisure market' ...How many of us, if asked to describe an ideal week-end, would choose activities that cost nothing ?" (Schor (1992), p. 162).

To identify the conditions under which the "commodification of leisure" has positive or negative effects on the welfare of the consumers, we will study an extension of our basic economy in which monopolistically competitive firms can, by advertising, extract rents from the consumers' leisure activities, as leisure becomes composed of different market activities.

Such an economy is characterized by the existence of a continuum of leisure activities, indexed by $j \in [0,1]$. The aggregator of leisure which enters in the utility function of agents is

$$L := \left(\int_0^1 L_{jt}^{\frac{\omega_j - 1}{\omega_j}} dj \right)^{\frac{\int_0^1 \omega_j dj}{\int_0^1 \omega_j dj - 1}}, \quad \omega_j \geq 1, \ \forall j \tag{8}$$

where $1 - L_j$ is interpreted as the amount of labour given up to leisure activity j.

Leisure activity j is controlled by a monopolistic firm. The fee charged by the firm per unit of leisure time on activity j is denoted q_j; such fee represents a pure rent, as it is assumed that controlling leisure activity j requires no resources as inputs.

The case in which leisure is merely a non-market activity, analyzed in the previous sections, corresponds to the special case in which all leisure activities are perfect substitutes, $\omega_j = \infty$, for all j. Perfect substitutability in fact implies that no rents can be extracted by controlling the different leisure activities in the market, which might then as well be interpreted as non-market activities, as the fees imposed by the firms controlling such activities are necessarily zero in equilibrium.

If instead, for instance, $\omega_j = \omega < \infty$, for all j, then the demand for market leisure activities is rigid, consumers will devote some time to each one of such activities in equilibrium, and firms with monopoly power controlling the different leisure activities in the market will charge a positive fee for a profit.

We assume that advertising by firm j affects ω_j. We assume that, before advertising, leisure is composed by non-market activities, $\omega_j = \infty$, for all j. "Commodification of leisure" in such an economy is then naturally represented by a situation in which advertising makes different leisure activities imperfect substitutes, and hence the demand for each activity inelastic: positive rents, in the form of positive fees q_j arise in equilibrium as a consequence.

The structure of the economy is as in the previous sections, in which leisure is modelled as a non-market activity. We do not repeat here the details of the analysis, and proceed informally by indicating only the necessary modifications and the main results. In particular, the budget constraint for this economy is:

$$\int_0^1 p_i x_i di = \int_0^1 wL_{jt} dj - \int_0^1 q_j (1 - L_j) dj + \pi$$

where profits π now include the profits by the firms controlling the leisure activities.

In equilibrium, firms will advertise, and symmetry guarantees that the elasticity of substitution across different leisure activities will be $\omega_j = \omega < \infty$.[21] Also, it is easy to show that monopolistically competitive firms choose $q_j = q = \frac{1}{\omega - 1}$. In equilibrium, $L_j = L$, and L solves:

$$\frac{L}{1-L} = \frac{1}{w} \left(\frac{p_+}{w+q} \right)^{-\sigma} \tag{9}$$

The analogous condition relative to the economy in which leisure is merely a non-market activity (obtained for $q = 0$) is $\frac{L}{1-L} = \frac{1}{w} \left(\frac{p_+}{w} \right)^{-\sigma}$. A positive q offsets the distortionary effects due to monopoly power and advertising. Such distortions in fact increase the price index of consumer goods, as the equilibrium price with advertising is $p_+ > p > w$ (p is the price without advertising, and w is the efficient competitive price); but the relative price, $\frac{p_+}{w+q}$, is what matters for the determination of hours worked L and hence of the welfare of the representative consumer. "Commodification of leisure" has then the clear effect of increasing the representative agent's labor supply in an economy in which monopoly and advertising on consumption goods reduce the labour supply from its efficient level. In other words, 'commodification of leisure" increases hours worked, but by doing so it drives the economy towards efficiency, and hence in general increases the representative consumers' welfare unambiguously with respect to ex-ante and ex-post preferences (unless it overcompensates the monopoly and consumption advertising distortions).

We consider next the case in which a (large) fraction of the agents (the "workers") is restricted from owning stocks, i.e., the distribution of stocks is unequal. In this case the relevant first order condition to determine the labour supply of the "workers," L_w, is:

$$\frac{L_w}{1-L_w} = \left(\frac{p_+}{w} \right)^{1-\sigma} + q$$

As a consequence in this case, if $\sigma < 1$, consistent with the Postmodernist Critique, the "commodification of leisure" and the "work and spend cycle" are associated to an unambiguous reduction in the welfare of "workers".[22]

A similar analysis follows in the case of the expanding varieties model, where "commodification of leisure" and the "work and spend cycle" are associated to a decrease of welfare both ex-ante and ex-post for all consumers, if $\sigma < 1$.

[21] An argument analogous to the one developed in Proposition A.2 in the Appendix guarantees that firms will have an incentive to advertise, since the pre-advertising benchmark coincides with the case of perfect substitution across leisure activities.

