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No Logo

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Abstract

Firms have incentives to invest in wage reducing practices when they expect a high advertising equilibrium in the future product market competition. Incentives to invest in wage reducing practices like shifting the production to the third world or lobbying legislators to change labor market regulation by lowering the bargaining power of workers, can be explained by a link between the product market and labor market which operates through the effect of advertising on demand. Increased advertising implies under general conditions more production and therefore greater incentives to reduce production costs per unit.

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1. Introduction

In recent years, there has been a wave of anti-branding books, claiming that consumers are being manipulated by big corporations and their brands. The most influential is Naomi Klein's book "No Logo". Its argument runs like this: "In the new global economy, brands represent a huge portion of the value of a company and, increasingly, its biggest source of profits. So, companies are switching from producing products to marketing aspirations, images and life-style. They are trying to become weightless, shedding physical assets by shifting production from their own factories in the first world to other people's in the third[1]."

Klein's idea is that brands are bad and that somehow are the cause of real wage decrease. Lacking any formal explanation about the possible link between advertising and the labor market, this thesis is very suspicious for an economist. This work models a link between a high level of advertising and low real wages or a shifting of production to the third world, so as to explain how we could have moved from a low advertising, high real wage equilibrium to a high advertising, low wage one.

In a first stage, firms can decide to shift production to a developing country or to invest in other wage reducing practices, depending on the equilibrium they expect will prevail in the second stage: the market competition.

We find conditions such as existing multiple equilibria in the market competition stage, firms have incentives to invest more in wage reducing practices when they expect a high

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[1]See The Economist Sep 6th 2001: "Who's wearing the trousers" and "The case for brands".

advertising equilibrium (Section 2).

From this, our intuition is.

Lower domestic real wages or the shifting of production to the third world can be explained by a change in the expected equilibrium and a link between the product market and the labor market which operates through the effect of advertising on demand. Increased advertising implies higher demand, and under general conditions more production and greater incentives to reduce production costs per unit. A way to do that, is to invest in wage reducing practices such as: shifting the production to a developing country or lobbying legislators to change labor market regulation by lowering the bargaining power of workers.

The existence of a fixed cost explains why investing in wage reducing practices is not always an equilibrium. For at least two reasons, this model is meant to work for firms that offer goods and services produced and offered by low skill workers both domestically or abroad. Firstly, real wages have declined from 1972 to now (see figure below for production or nonsupervisory workers on private nonfarm payrolls, average weekly earnings in 1982 constant dollars). This is particularly uncontroversial for low skill workers though it is less clear for high skill workers. Secondly, firms can and certainly do invest in other production cost reducing practices, like ReD. Anyway wage reduction is more relevant for the already very standardized goods and services usually delivered by low skilled workers.

The relevance of the assumption that there are firms that rely primarily on wage reducing practices between those that have high advertising spending should undergo empirical testing. In the meanwhile, some casual evidence is provided by the case of Nike. We

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Figure 1.1:

quote the 2001 SEC annual report: "In fiscal 2001, approximately five percent of total Nike brand apparel production for sale to the United States market was manufactured in the United States by independent contract manufacturers. The remainder was manufactured by independent contractors located in 28 countries. Most of this apparel production occurred in Bangladesh, China, Hong Kong, India, Indonesia, Malaysia, Mexico, Pakistan, The Philippines, Sri Lanka, Taiwan, and Thailand. Substantially all of our apparel production for sale to the international market was manufactured outside the U.S. Virtually all of our footwear is produced outside of the United States."[2] Consider for example the Wellco factory in China (40% of footwear is produced in China) where wage per hour is $0.16; we understand how labor cost saving is a primary source of cost reduction for Nike[3]. Concerning advertising spending we quote once again the SEC report: "Total ad-

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[2] See: http://invest.nike.com/mypage.cfm?companyid=nke

[3] Source Charles Kernaghan of the National Labor Committee, cited by Naomi Klein.

vertising and promotion expenses were $1,000.5 million, $978.2 million and $978.6 million for the years ended May 31, 2001, 2000 and 1999, respectively." Nike was ranked 53th by total U.S. ad spending in the year 2000 by the 100 Leading National Advertiser ranking made by Advertising Age.[4] Moreover, if we divide total U.S. ad spending in 2000 by U.S. corporate revenue in 2000, to have a relative measure of ad spending with respect to size, Nike stands in 10th position.

