WHEN DOES PRIVATIZATION WORK: A GENERAL EQUILIBRIUM VIEW*

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We should be most grateful to The Editor of The Journal to sending, due to our grantors, the **email confirmation** of the arrival of our paper **as soon as it arrives.**

ABSTRACT

Theory and evidence suggest (Boycko et al., 1996; Hansmann, 1996; Frydman et al., 1999) that insider-privatized firms tend to have lower productivity than outsider-privatized enterprises.

We assume that all firms are equally productive, and compare the impact of (supposedly) wage-maximizing insider-controlled firms (WMFs) and profit-maximizing outsider-controled firms (PMFs) on the short-run performance of economies composed of such enterprises.

Using a simple though, given the context, the most relevant type of the Arrow-Debreu model, we find that WMFs imply tâtonnement instability and paradoxical, pro-scarcity pricing, in situations when PMFs ensure (local) stability and apply normal, counter-scarcity price setting rules. Possible, and rather unexpected macroeconomic effects, due to a LMF's pricing policy, are discussed.

JEL classification: D12, D51, E13, J54

Keywords: insider takeovers, wage-maximization, tâtonnement instability, pro-scarcity pricing

* This research was supported by a grant from CERGE-EI Foundation under a program of the Global Development Network. Additional funds for grantees in the Balkan countries have been provided by the Austrian Government through WIIW, Vienna. All opinions expressed are those of the authors and have not been endorsed by CERGE-EI, WIIW, or the GDN. We thank Jacques Drèze, Ira Gang and David Muenchen for useful comments, and Mario Ferrero and Hugh Neary for helpful discussion. The usual disclaimer applies.

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1. Introduction

The wave of privatization in East and Central Europe has resulted in a rapid spread of ownership by insiders (workers and managers) in many enterprises. In Russia, Ukraine, Latvia, Georgia, Belarus and Slovenia this has lead to insiders a controlling more than 50% of privatized firms[1]. In other transition economies, such as those of Poland, Estonia, Romania and Bulgaria, a considerable percentage of enterprises are also under employees' control[2].

However, it is the widespread opinion that insider-controlled firms tend to adhere to policies which reduce to maximization of net revenue per worker or of a ‘full’ wage[3].

It seems that in many of the cases mentioned enterprises have been adopting some form of wage maximizing behavior (*cf.* Blanchard, 1997; OECD, 1993; IBRD, 1996). A possible indication of this is that in some of the countries involved punitive, progressive wage taxes have been levied (Chilosi, 1993; Eatwell *et al*., 1995; Uvalic, 1997b).

Given the existing theoretical results which, at least on average, indicate that the wage-maximizing behavior is inferior to the conventional profit-maximization[4], such a substantial transfer of ownership to employees calls for another look at how this property-*cum*-control arrangement works.

Following Drèze (1989) we consider the general equilibrium framework to be a useful vehicle for checking for theoretical consistency of a certain institutional set up. In this paper we therefore use a simple though, given the context, the most relevant short-run version of the Arrow-Debreu model, to obtain an additional insight into the functioning of wage-maximizing economies (WMEs).

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[1] See Earle and Estrin (1996), EBRD (1995), Jones *et al.* (1998), Lissovolik (1997), Uvalic (1997a).

[2] See Earle and Estrin (1996), Jones *et al.* (1998), Nuti (1997), Uvalic and Vaughan-Whitehead (1997b).

[3] For an excellent analysis of the (voluminous) literature on different forms of workers' control and ownership and the resulted enterprise behavior see Bonin and Putterman (1987). A concise review, which points to a certain gap between the theory and evidence on the WMF behavior, is given in Bonin, Jones and Putterman (1993). An account of the debate on pluses and minuses of employee ownership can be found in Jones, *et al*. (1998), Roland (1998), and Uvalic and Vaughan-Whitehead (1997). See also Aoki and Kim (1995), and IBRD (1996).

[4] A thorough exposition and good discussion of these results can be found in Bonin and Putterman (1987) and Ireland and Law (1982).

Our theme is twofold, and concerns the short-run pricing and the Walrasian tâtonnement in a wage-maximizing economy. At the same time, the results obtained are essentially due to the negative supply reaction of a wage-maximizing firm (WMF) to a change in the product price, revealed in a classic paper by Ward (1958) and often referred to as the Ward effect or the Ward paradox[5].

In what follows, we first find that this Ward supply effect, combined with the detected positive demand responses from consumers, generates instability of the Walrasian tâtonnement in wage-maximizing economies. This corroborates the result by Weinrich (1993) who shows that the WME equilibrium is unstable, when adjustments assume fixprice temporary equilibria with quantity rationing.

Second, the Ward paradox creates its general equilibrium analogue, to the effect that in a wage-maximizing economy *an increase in demand* for a (composite) consumption good leads to a *fall in a good's equilibrium price*, accompanied by an increase in the equilibrium output and employment. Thus the Ward paradox is also responsible for the really perverse, pro-scarcity pricing in a wage-maximizing economy.