[22] We considered in this section only the case of advertising as differentiation rather than advertising which affects the intensity of preferences for consumption. The first order condition

6 Preferences for Status and Conspicuous Consumption

We have modelled preferences as independent across agents. In our benchmark model, preferences are socially determined only in the sense that they are manipulated by firms via advertising. But a long tradition exists in sociology, and also in economics and other social sciences, which views preferences as interdependent. In particular, Veblen (1899) and Duesenberry (1949), most notably, have introduced the concepts of "preference for status" and "conspicuous consumption" into the theory of consumer behavior: consumers do not only have a preference for absolute levels of consumption, but they also care about their relative position in the consumption ladder (their "status"). Consequently consumers spend "conspicuously" either as a form of self-advertising (e.g., for the marriage market; see Cole-Mailath-Postlewaite, 1992), or for a simple manifestation of "status" *per se.* Recently, many social scientists have subscribed to such a model of consumption behavior (Bourdieu, 1979, Frank, 1985, Sahlins, 1976, Scitovsky, 1976, and several others), and "conspicuous consumption" has become a central feature of the Postmodernist accounts of modern capitalist economies (see, once again, Schor, 1998, and the forum discussion in Schor, 2000).

To identify the conditions under which advertising, when interacted with preferences for "status" and "conspicuous consumption," has positive or negative effects on the welfare of the representative consumer, we study an extension of our benchmark economy in which differentiated goods have a direct effect on consumers' preferences, as well as an indirect effect through the accumulation of "status." Here status is defined as $S := \left(\frac{X}{X^a}\right)^{\nu}$, where X^a denotes the average consumption of the differentiated goods in the economy, and $\nu > 0$.

More precisely, in this economy the representative consumer maximizes his/her utility in terms of consumption and leisure goods:

$$\max_{[x_i]_{0\leq i\leq 1},\, L} \quad \left[(X\ S)^{\frac{\sigma-1}{\sigma}} + (1-L)^{\frac{\sigma-1}{\sigma}}\right]^{\frac{\sigma}{\sigma-1}} \tag{10}$$

where, as in our benchmark economy,

$$X := \left[\int_0^1 \alpha_i \left(x_i\right)^{\frac{\theta_i-1}{\theta_i}}\ di\right]^{\frac{\int_0^1 \theta_i di}{\int_0^1 \theta_i di - 1}}, \quad \theta_i > 1 \tag{11}$$

and

$$S := \left(\frac{X}{X^a}\right)^{\nu}$$

---

which determines the labour supply in this case is:

$$\frac{L}{1-L} = \frac{1}{w}\left(\frac{p_+}{w+q}\right)^{-\sigma} \alpha_+^{\frac{\theta(\sigma-1)}{\theta-1}}$$

Again, commodification has the positive welfare effect of offsetting the monopoly distortion of the price of consumption goods.

The representative consumer takes the average consumption of the differentiated goods in the economy, X^a, as given, even though in equilibrium, necessarily

$$X^a = X$$

Definition 5 *A symmetric monopolistically competitive equilibrium is composed of allocations* $x_i = x$, $X = X^a = (\alpha)^{\frac{\theta-1}{\theta}} x$, L, *prices* $p_i = p$ *such that:*

$$x_i(p, p, wL + \pi; \alpha, \theta) = x, \;\; \pi = (p-1)x, \;\; p = p(p, wL + \pi; \alpha, \theta), \;\; x = wL.$$

We study the case in which, by advertising, each firm i affects the elasticity of substitution associated with the good they produce, θ_i, and therefore obtain monopoly rents. At an equilibrium with advertising on product differentiation, in which $\theta_i = \theta_+ < \theta$, it is straightforward to show that the following condition must hold:

$$\frac{L}{1-L} = \frac{1}{w}\left(\frac{p_+}{w(1+\nu)}\right)^{-\sigma}$$

where $p_+ = \frac{\theta_+}{\theta_+ - 1}$. The analogous condition relative to the economy in which no issues of "status" or "conspicuous consumption" arise (obtained for $\nu = 0$) is $\frac{L}{1-L} = \frac{1}{w}\left(\frac{p_+}{w}\right)^{-\sigma}$. The distortionary effect due the preference for "status" is represented by a tendency to increase hours worked in equilibrium (as L increases with ν).

On the other hand advertising in the presence of monopoly power increases the price index of consumer goods (the equilibrium price with advertising is $p_+ > p > w$), and has the effect of counter-balancing the "distortion" induced by the preference for "status". In equilibrium the "status" component of preferences has no independent effect on welfare except for distorting at the margin the consumption-leisure choice of the consume. In equilibrium $X^a = X$ and hence $S = 1$. Since the relative price $\frac{p_+}{w(1+\nu)}$ is what matters for the determination of hours worked L, it is also the only relevant factor that determines the the effect of advertising on the welfare of the representative consumer.

We conclude that advertising as product differentiation has the clear effect of decreasing the representative consumer's labor supply in an economy with preference for "status" where labor supply is already above its efficient level. As a consequence advertising drives the economy towards efficiency, and therefore in general it unambiguously increases the representative consumer's welfare with respect to both ex-ante and ex-post preferences (unless it overcompensates the distortion arising from the preference for "status").[23]

Our analysis therefore suggests that preference for "status" and "conspicuous consumption" distorts the economy by inducing too high a labor supply, and

[23] We leave to the reader the case in which a (large) fraction of the agents (the "workers") are excluded from owning stocks, i.e., the distribution of stocks is unequal. The analysis proceeds as in the previous section.

that competitive advertising mitigates these distortionary effects, with implications that are not consistent with the Postmodernist Critique of advertising. If preference for status is indeed innate and important, then competitive advertising does not exacerbate the problem, it counteracts it. Moreover, the quantitative importance of the preference for"status" in consumer behavior seems hard to establish in a convincing manner: the empirical identification of preferences for "status" out of available data involves difficult and unresolved econometric problems; see e.g., Manski (1999).