We study second stages both for price and for quantity competition. And we check when conditions where firms invest more in wage reducing practices are satisfied (Section 3).

It is increasingly the case that many ads provide little or no information:"Now a change is taking place in the role of brands. Increasingly, customers pay more for a brand because it seems to represent a way of life or a set of ideas. Companies exploit people's emotional needs as well as their desires to consume. Hence Nike's *just-do-it* attempt to persuade runners that it is selling personal achievement, or Coca-Cola's relentless effort to associate its fizzy drink with carefree fun[5]." Many ads create wants without producing information.

We construct an example relying on Becker and Murphy's theory of advertising as a 'good or bad', where advertising serves a useful social function. Advertising favorably affects the demand of other goods and is therefore treated as a complement of the product advertised. In our example, the high advertising equilibrium is Pareto superior to the low

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[4]See: http://www.adage.com/page.cms?pageId=639

[5]See The Economist Sep 6th 2001 cited articles.

advertising one for given wages but it becomes Pareto inferior when firms invest in wage reducing practices. As a policy implication, it would be sub-optimal to use a limit on advertising spending by firms. To avoid investment in wage reducing practices, it would destroy the high advertising equilibrium (Section 4). A brief conclusion summarizes the results (Section 5).

2. Stage One:Expectations and Wage Reducing Activities

Consider a two stage game where each one of n firms may invest in a wage reducing activity at stage one and compete both in a strategic variable s and in advertising A at stage two. At stage one these firms can affect the wage $w(f)$ they pay to workers through a wage reducing investment f with $w_f < 0$ and $w_{ff} > 0$. The latter assumption reflects the notion that it becomes increasingly expensive to lower wages may be because of unions reaction. Let $\Pi\left((s,A),(\overline{s},\overline{A}),w(f)\right)$ be the stage two product market competition profits of one firm where the upper bar indicates the rivals choice of s and A. Assume that the profit functions are continuously differentiable. Since we assumed that the n firms are identical, it is natural to focus on symmetric Nash equilibria in which all firms choose the same action. Let us also assume the existence of multiple equilibria in the product market competition stage. A necessary condition for multiple equilibria is that the second stage game exhibits strategic comlementarity in advertising; that is, $\Pi_{A\overline{A}}\left((s,A),(\overline{s},\overline{A}),w(f)\right) > 0$. Under strategic complementarity the best response of a firm to an increase in advertising of the other firm, is to increase A. Assume that the equi-

libria can be ranked with respect to the level of advertising spending. For any two equilibria, denote by $\Pi\left(\left(s_H, A_H\right), \left(s_H, A_H\right), w\left(f\right)\right)$ the product market competition profits of one equilibrium, the H-equilibrium, and denote by $\Pi\left(\left(s_L, A_L\right), \left(s_L, A_L\right), w\left(f\right)\right)$ the profits of the other, the L-equilibrium. Without loss of generality, we assume that $A_H > A_L$ and we denote $\Pi\left(\left(s_H, A_H\right), \left(s_H, A_H\right), w\left(f\right)\right) = \Pi\left(H, w\left(f\right)\right)$ and $\Pi\left(\left(s_L, A_L\right), \left(s_L, A_L\right), w\left(f\right)\right) = \Pi\left(L, w\left(f\right)\right)$.[6] These equilibria are not Pareto-ranked for any w. In fact, as we will see in the example, because firms compete both in s and A assuming positive spillover in advertising, $\Pi_{\overline{A}}\left(\left(s, A\right), \left(\overline{s}, \overline{A}\right), w\left(f\right)\right) > 0$, would not be enough to have the Cooper-John (1988) result.[7] To start with, we will leave s as unspecified to talk of both quantity and price competition. Then, in the next section, we will specialize our analysis both for price competition:

$$\max_{p,A} \Pi = \left(p - w\left(f\right)\right) q\left(\left(p, A\right), \left(\overline{p}, \overline{A}\right)\right) - c\left(A\right) \tag{2.1}$$

and for quantity competition:

$$\max_{q,A} \Pi = qp\left(Q, A, \overline{A}\right) - qw\left(f\right) - c\left(A\right) \tag{2.2}$$

We make the usual assumption $q_p\left(\left(p, A\right), \left(\overline{p}, \overline{A}\right)\right) < 0$. We also assume that $c_A > 0$ and $c_{AA} > 0$. The latter assumption reflects the notion that it becomes increasingly expensive

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[6]The number of existing equilibria in the product market competition stage is not important for our reasoning. What is relevant is the possibility to compare one equilibrium with a certain level of advertising to another with an higher level.