At the same time, such a price setting appears to be the ultimate and the most profound *micro*economic implication of the WMF supply behavior, which has remained unnoticed for all these years.

The paper is organized as follows. In section 2 we briefly present the model and contrast the procedure of obtaining the equilibrium allocation in the present *descriptive* model of general equilibrium with that proposed by Drèze (1989) within a more complex *control* model of an economy populated by WMFs. In section 3 we apply the standard general equilibrium procedure to examine the agents' (hypothetical) behavior out of equilibrium necessary to characterize the excess demand functions the slopes of demand and supply functions. In our case these functions point instability of the Walrasian tâtonnement in a wage-maximizing economy. In section 4 the mentioned demand-shift induced price-quantity changes are analyzed and their microeconomic implications are outlined. Summary and concluding remarks are left for section 5.

Beside commenting on the relevance of our results for the theory and policy of privatization, in this last section we also address some quite unexpected macroeconomic

[5] On a firm's level, this Ward effect has been fully explained much later by Bonin and Fukuda (1986) and

(policy) issues - implied by the obtained microeconomic results - that might be relevant for the short-run functioning of a wage-maximizing economy.

2. The Short-Run Equilibrium without Rent Control

2.1 The Representative Agents

The wage-maximizing firm uses a fixed amount of capital input, c, and a variable number of homogeneous workers, l, to produce the composite consumption good, q, *via* the production function $q = g(l)$. The output q is sold competitively, at a parametric price, p. The capital input is taken as *numéraire*, i.e., its rental price, $r := 1$.

Now, the WMF's standard maximand - the income per worker or the full wage, y – reduces to:

$$
\begin{aligned}
y &= \frac{pq_s - c}{l_d} \\
&= \frac{pg(l) - c}{l}
\end{aligned}
\tag{1}
$$

Note that in what follows, and as in (1), we will sometimes omit the subscripts s and d, which respectively denote the supplied and demanded amounts of output and labor input.

Assumption 1. The production function $q = g(l)$ is strictly concave, monotonically increasing and twice continuously differentiable.

We will write the first order condition for the maximum of y either as in (2) or as in (3):

$$pg' = y \tag{2}$$

$$
\begin{aligned}
g' &= \frac{y}{p} \\
&\equiv \varepsilon
\end{aligned}
\tag{3}
$$

Miyazaki and Neary (1983).

where ε is the income per worker in terms of consumption good. The second order condition, satisfied due to Assumption 1, reduces to $g'' < 0$.

The household consists of t members able to work, where l_s is the number of members who are currently offering their labor services. With fixed hours worked, the household's leisure, identified with the number of *non*-employed members, is:

$$z = t - l_s \tag{4}$$

Assumption 2. The household's utility function $u = u(q, z)$ is strictly quasi-concave and twice continuously differentiable, where u_q, $u_z > 0$, u_{qq}, $u_{zz} < 0$ and $u_{qz} = u_{zq} > 0$ are its first and second partial derivatives.

At the same time from the household's budget constraint, $pq_d = yl_s + c$, we get, due to (3) and (1):

$$\begin{aligned} q_d &= \frac{y}{p} l_s + \frac{c}{p} \\ &= \varepsilon l_s + \frac{c}{p} \\ &= \frac{pq_s - c}{pl_d} l_s + \frac{c}{p} \end{aligned} \tag{5}$$

where y and ε are parametric to the household.

Now, the first and second order conditions for the household's maximal utility subject to (5) and (4) are, respectively:

$$\begin{aligned} \frac{u_z}{u_q} &= \frac{y}{p} \\ &\equiv \varepsilon \end{aligned} \tag{6}$$

$$u_{zz} - 2\varepsilon u_{qz} + \varepsilon^2 u_{qq} < 0 \tag{7}$$

Note that in (6), due to (5), (4) and Assumption 2, u_z/u_q, that is (the arithmetic value of) the marginal rate of substitution of leisure for consumption, is ultimately the function of l.

Finally, we formally introduce the level curve of the utility function:

$$u(q, t- l) = u_i , \qquad u_i \in (0, \infty) \tag{8}$$

where u_i is a parameter. Solving (8) for q we obtain:

$$\begin{aligned} q &= f(l, u_i) \\ &= f_i (l) , \qquad \forall i , \qquad l \in [0, t) \end{aligned} \tag{9}$$

where $f_i(l)$ is the indifference function which relates the levels of labor supply and consumption associated with the utility level u_i.

Remark 1. Due to $z = t – l$, Assumption 2 implies that any indifference function $f_i(l)$ is strictly convex, monotonically increasing and continuously differentiable.

Also, due to $l = t – z$, and (9), we have $f_i' = dq/dl = -dq/dz = u_z/u_q$, so that f_i' is the marginal rate of compensation of labor supply by consumption.

We now make the two additional remarks:

Remark 2. Due to Assumption 2 and (8) the function $f(l, u_i)$ of (9) is continuous in u_i.