7 The Postmodernist Critique

The analysis of our general equilibrium economy with advertising identifies a set of conditions (or parametrizations of the model) which may lend some support to what we called the Postmodernist Critique. We now summarize our results and briefly discuss the available evidence.

For clarity we distinguished advertising which affects the intensity of the preferences from advertising as product differentiation. In the first case, while advertising may generate a "work-spend cycle", this has positive welfare effects for the consumer, even when welfare is evaluated according to the preferences that the consumer is endowed with before advertising manipulates them. This is because the firms' monopoly power inefficiently distorts the prices of consumption goods and generates too much leisure in equilibrium. Advertising mitigates such effects. The only possibility for a "work and spend cycle" that yields negative welfare effects (with respect to ex-ante preferences only, since in this case welfare increases with respect to ex-post preferences) is when advertising overcompensates monopoly effects or when it wastes too many resources in expanding variety. Even in this case however, advertising generates a "work and spend cycle" only if consumers have a high elasticity of substitution between consumption and leisure, that is if $\sigma > 1$. Such an elasticity of substitution implies that advertising has the same effect on labor supply as an increase in labour productivity w, and any evidence of an increase in labour L since the 60es could then just as well be explained by productivity gains.

A more reasonable parametrization for which the Critique can be sustained occurs when advertising operates as product differentiation. In this case advertising does have unambiguous negative welfare effects. If barriers to entry exist so that positive profits are realized in equilibrium, and consumers hold a uniform share of their wealth in stocks, then no "work and spend cycle" is generated in equilibrium, as consumers actually work less. This is what generates the negative welfare effects of advertising. If on the other hand, a large fraction of consumers do not hold stocks or receive profits, and if the elasticity of substitution between aggregate consumption and leisure is low ($\sigma < 1$), then a "work and spend cycle" associated with negative welfare effects is indeed generated for the subset of consumers with no stocks. Similarly, if free entry drives equilibrium profits to zero through dissipation on fixed costs, and if $\sigma < 1$, a "work and spend cycle" associated with negative welfare effects for all consumers

is generated. When advertising is aimed at product differentiation, and either a large fraction of agents do not hold any wealth in stocks, or there is free entry that expands product variety and drives profits to zero, the "commodification of leisure" also has unambiguous negative welfare effects.

In summary, in our economy the pattern of consumption, leisure, and consumers' welfare associated with the Postmodernist Critique is mostly consistent with *i)* advertising as product differentiation, *ii)* a low elasticity of substitution between consumption and leisure, *iii)* either a largely unequal distribution of the fraction of wealth held as stocks across the consumers, or *iv*) free entry and expanding variety driving excess profits to zero.

The evidence on *i-iv)* is in general fair controversial. We attempt a discussion here, as a first step towards a more coherent empirical analysis.

i) Advertising and Product Differentiation. Advertising, including television, newspapers, direct mail, magazines and radio (and now online advertising) is a non-negligible industry mounting to 2-3% of GNP in the US. Advertising expenditures to sales ratios vary by industry, ranging from 10-20 percent for drugs, perfumes, and cereals, to practically no advertising in homogenous commodities like beet sugar (see Tirole (1990), p.289.

Most of the evidence of the effect of advertising consistently documents that its main role consists of affecting the consumer's perceived difference across physically homogenous goods, rather than the intensity of preferences for consumption goods (see e.g., Arens (1996), and Sutherland, 1993)).

ii) Elasticity of Substitution Between Consumption and Leisure. Much of the microeconomic empirical evidence consistently documents a σ smaller than 1 (see e.g., Pencavel, 1987). Such a low elasticity may be considered at odds with the implied elasticity of aggregate labour supply. In particular, macroeconomic models are often calibrated with values of σ close to one, as the average weekly hours per capita remained roughly constant in the U.S. since the 60es while real wage rates increased dramatically in the same period; see e.g., the contributions of Kydland, and of Cooley-Prescott, in Cooley (1995); this argument dates back to Lucas-Rapping (1969), and Ghez-Becker(1975).[24] On the other hand McGrattan-Rogerson (1998) document vast compositional shifts of average weekly hours of market work in the U.S., especially along demographic lines. For instance, average weekly hours substantially increased for families of two or more in the U.S. since the 60es, have decreased for males and increased for females. Not much is known about the factors driving such compositional shifts in hours worked. Similarly, a recent extensive review of the evidence by Browning-Hansen-Heckman (1999) concludes that the preference parameter that controls the response of labor supply to real wages is poorly estimated, that it varies significantly with demographics, labor force status, and the level of consumption, and that the evidence is inconsistent with a uniform parameter value that is constant across the population. They note however that, restricting to the male population, it is safe to conclude from the evidence that this

[24]Leete Guy-Schor (1992) argue though that average yearly hours of those workers who were employed full time in the whole year have actually increased in the period $1969 - 89$.

parameter, which corresponds to our σ, is slightly less than 1 (changing norms about family structure might have had a significant independent impact on female labor-leisure choices, making it difficult to separately identify the elasticity of substitution effect).
iii) Distribution of Wealth as Stocks. Carroll (2000) extensively documents that the distribution of stock ownership across the population is very unequal. In particular, the "rich" (defined as the top 1% of households by net worth) hold a disproportionate share of their wealth in stocks. This however is not due to the fact that a large fraction of the population only receive labor income. The evidence suggests that the "rich" hold wealth in stocks mostly because capital market imperfections require largely self-financed entrepreneurial activities, while the rest of the population mostly holds wealth in portfolios concentrated in real estate.