[7]**Cooper-John (1988):** If there are multiple symmetric Nash equilibria and the game exhibits positive spillovers, then the equilibria are Pareto-ordered by the level of activity, A (for any level of the parameter).

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to reach higher fractions of the population or that preferred media becomes saturated and therefore more expensive[8].

Our objective in this section is to study the relationship between expectations of future equilibria in the product market and today's effort to lower wages. This effort to lower wages can take different forms, for example: delocalizing the production to a developing country or lobbying legislators to change labor market regulation by lowering the bargaining power of workers[9]. f should not be seen simply as the direct cost of any wage reducing practice but also as all possible indirect costs: firms have been the target of non-governmental organisations, unions and consumers. "Because it is so valuable to a company, a brand must be cosseted, sustained and protected. A failed advertising campaign, a drop-off in quality or a hint of scandal can all quickly send customers fleeing. Indeed, protesters, including Ms Klein's anti-globalisation supporters, can use the power of the brand against companies by drumming up evidence of workers ill-treated or rivers polluted." The troubles of Nike, when consumers started a boycott of Nike's products which were produced using child labor, probably cost the company an enormous amount of money. In our model, firms cannot invest in other production cost reducing practices like $R\ell D$. We believe that wage reduction is more relevant for the already very standardized goods usually produced by low skilled workers on which we are focusing in this paper.

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[8]Our firms produce with one unit of labor. In fact, we could add one or more units of raw materials without changing the results. Linearity of wages slightly simplifies the analysis.

[9]Blanchard and Giavazzi (2001) offer an interpretation of the dramatic decline in the labor share in continental Europe since the mid-1980s, based on deregulation in the labor market and the implied transfer of rents from workers to firms.

We study under what condition: a firm expecting the H-equilibrium will be more prone to pay to lower wages, than when she expects to play the L-equilibrium[10].

What we have in mind, is a two stage game where, for example, firms move their productions to China, or lobby the legislator more toughly, if they expect to play the H-equilibrium.

Lemma 1. *Expecting to play the H-equilibrium, firms invest more in wage reducing practices whenever the H-equilibrium implies an higher quantity of goods produced.*

Proof. When deciding the optimal strategy at stage 1, if firms forecast L, they solve the following problem: $\max_f \Pi\left(L, w\left(f\right)\right) - f$ the first-order condition is:

$$\Pi_w\left(L, w\left(f\right)\right) w_f = 1$$

For both price and quantity competition concavity is ensured by $w_{ff} > 0$.

We wonder when firm expecting the H-equilibrium will invest more in f. An increase in f will increase w_f therefore we need $\Pi_w\left(H, w\left(f_H\right)\right) < \Pi_w\left(L, w\left(f_L\right)\right)$. Noting that $\Pi_w\left(.\right) = -q^*$ in quantity competition and $\Pi_w\left(.\right) = -q\left(\left(p^*, A^*\right), \left(\overline{p}^*, \overline{A}^*\right)\right)$ in price competition, the result immediately follows. ∎

If along with more advertising, the H-equilibrium implies a higher quantity of goods actually produced, firms will invest more in wage reducing activities.

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[10]We do not have much to say on the reason why firms may have switched from playing one equilibrium to another. A possible reason could be an exogenous change in a parameter. In the absence of a selection criterion, recall also that our equilibria are not Pareto-ranked for any w, no prediction can be made about which element in the new set of equilibria will be the outcome of the change in the parameter.

3. Stage Two:Product Market Competition

We now study both price and quantity competition, checking when the conditions where firms invest more in wage reducing practices are satisfied. We also find conditions where advertising is anti or pro-competitive.