Finally, it should be noticed that the evidence on time diaries collected by Robinson-Godbey (1997) indicates that the "rich," rather than the "poor," have increased their average weekly hours at work; such evidence casts doubt on the explanation of the "work and spend cycle" based on the unequal distribution of stocks.
iv) Free Entry and Profits. The average return on capital in the US seems to be low, around 4% per annum, suggesting that profits are probably low as well (see Basu (1996)). However it is possible that there are variations across industries, and that barriers to entry prevent the dissipation of profits (for example in pharmaceuticals). In the US there are few pure monopolies, and in the absence of regulatory restrictions, multimarket firms are the norm (Tirole (1990), p.351). Bresnahan and Reiss (1991)'s empirical results suggest that in general competitive conduct in a market is established after the entry of a second or third firm, with further entry having little effect. Therefore the hypothesis favorable to the Postmodernist Critique, of free entry that dissipates profits on fixed costs, does seem plausible.

In the parametrization most favorable to the Critique, the maintained assumption is that advertising operates as product differentiation, and as a consequence through an increase in the price level. The assumption that $\sigma < 1$ implies that the secular rise of real wages $\left(\frac{w}{p_+}\right)$ is due to productivity increases which offset the increase in the price level due to advertising, and has the effect of decreasing the labor supply. An interpretation of the documented evidence consistent with the Critique can be constructed by noting that the decrease in leisure may conceal compositional effects of an increase in leisure for males and a decrease for females, and that the decrease in leisure for females might have independent socioeconomic explanations, as argued above.[25] Under such interpretation, advertising may indeed have offset a tendency towards further

[25]This interpretation of the empirical evidence contrasts though with the increase in the average yearly hours devoted to work documented by Leete Guy-Schor (1992) for employed males and females; such evidence relies though on a very restrictive definition of occupation which excludes part-time.

increases in the time devoted to leisure activities since the 60es, with a negative effect on welfare. Such an effect of advertising would require a rising trend in advertising expenditures that tracks the observed secular rise of real wages. According to the historical Census data,[26] advertising expenditures represented roughly 2.25 percent of Gross Domestic Product at the beginning of the 60es, and still represents slightly less than 2.5 percent in 2001, although this fraction has fluctuated substantially since the 60es (for instance reaching a minimum level of 1.75 percent in 1977).[27] Thus per capita advertising expenditures have indeed risen, and have remained steady as a fraction of GNP. Furthermore, quality adjustments in the advertising services category of the Census could in principle have been quite significant because of technological advances in the communication media, and in fact may have given rise to a secular trend in quality-adjusted advertising expenditures as a fraction of GDP.

8 Myopic Preference Formation

So far we have studied a static economy. Our results can trivially be extended to the symmetric equilibria of an dynamic economy with the following characteristics.

The representative consumer's consumption and leisure allocations are indexed by the time index t, $0 \leq t \leq 1$. The consumer preferences include no discounting (for simplicity):

$$\int_0^1 \left[(X_t)^{\frac{\sigma-1}{\sigma}} + (1 - L_t)^{\frac{\sigma-1}{\sigma}} \right]^{\frac{\sigma}{\sigma-1}} dt \tag{12}$$

where

$$X_t := \left[\int_0^1 \alpha_{it} \left(x_{it} \right)^{\frac{\theta_{it}-1}{\theta_{it}}} di \right]^{\frac{\int_0^1 \theta_{it} di}{\int_0^1 \theta_{it} di - 1}}, \quad \theta_{it} > 1 \tag{13}$$

The preference parameters, α_{it}, θ_{it}, are also indexed by t. Capital markets are perfect, and hence the consumer faces a single budget constraint

$$\int_0^1 \int_0^1 p_{it} x_{it} \, di \, dt = w \int_0^1 L_t dt + \pi \tag{14}$$

The consumer anticipates future advertising and hence he/she understand that his/her preferences will evolve over time at any time τ; therefore he/she

[26] See the *Statistical Abstract of the United States,* published by the US Bureau of Census, Washington D. C., for the years 1980 to 2000, as well as the *Historical Statistics of the United States: Colonial Times to 1970, Bicentennial Edition* also published by US Bureau of Census.

[27] According the data in to the *Historical Statistics of the United States: Colonial Times to 1970*, published by the US Bureau of Census, advertising expeditures in the US have been above 2% of GDP since 1935, the first year for which we have advertising expenditure data. By contrast according to *The European Business Readership Survey (1998)* of the *Financial Times* (http:\\www.asianmediaaccess.com.au/ftimes/adspend/gdp.htm) in Europe, the average is around 0.9% from 1990 to 1996, with France around 0.7%, Germany around 0.9%, Italy around 0.6% and England around 1.4% throughout the period.

evaluates his/her possible present and future consumption paths with preference parameters, $\alpha_{it} = \alpha_+$, $\theta_{it} = \theta_+$, for all $t \geq \tau$.

In particular, this form of rational expectations is crucial for our analysis to apply to the dynamic economy. However, what if the consumer is not capable of such psychological sophistication ? In this case his/her behavior can be time inconsistent. In other words, the consumer at any moment, say at τ, will make plans for consumption and leisure for all times $t > \tau$ that he/she will not want to abide by when time t arrives. Advertising will make present consumption particularly desirable for the consumer, and as a consequence he/she will spend a "large" amount E_τ in consumption goods at time τ, planning to save in later periods (at all times $t > \tau$) to satisfy the budget constraint. At all times $t > \tau$ advertising will again make present consumption particularly desirable and the consumer will continue to spend and postpone savings for future dates.[28]

Are consumers really unsophisticated and myopic, in the sense that they do not anticipate future advertising when planning their consumption and leisure patterns? The experimental evidence is rather controversial, but the advertising industry certainly claims to be able to understand and exploit various cognitive and psychological responses (weaknesses?) of consumers; see e.g., Ogilvy (1987); see also Percy (1983) and Sutherland (1993) for direct analyses of such consumer responses to advertising. Some support for time inconsistency is also developing in the psychological and economic literature (see Loewenstein and Prelec, 1992, and Loewenstein and Thaler, 1989);

The presumption in this case is that the time-inconsistent consumer will be running into debt, until eventually he/she will have to consider repaying, and hence reducing consumption and possibly working longer hours. Does such a "work, spend (and debt) cycle" arise in equilibrium from the behavior of a consumer who is not psychologically sophisticated enough to anticipate future advertising ? We turn now to this question. For simplicity we restrict ourselves to the economy in which leisure is a non-market activity.

Let x_t^τ, for $t \geq \tau$, denote the choice of the consumption path (over time) from the standpoint of time τ; and, similarly, let L_t^τ, for $t \geq \tau$, denote the choice of the labor supply path (over time) from the standpoint of time τ. The actual consumption and labor supply paths are then x_τ^τ, L_τ^τ, for $0 \leq \tau \leq 1$. Let D_τ be the debt accumulated by the consumer at time τ (it will be determined endogenously later). Let $(1-\tau)\pi$ be the uniformly distributed profits at time τ.[29]

At any time τ the consumers know their present preference parameters, $\alpha_{i\tau}^\tau$ and $\theta_{i\tau}^\tau$, and observe the present prices, $p_{i\tau}^\tau$; they also form expectations about

[28]Time inconsistency of preferences might arise even if agents rationally anticipate the effects of advertising, if the equilibrium notion involves agents playing a game with their future selves (as in Strotz (1956) and Laibson (1996)). Such an equilibrium concept turns out to be substantially more complex to analyze. The analysis of the conditions for time inconsistency of preferences in a model with equilibrium advertising is the object of a companion paper by the same authors.

[29]It will be clear from the analysis which follows that this is not without loss of generality: the distribution of profits over time has an effect on the consumption path in equilibrium, because of the time inconsistency of preferences.

their own preference parameters and the prices at any time $t > \tau$, α_{it}^{τ} and θ_{it}^{τ} p_{it}^{τ}.

At any time $\tau \geq 0$, then, the consumer solves the following problem, given D_{τ}, π, p_{it}^{τ}, $t \geq \tau$:

$$\max_{[x_{it}^{\tau}]_{0\leq i\leq 1}^{\tau\leq t\leq 1},\, [L_t^{\tau}]^{\tau\leq t\leq 1}} \int_{\tau}^{1} \left[(X_t^{\tau})^{\frac{\sigma-1}{\sigma}} + (1 - L_t^{\tau})^{\frac{\sigma-1}{\sigma}} \right]^{\frac{\sigma}{\sigma-1}} dt$$

where

$$X_t^{\tau} := \left[\int_0^1 \alpha_{it}^{\tau} \left(x_{it} \right)^{\frac{\theta_{it}^{\tau}-1}{\theta_{it}^{\tau}}} di \right]^{\frac{\int_0^1 \theta_{it}^{\tau} di}{\int_0^1 \theta_{it}^{\tau} di - 1}},$$

subject to:

$$\int_{\tau}^{1} \int_0^1 p_{it} x_{it}^{\tau} \, di \, dt = \int_{\tau}^{1} w L_t^{\tau} dt + (1-\tau)\pi - p_{\tau}^{\tau} D_{\tau}$$

As we are assuming that consumers do not anticipate the change in their preference parameters due to advertising in the future, we need consider a weaker form of symmetry:

$$\alpha_{it}^{\tau} = \alpha_t^{\tau} = \begin{cases} \alpha^0 & \text{for } t = \tau \\ \alpha^e & \text{for all } t > \tau \end{cases}, \quad \theta_{it}^{\tau} = \theta_t^{\tau} = \begin{cases} \theta^0 & \text{for } t = \tau \\ \theta^e & \text{for all } t > \tau \end{cases}$$

We let $x_{it}^{\tau}(p_{it}^{\tau}, p_t^{\tau}, E_t^{\tau}; \alpha_t^{\tau}, \theta_t^{\tau})$ denote the consumer's demand, where E_t^{τ} denotes his/her nominal expenditure at t from the standpoint of time τ.