3.1. Quantity competition

Let us start our analysis with the quantity competition case. We check if $q_H^* > q_L^*$. Let us look at the system of first-order conditions of problem (2.2) for symmetric equilibria:

$$\begin{cases} \frac{p-w}{p} = \frac{1}{n\varepsilon(A)} & (\Pi_q) \\[2mm] qp_A\left(nq, A, \overline{A}\right) = c_A & (\Pi_A) \end{cases}$$

where $\varepsilon(A)$ is the elasticity of demand. We can state the following result:

Proposition 1. *Expecting the H-equilibrium, firms invest more in wage reducing activities iff $p_{Aq}\left(nq, A, \overline{A}\right)$ is not too negative.*

Proof. Convexity of $c(A)$ implies that the right-hand side of (Π_A) grows with A, and so must increase the left-hand side. We look at two cases: firstly, $p_{AA}\left(nq, A, \overline{A}\right) \gtrless 0$, a second-order sufficient condition for a maximum (Π_{AA}) implies that: $qp_{AA}\left(nq, A, \overline{A}\right) < c_{AA}$ and therefore, when A increases the right-hand side of (Π_A) grows more rapidly than the left-hand side. Consequently, q must change to keep equality: in particular q will increase if $p_{Aq}\left(nq, A, \overline{A}\right)$ is not too negative, otherwise q will decrease; secondly, $p_{AA}\left(nq, A, \overline{A}\right) = 0$, in this case (Π_{AA}) implies no restriction, but $p_A\left(nq, A, \overline{A}\right)$ being constant in own advertising, implies that when the right-hand side of (Π_A) grows with A,

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q must change to keep equality. Again q will increase if $p_{Aq}\left(nq, A, \overline{A}\right)$ is not too negative, otherwise q will decrease. Then Lemma (1) implies the result. ∎

$p_{Aq}\left(nq, A, \overline{A}\right)$ being not too negative means that an increase in quantity should not decrease too much the positive effect that the increase in advertising, from A_L to A_H, has on the price. Otherwise, firms would prefer to reduce quantity.

3.2. Price competition

Let us move now to price competition. Given that $A_H^* > A_L^*$ by assumption, we need to know if the equilibrium price level is higher in H or in L. Let us look at the system of first-order conditions of problem (2.1) for symmetric equilibria:

$$\begin{cases} p\left[1 - \frac{1}{\varepsilon(A)}\right] = w & (\Pi_p) \\ q_A\left(p, A, \overline{A}\right)(p - w) = c_A & (\Pi_A) \end{cases}$$

We state the following result:

Proposition 2. *(i)An increase in advertising increases price iff $q_{Ap}\left(p, A, \overline{A}\right)$ is not too negative (ii)firms invest more in wage reducing activities when they expect the H-equilibrium if price decreases or if the increase in advertising fosters demand more than the price growth reduces it.*

Proof. (i)similarly to Proposition (1) we show that when A increases, p will increase iff $q_{Ap}\left(p, A, \overline{A}\right)$ is not too negative; (ii)given that $q_p\left(p, A, \overline{A}\right) < 0$, a decrease in price always increases quantity, on the contrary, the increase in A and an increase in price have opposite effects on quantity. Therefore, we will have $q\left(p_H^*, A_H^*, \overline{A}_H^*\right) > q\left(p_L^*, A_L^*, \overline{A}_L^*\right)$ when the increase in advertising foster demand more than the price growth reduces it. ∎

$q_{Ap}\left(p, A, \overline{A}\right)$ not too negative has a similar interpretation as $p_{Aq}\left(nq, A, \overline{A}\right)$ before.

Remarks

- Firms' desire to invest in wage reducing activities depends on the equilibrium concept we assume at stage 2. Conditions are more restrictive for price than for quantity competition. The intuition is that in price competition, prices are strategic complements and a higher wage can be more easily translated into the prices paid by consumers. This makes the firms less eager to pay the cost[11].