Definition 6 *A symmetric monopolistically competitive equilibrium with myopic preference formation is composed of allocations* $x_{it}^{\tau} = x_t^{\tau} = \begin{cases} x_{\tau}^{\tau} & \text{for } t = \tau \\ x^{\tau} & \text{for all } t > \tau \end{cases}$, $X_t^{\tau} = (\alpha)^{\frac{\theta^{\tau}-1}{\theta^{\tau}}} x^{\tau}$, $L_t^{\tau} = \begin{cases} L_{\tau}^{\tau} & \text{for } t = \tau \\ L^{\tau} & \text{for all } t > \tau \end{cases}$, *and prices* $p_{i\tau}^{\tau} = \begin{cases} p^0 & \text{for } t = \tau \\ p^e & \text{for all } t > \tau \end{cases}$ *such that:*

$$x_{it}^{\tau}(p_t^{\tau}, p_t^{\tau}, wL^{\tau} + (1-\tau)\pi - p_{\tau}^{\tau} D_{\tau}; \alpha_t^{\tau}, \theta_t^{\tau}) = x_t^{\tau}$$

$$\pi = (p^0 - 1) \int_0^1 x_{\tau}^{\tau} d\tau$$

$$p_t^{\tau} = p(p_t^{\tau}, wL^{\tau} + (1-\tau)\pi - p^0 D_{\tau}; \alpha_t^{\tau}, \theta_t^{\tau})$$

$$x^{\tau} = (1-\tau) wL^{\tau} - D_{\tau}$$

$$\frac{d\, D_{\tau}}{d\, \tau} = x_{\tau}^{\tau} - x^0, \quad \textit{with } D_0 = 0 \tag{15}$$

In a symmetric equilibrium at each time $\tau \geq 0$, the consumer's plan will involve a constant consumption allocation relative to any time $t > \tau$, $x_t^{\tau} = x^{\tau}$. Similarly, $L_t^{\tau} = L^{\tau}$ for any $t > \tau$. Such a consumption plan is budget feasible, and hence, if carried over would repay any outstanding debt,

$$p^0 D_{\tau} = \int_{\tau}^{1} p_t^{\tau} x_t^{\tau} \, dt - \int_{\tau}^{1} w L_t^{\tau} dt - (1-\tau)\pi$$

However, at any time $\tau \geq 0$, $x_\tau^\tau \neq x^\tau$, because of the postulated myopia of preference formation. The debt accumulated by the consumer up to time τ, D_τ, solves the differential equation (15).

Note also that, at a symmetric equilibrium, actual realized prices, p^0 are constant, but at any time τ they might be different from the future expected prices p^e. In other words, not surprisingly prices inherit the structure of preference parameters.

We will consider the two cases where advertising affects the intensity of preferences and where advertising is directed to the elasticity of substitution between goods.

8.1 Intensity of Preferences

In a symmetric equilibrium with myopic preference formation and advertising on the intensity of preferences,

$$\alpha^0 = \alpha_+ > 1, \;\; \alpha^e = 1$$

$$p^0 = p^e = p = \frac{\theta}{\theta - 1}$$

As a consequence, it is easy to show that $x_\tau^\tau > x^\tau$. In particular, $x_0^0 > x^0$, and hence (by continuity and using $D_0 = 0$) the dynamics of debt satisfies $D_\tau > 0$, for τ sufficiently close to 0.

The first order conditions which determine x^τ include:

$$\frac{x^\tau}{1 - L^\tau} = \left(\frac{p}{w}\right)^{-\sigma}$$

In equilibrium at every τ, $(1-\tau)\, x^\tau = (1-\tau)\, wL^\tau - D_\tau$, and hence the first order condition becomes

$$\frac{(1-\tau)\, wL^\tau - D_\tau}{(1-\tau)\,(1 - L^\tau)} = \left(\frac{p}{w}\right)^{-\sigma}$$

whose solution for L^τ is increasing in D_τ.

Proposition 9 *In a symmetric equilibrium with myopic preferences and advertising on the intensity of preferences the representative consumer accumulates debt; moreover, his/her labour supply increases and his consumption decreases with the accumulated debt.*

The equilibrium behavior of consumers who are not able to anticipate future advertising actually does have some features that resemble a "work and spend (and debt) cycle" if advertising affects the intensity of preferences.

While an analysis of welfare is complex in this case because closed form solutions are lost, it suffices here to note that the main effect of myopic preference formation when advertising targets the intensity of preferences is to add a negative component to the representative consumer's welfare due to the lack of smoothness of the equilibrium consumption/leisure pattern.

8.2 Product Differentiation

In a symmetric equilibrium with myopic preference formation and advertising as product differentiation, at any time $\tau \geq 0$,

$$\theta^0 = \theta_+, \;\; \theta^e = \theta < \theta_+$$

As for price expectations, we distinguish two cases. In the first, which we call *Rational Expectations Prices*, the representative consumer faces prices $p^0 = p_+ = \frac{\theta_+}{\theta_+ - 1}$, and also rationally expects prices $p^e = p_+$, for all future periods. In the second case, which we call *Consistent Prices*, consumers also face prices $p^0 = p_+ = \frac{\theta_+}{\theta_+ - 1}$, but they expect prices $p^e = p = \frac{\theta}{\theta - 1}$ (as they expect $\theta^e = \theta$), for all future periods. No compelling methodological argument seems to guide the choice of the two price regimes.
Rational Expectations Prices. Our formulation of preferences has the property that firms, each by advertising to differentiate its own product from its substitutes, offsets the effect of other firms on the preferences of consumers, and hence in equilibrium do not affect the marginal substitutability of aggregate consumption and leisure. The only effect of advertising as product differentiation comes from the price increase. The rational expectation assumption on prices then implies that the myopic preference formation mechanism is immaterial for the equilibrium in this case.