- If we adopt the 'informative' theory of advertising (Grossman-Shapiro (1984), Shmalensee (1983)), advertising is a strategic substitute violating a necessary condition for multiplicity. This is true both in price (Grossman-Shapiro (1984)) and in quantity competition (Shmalensee (1983)). However, it is important to underline that even if we consider the 'informative' aspect of advertising fundamental, it is possible to have multiple equilibria in informative advertising moving to a more complex but more realistic theory of 'multi-market advertising'. We believe that a theory of multi-market advertising is very relevant *per se* and deserves specific treatment. For the purpose of this paper, we construct a simple example relying on Becker and Murphy's theory of advertising as a 'good or bad', where advertising serves a useful social function.

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[11] In linear differentiation models for example, marginal cost is completely translated into the price.

4. An example: Cournot and advertising as a 'good' or a 'bad'

As explained before, for our example we choose Becker and Murphy's theory of advertising. This theory believes that many ads create wants without producing information. Advertising favorably affects the demand of other goods and is therefore treated as a complement of the advertised goods. It has long been recognized that advertising campaigns have two major effects: they increase the general demand for the product advertised (expansionary advertising) and change customer preferences between available brands (competitive advertising).[12] Here, we simplify the analysis assuming only the expansionary effect of advertising. We will consider the case where ads are given away free and the quantity is controlled by producers. A firm determines q and A to maximize net profits:

$\Pi = qp\left(q + \overline{q}, A, \overline{A}\right) - qw - c\left(A\right)$ for our example we assume:

$$\begin{cases} p(Q, A, \overline{A}) = 1 + \frac{\left(A + \overline{A}\right)^2}{2} - Q \\ \\ c\left(A\right) = \frac{A^2}{2} \\ \\ n = 2 \end{cases}$$

The first-order conditions are:

$$\begin{cases} 1 + \frac{\left(A + \overline{A}\right)^2}{2} - 2q - \overline{q} - w = 0 \\ \\ q\left(A + \overline{A}\right) - A = 0 \end{cases}$$

In symmetric equilibria $q = \overline{q}$ and $A = \overline{A}$, so we get:

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[12]In their study of cigarette advertising, Robets and Samuelson (1988) note that advertising affects primarily the level of market demand rather than the distribution of market shares. By contrast, Kelton and Kelton (1982) show that advertising leads primarily to a shift from one brand to another in the brewing industry.

$$\begin{cases} q = \frac{1}{3} + \frac{(2A)^2}{6} - \frac{w}{3} \\[2mm] q = \frac{1}{2} \end{cases}$$

solving for A we get two admissible equilibrium levels of advertising: $A_L^* = 0$ and $A_H^* = \frac{1}{2}\sqrt{1 + 2w}$, and the corresponding equilibrium quantities, prices and profits: $q_L^* = \frac{1-w}{3}$, $q_H^* = \frac{1}{2}$, $p_L = \frac{1}{3}(2 + w)$, $p_H = \frac{1}{2} + w$, $\Pi(L, w) = \frac{1}{9}(1 - 2w + w^2)$, $\Pi(H, w) = \frac{1}{4}\left(\frac{1}{2} - w\right)$.

[13] It is simple to check that even in this example with positive spillover in advertising $(\Pi_{\overline{A}}(\cdot, w) = A + \overline{A} > 0)$ there is not a ranking of equilibria indipendently from w and the Cooper-John result does not hold. In fact, $\Pi(H, w) \geqslant \Pi(L, w)$ for any $w \leqslant \frac{1}{4}$ and $\Pi(H, w) < \Pi(L, w)$ otherwise. Note that $p_{Aq}\left(nq, A, \overline{A}\right) = 0$ and $q_H^* > q_L^*$. Therefore, following Lemma 1, when firms expect the H-equilibrium they will be more eager to pay a cost to lower wages. To be more specific, consider the following first-stage game: firms can decide to lobby legislators or not. If they do 'not lobby' they pay the wage w_n, if they 'lobby' they pay workers the wage w_l with $w_n > w_l$. Lobbying cost f : the direct cost of lobbying and the indirect cost related to consumers and union's protest. We have the following result:

Proposition 1. *(i) A positive cost f always exist so that if firms expect the L-equilibrium, they play 'not lobby' and if they expect the H-equilibrium they 'lobby';*

(ii) the set of such f increases in the difference between w_n and w_l (Δw).

Proof. See the Appendix.

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[13]Note that $\Pi_{A\overline{A}}(\cdot, w) = 1$ implying strategic complementarity.

4.1. Welfare Analysis

We are now interested in performing a standard welfare analysis for our simple example to show that while high advertising can be 'good', what can be 'bad' are the high incentives to reduce wages that it creates. Our analysis is related to the sometimes maintained idea that advertising levels are excessive, greater than those which would prevail in the socially optimal allocation. In the descriptive part of the paper, we have offered a tentative explanation of lower wages or the trend towards shifting production abroad through a link between product markets and labor market which operates thanks to the positive effect that advertising has on demand and the negative effect of high wages on production cost. We are now interested in ranking possible equilibria and studying the effect of a limit on advertising $A^{\max}$, a minimum wage $w_{\min}$, or a change in f.

To evaluate the welfare effects of different equilibria, the destination of wage changes is important. We make the simplifying assumption that wages always go to consumers-workers[14]. Given our interpretation total surplus S is:

$$S(i,j) = 2\left(\Pi(i,w_j) - f1_{j=l}\right) + V(i,j) + W(i,j)$$

where $i = H, L$ indicates the equilibrium and $j = l, n$ i.e.'lobby', 'not lobby' indicates firms' action. $V(i,j) = \int_0^{Q_i} [p_i(Q,A) - p_i]\, dQ$ is consumer surplus and $W(i,j) = Q_i w_j$ are total wages. Using the example in section 4 we get:

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[14]This interpretation is more realistic when f is used to lower domestic production costs. A more apt interpretation to talk about shifting of production is that wages would go from domestic workers to foreign workers. A correct treatment of this case would imply a general equilibrium model with two countries.

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\begin{cases}
S\left(H,n\right) = \frac{3}{4} + \frac{w_n}{2} \\[2mm]
S\left(L,n\right) = \frac{2}{9}\left(2 - w_n - w_n^2\right) \\[2mm]
S\left(H,l\right) = \frac{3}{4} + \frac{w_l}{2} - 2f \\[2mm]
S\left(L,l\right) = \frac{2}{9}\left(2 - w_l - w_l^2\right) - 2f
\end{cases}
$$

Interesting comparisons are the following[15]:

(a) $S\left(H,n\right) - S\left(L,n\right) > 0$ (or equivalently $S\left(H,l\right) - S\left(L,l\right) > 0$). This first comparison answers the usual question whether advertising be excessive or not. Dixit and Norman (1978, 1981) have shown that, if advertising is of the 'persuasive' form, it is carried out at an excessive level in the market. With the 'informative' view of advertising, the Dixit-Norman result is reversed for a monopolist, as is shown in Shapiro (1981). Monopolists carry out too little informative advertising since they fail to appropriate the consumer surplus associated with informing additional consumers about their products. Even if advertising performs a useful social function informing customers about brands' characteristics, nevertheless Grossman and Shapiro (1984) find that (competitive) advertising levels that prevail in oligopoly equilibrium are always excessive. Becker and Murphy (1993) find that advertising can be both excessive or underproduced. Our first comparison is an example where for a given wage a high level of (expansionary) advertising is Pareto superior.[16]

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[15]It seems reasonable that at least a part of the increase in advertising spending does increases the utility of some consumers-workers, the advertisers. Anyway, the sign of our comparisons and therefore the policy implications would not be affected.

[16]Our conclusion differs from the one in Grossman Shapiro oligopoly model because they have competitive advertising, while we have expansionary advertising.

(b) $S\left(H,n\right)-S\left(H,l\right)=\frac{\Delta w}{2}+2f>0.$ This second comparison answers the following question: when we expect the H-equilibrium, is an investment lowering wages a good thing or not? The answer is no.

In fact, as we know from the previous subsection, investing firms get higher profits when f is small. Instead, consumers-workers obtain lower wages and could be compensated only by an sufficient augmentation of quantity consumed, which is not the case here.

(c) $S\left(L,n\right)-S\left(L,l\right)\gtrless 0 \Leftrightarrow f\gtrless\frac{\Delta w}{9}\left(1+w_n+w_l\right).$ This third comparison answers the same question as in (b) for the L-equilibrium. But in this case, the result is not univocal, it depends on a comparison between the decrease in wage and the cost necessary to obtain such a decrease.