Proposition 10 *The representative consumer's consumption and labour supply at a symmetric equilibrium with myopic preference formation, advertising as product differentiation and rational expectation prices coincide with those of a symmetric equilibrium with advertising as product differentiation.*

Consistent Prices. The first order condition of the maximization problem with respect to the current and future consumption implies:

$$x_\tau^\tau = \delta^\gamma x^\tau$$

with $\delta = \frac{\theta_+ - 1}{\theta_+} \frac{\theta}{\theta - 1} < 1$: the consumer plans present consumption to be lower than future consumption. As a consequence, $x_\tau^\tau < x^\tau$ and $D_\tau \leq 0$. The labour supply analysis implies, in this case, that L^τ actually decreases as a consequence of advertising.

Proposition 11 *In a symmetric equilibrium with myopic preferences, advertising as product differentiation and consistency of prices, the representative consumer accumulates savings; moreover, his/her labour supply decreases and his consumption increases with the accumulated savings.*

The intuition is straightforward: advertising at time t has the effect of decreasing the consumer's elasticity of substitution associated with time t commodities to $\theta_+ < \theta$, and hence it makes the consumer's demand for time t

relatively inelastic with respect to price. As a consequence firms exploit their monopoly power by increasing their price to $p_+ > p$. Since advertising will occur in the future as well, prices will also be high in the future. The consumer however does not anticipate future advertising, nor higher future prices, and as a consequence at any time t, expecting lower prices in the future, chooses to postpone consumption. Instead of unanticipated debt, the consumer ends up with unanticipated savings. At some time t his/her accumulated wealth will be excessive and the consumer will start spending on consumption goods and reducing time devoted to work.

In summary the "work and spend (and debt) cycle" might correspond to the equilibrium outcome with myopic preference formation only when advertising affects the intensity of the consumers' preferences, and not when advertising targets the elasticity of substitution between the goods. This contrasts with our results for rational agents, where the Postmodernist Critique is mostly supported when advertising targets differentiating commodities from their substitutes.

9 Conclusions

We identified a Postmodernist Critique of the organization of society. This Critique suggests that the interaction of monopoly power and advertising creates negative welfare effects for consumers. In particular, advertising takes the form of the "manipulation of preferences," leads consumers to "work and spend cycles" and subjects them to the "commodification of leisure."

We studied the interaction of monopoly power and advertising in a simple general equilibrium model, constructed to satisfy the basic postulates of this Critique (especially in terms of the effects of advertising on consumers' preferences) and we identified specifications and parameter configurations of our model that give rise to equilibria which could support the Postmodernist Critique.

While we discussed some of the available empirical evidence pertaining to key aspects of our specification which supports, and is consistent the Postmodernist Critique, a more extensive formal empirical study is necessary before a stand can be taken on the its relevance. Our analysis may provide a framework for such analysis. In particular, it may be important to assess more precisely the relevance of the component of advertising that is stressed in the Critique, that of the "manipulation of preferences" relative to its informational component. The empirical relevance of the distortion caused by advertising and identified by the Postmodernist Critique, relative to the many distortions and frictions present in the U.S. economy (from incompleteness of financial markets and borrowing constraints, to asymmetric information and distortionary taxation schemes) also remains to be established.

Finally, our whole analysis has been conducted under the Postmodernist postulate that advertising directly affects the consumers preferences. The cognitive and psychological effects of advertising are not yet well understood, and the contrary view (associated with Gary Becker), that the level of advertising

is determined by the supply and demand of rational consumers and firms needs to be better evaluated in view of the Postmodernist Critique.

Appendix A

Proposition A. 1 *Advertising on the intensity of preferences occurs in equilibrium.*

Proof. Firm 0's demand, given prices p and expenditures at time 0, E, as a function of α_0, is:[30]

$$x_0(p_0, p, E, \alpha_0, \theta) = \left(\frac{p_0}{p\,\alpha_0}\right)^{-\theta} \frac{E}{p}$$

Profits of the firm producing commodity 0 then increase with α_0 (hence with advertising), since, as all other firms do not advertise in the thought experiment, the demand the firm faces for its own product increases with α_0 for given prices. Facing such demand, given other firms prices p, firm 0 would charge a price $p_0 = \frac{\theta}{\theta-1} = p$, independent of α_0. Since the firm has been chosen arbitrarily, in a symmetric Nash equilibrium, once costs are explicitly modelled, all firms will advertise at symmetric levels. ■

Proposition A. 2 *Advertising as product differentiation occurs in equilibrium if, before advertising, the elasticity of substitution across goods is large enough.*

Proof. Firm 0's demand, given p and E, as a function of θ_0,[31] is:

$$x_0(p_0, p, 1, \theta_0) = \left(\frac{\theta_0}{\theta_0 - 1}\frac{\theta - 1}{\theta}\right)^{-\theta_0} \left(\frac{p_0}{p}\right)^{-\theta_0} \frac{E}{p}^{\frac{\theta_0}{\theta}}$$

The price is:

$$p_0 = \frac{\theta_0}{\theta_0 - 1} = p$$

Does firm 0 have an incentive to advertise and hence decrease θ_0 at a cost?

[30] I.e., the solution of

$$\max_{[x_0]} \left[\int_0^1 \alpha_i (x_i)^{\frac{\theta-1}{\theta}}\, di\right]^{\frac{\theta}{\theta-1}} \tag{16}$$

subject to:

$$\int_0^1 p_i x_i\, di = E \tag{17}$$

with $\alpha_i = 1$, $p_i = p$, for all $i > 0$.

[31] I.e., the solution of

$$\max_{[x_0]} \left[\int_0^1 (x_i)^{\frac{\theta_i-1}{\theta_i}}\, di\right]^{\frac{\theta}{\theta-1}} \tag{18}$$

subject to:

$$\int_0^1 p_i x_i\, di = E \tag{19}$$

with $\theta_i = \theta$, $p_i = p$, for all $i > 0$.

The expression for the profits of the firm is:

$$\pi_0 := (p_0 - 1)\left(\frac{\theta_0}{\theta_0 - 1}\frac{\theta - 1}{\theta}\right)^{-\theta_0}\left(\frac{p_0}{p}\right)^{-\theta_0} x^{\frac{\theta_0}{\theta}}$$

and can be written as:[32]

$$\pi_0 = (\theta_0 - 1)^{2\theta_0 - 1}\left(\theta_0\frac{\theta - 1}{\theta}\right)^{-2\theta_0} x^{\frac{\theta_0}{\theta}}$$

It is easy to show then that

$$\lim_{\theta_0 = \theta \to \infty} \pi_0 = 0$$

$$\lim_{\theta \to \infty} \pi_0 = (\theta_0 - 1)^{2\theta_0 - 1}\left(\frac{1}{\theta_0}\right)^{2\theta_0} > 0$$

In other words, positive profits are made by the firm which produces good 0 and advertises to reduce the elasticity of substitution associated with its own good (to differentiate its own good), if the good is ex-ante an homogeneous good, $\theta = \infty$. By continuity, advertising in the form of a $\theta_0 < \theta$ occurs if θ, the elasticity of substitution prior to advertising, is large enough, i.e., if the elasticity of substitution across goods is very high. ■

[32] It can be shown that local analysis around θ is in general ambiguous.

Appendix B

Proof of the statement in footnote 17. The first order conditions of the problem of capitalists is:

$$\frac{wL_c + \frac{1-\lambda}{\lambda}(p_+ - 1)\frac{wL_w}{p_+}}{1 - L_c} \geq \left(\frac{p_+}{w}\right)^{-\sigma} \quad (\text{with } = \text{ if } L_c > 0) \tag{20}$$

The statement regarding the labour supply of capitalists now follows.

From the first order conditions of the capitalists and the workers,

$$L_w = \frac{\left(\frac{p_+}{w}\right)^{1-\sigma}}{1 + \left(\frac{p_+}{w}\right)^{1-\sigma}},$$

$$L_c = \frac{1}{w}\frac{p_+^{-\sigma}}{1 + p_+^{-\sigma}} - \frac{1-\lambda}{\lambda}\frac{p_+ - 1}{p_+}L_w\frac{1}{1 + p_+^{-\sigma}}$$

and

$$L = \frac{1}{w}\left[(1-\lambda)\frac{p_+^{1-\sigma}}{p_+ + p_+^{1-\sigma}} + \lambda\frac{p_+^{-\sigma}}{1 + p_+^{-\sigma}}\right]$$

If λ is close to 1 (most consumers are capitalists), the second term dominates and L decreases with p_+ and hence with advertising on the elasticity of substitution. If instead λ is close to 0, the change in L is driven by the first term, hence by $\frac{\partial \frac{p_+^{1-\sigma}}{p_+ + p_+^{1-\sigma}}}{\partial p_+} = \frac{(1-\sigma)p_+^{1-\sigma} - p_+^{1-\sigma}}{D} < 0$, where D is the positive denominator ■

Proof of the statement in footnote 18. The first order conditions which determine the labour supply are:

$$\frac{L_w}{1 - L_w} = \left(\frac{p}{w}\right)^{1-\sigma} \alpha_+^{\frac{\theta(\sigma-1)}{\theta-1}}$$

$$\frac{wL_c + \frac{1-\lambda}{\lambda}(p-1)\frac{wL_w}{p}}{1 - L_c} \geq \left(\frac{p}{w}\right)^{-\sigma} \alpha_+^{\frac{\theta(\sigma-1)}{\theta-1}} \quad (\text{with } = \text{ if } L_c > 0)$$

As a consequence, for $\sigma > 1$, workers increase their labour supply, L_w, since $\alpha_+^{\frac{\theta(\sigma-1)}{\theta-1}} > 1$. As for capitalists, if λ is small enough, they do decrease their labour supply, L_c. The aggregate labour supply L is (with $w = 1$):

$$L = \frac{1}{w}\left[(1-\lambda)\frac{p_+^{1-\sigma}\beta}{p_+ + p_+^{1-\sigma}\beta} + \lambda\frac{p_+^{-\sigma}\beta}{1 + p_+^{-\sigma}\beta}\right] \tag{21}$$

with $\beta = \alpha_+^{\frac{\theta(\sigma-1)}{\theta-1}}$. It is easy to show that both terms in (21) increase with β. Also, if λ is small enough that $L_c = 0$, L still increases, since L_w does. The welfare effects however are positive with respect to both ex-ante and ex-post

preferences, both for workers and capitalists. ■

Proof of the statement in footnote 19. The first order condition can be written as

$$\frac{\frac{wL}{p_+}}{1-L} = \left(\frac{p_+}{w}\right)^{-\sigma}$$

and hence as

$$\frac{wL}{p_+} = \frac{\frac{p_+}{w}}{1+\frac{p_+}{w}}$$

But since $nx = wL - nc = \frac{wL}{p_+}$, the first order condition as written above implies directly the result. ■

Proof of the statement in footnote 20. The first order condition in this case is:

$$\frac{L}{1-L} = \left(\frac{p}{w}\right)^{1-\sigma} \alpha^{\frac{\theta}{\theta-1}(\sigma-1)}$$

and the statement follows. ■

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