4.2. Policy Implications

We can now comment on the effect of $A^{\max}$, $w_{\min}$ and f, using the following matrix.

	not lobby	lobby
H-equilibrium	$S\left(H,n\right)$	$S\left(H,l\right)$
L-equilibrium	$S\left(L,n\right)$	$S\left(L,l\right)$

- The $A^{\max}$ policy can provoke the non-existence of the H-equilibrium, in that case we would be left with the lower part of the matrix. Instead, an increase in f would make the investment unattractive and we would be left with the left-hand side of the matrix. $A^{\max}$ and f act directly on firms and only through firms' decisions have effects also on consumers-workers. Instead $w_{\min}$ has a direct effect also on

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consumers. Moreover, while A^{max} and w_{min} are policies affecting the second stage outcome, a change in f affects the first-stage decision. The w_{min} policy increasing ∇w creates higher incentives to pay the wage decreasing investment.

- *If we expect the H-equilibrium:* firms will be eager to pay a small enough fixed cost f, but we know from comparison (b) that in that case it would be Pareto superior not to have that investment made. Therefore, an increase in f could convince the firm to refrain from making the wage decreasing investment. Note also that given that we know from (a) that the H-equilibrium is Pareto superior to the L-equilibrium, it would be a bad idea to use A^{max} which would manage to impose the 'no lobby' strategy to the firms but in a L-equilibrium. The policy A^{max} is sub-optimal with respect to an increase in f. Note also that a w_{min} goes in the opposite direction and therefore if imposed needs to be accompanied by an higher f to impose the 'no lobby' strategy.

- *If we expect the L-equilibrium:* firms will prefer to play 'no lobby'. Point (c) says that this is Pareto superior if f is high enough with respect to ∇w. Otherwise it could be optimal to let them lobby and it would be optimal to lower f.

5. Conclusion

We model a link between advertising and the labour market. We show that under general conditions, firms have incentives to invest in wage reducing practices when they expect a high advertising equilibrium in the future product market competition. This may explain

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how we moved from a low advertising, high real wage equilibrium to a high advertising, low wage one. We have studied both price and quantity competition.

In our example relying on Becker and Murphy's theory of advertising as a 'good or bad', the high advertising equilibrium is Pareto superior to the low advertising one for given wages but it becomes Pareto inferior when firms invest in wage reducing practices. As a policy implication, it would be sub-optimal to use a limit on advertising spending by firms: to avoid investment in wage reducing practices, it would destroy the high advertising equilibrium.

Contrary to Klein's belief, advertising is not 'bad' *per se*. What can be 'bad' are the strong incentives that it creates to reduce wages.

6. Appendix

Proof Proposition 1: (i) When deciding the optimal strategy at stage 1, if firms forecast L, they compare:

$$\Pi\left(L, w_n\right) = \frac{1}{9}\left(1 - 2w_n + w_n^2\right) \gtreqqless \Pi\left(L, w_l\right) - f = \frac{1}{9}\left(1 - 2w_l + w_l^2\right) - f \tag{6.1}$$

If they forecast H, they compare:

$$\Pi\left(H, w_n\right) = \frac{1}{4}\left(\frac{1}{2} - w_n\right) \gtreqqless \Pi\left(H, w_l\right) - f = \frac{1}{4}\left(\frac{1}{2} - w_l\right) - f \tag{6.2}$$

We want to show that exist an f such that in (6.1) the sign is $>$ and in (6.2) the sign is $<$, i.e.:

$$\frac{2}{9}\left(w_n - w_l\right) + \frac{1}{9}\left(w_l^2 - w_n^2\right) < f < \frac{w_n - w_l}{4}$$

Normalize $w_l = 0$ and we get $\frac{2}{9}w_n - \frac{1}{9}w_n^2 < f < \frac{w_n}{4}$ for any w_n, i.e. a positive fixed cost f always exists.

(ii) We derive with respect to w_n the interval of possible f : $\frac{\partial}{\partial w_n}\left[\frac{w_n}{4} - \frac{2}{9}w_n + \frac{1}{9}w_n^2\right] > 0$. Given that $w_l = 0$ the set grows when Δw increases. ∎

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