Remark 3. Due to Remark 2 and relation (9), there exists the family of the indifference functions $f_i(l)$, denoted by F, which is continuous.

2.2. The Economy's Equilibrium

We assume that all n_f firms are identical and that the same is true for all n_h households. Thus we may normalize $n_f = n_h = 1$, so both the firm and the household of subsection 2.1

are well-defined representative agents. As a consequence, the economy may be viewed as consisting of a single firm and a single household[6].

Now, combining (3) and (6), and given the fact that $u_z/u_q = f_i'$, we obtain the general equilibrium conditions when firms are wage maximizers:

$$f_0(l) = g(l) \tag{10}$$

$$f_0'(l) = g'(l) \tag{10a}$$

where $f_0(l)$ is some indifference member-function - depicted in figure 2 below - from the F family, and $f_0'(l)$ is the derivative of that function.

Thus, eq. (10a) requires the households' marginal rate of compensation of labor supply by consumption to be equal to the firms' marginal product of labor, which is identical with the well-known equilibrium condition for a corresponding profit-maximizing economy.

Formally, we may establish the following proposition:

Proposition 1. The WME's equilibrium defined by the triple (l_0, q_0, p_0) and determined *via* the production function $g(l)$ and the family of the $f_i(l)$ functions, F, exists and is unique, where l_0 is defined by (10) and (10a), and where $q_0=g(l_0)$ and $p_0=c/[g(l_0)-l_0g'(l_0)]$.

Proof. Due to Assumptions 1 and 2, Remarks 1 and 3, and equations (2) and (1), the proof is straightforward, and hence omitted. ■

The equilibrium allocation (l_0, q_0), referred to in Proposition 1, is depicted in figure 2. In the same figure the equilibrium allocation (l_1, q_1) is generated by an alternative family of the indifference functions $\varphi_j(l)$, denoted by Φ, that appears in Assumption 3 below.

[6] A careful exposition of the general equilibrium model based on the representative (profit-maximizing) firm and the representative household can be found in Mas-Collel, Winston and Green (1995, pp. 525-29).

Since it is obtained from the same equilibrium conditions - displayed in eqs. (10) and (10a) – the WME's allocation (l_0, q_0) will be identical with that of a profit-maximizing economy (PME).

As far as these identical equilibrium conditions are concerned, two notes seem to be appropriate here.

First, the determination of general equilibrium in the present model completely differs from that pursued in more complex models à la Arrow-Debreu. There, a WME achieves the same equilibrium allocation as a PME with a help of the procedure, proposed by Drèze (1989), according to which parametric rents of non-marketed inputs are *assumed* to be equal to profits generated in a PME's equilibrium. By contrast, as shown by Proposition 1, in the present model the WME's equilibrium allocation is determined purely endogenously, just like in a PM economy.

Second, the identity of allocations in WMEs and PMEs does not extend to the equilibrium pricing in the two types of economies. As is well understood, in a PM economy the present model would require the labor input to be the *numéraire* of the price of consumption good. On the other hand, in a WM economy the same model dictates that the *numéraire* of this price is the (fixed) capital input. In section 4 it will however be seen that the difference in the short-run pricing does not just reduce to the existence of necessarily different *numéraires* of the consumption good in the two systems.

3. Demand, Supply, and *Tâtonnement* Instability

3.1 Demand and Supply Functions

We begin by identifying the firms' hypothetical reactions out of general equilibrium. Thus, the WMF's well-known perverse, negative employment response to a change in the product price – that is, the negative slope of the labor demand function $l_d(p)$ - is obtained by differentiating (2) with respect to p, and using the envelope theorem and the fact that $g'' < 0$:

$$\frac{dl_d}{dp} = \frac{c}{p^2 l_d g''} < 0 \qquad (11)$$

The corresponding output response – that is, the slope of the product supply function $q_s(p)$ – amounts to:

$$\begin{aligned}\frac{dq_s}{dp} &= \frac{\varepsilon c}{p^2 l_d g''} \\ &= g' \frac{dl_d}{dp} \\ &= \varepsilon \frac{dl_d}{dp} < 0\end{aligned} \tag{12}$$

where the expressions in the second and the third row of (12) are due to (11) and (3). The relation (12) displays the mentioned Ward (supply) effect.

We finally note that the above firms' reactions to price changes are independent of the simultaneous households' (hypothetical) reactions while, as is well understood, the opposite is not true.

In our case households' reactions to changes in p also depend on the resulting changes in firms' (optimal) y. To characterize these reactions we first differentiate (5) with respect to p, and use (1), (12) and (3), to obtain:

$$\frac{dq_d}{dp} = \frac{-cE_l}{p^2 l_d} + \varepsilon \frac{dl_s}{dp} \tag{13}$$

where E_l denotes the excess demand for labor:

$$E_l = l_d - l_s \tag{14}$$

Since out of general equilibrium both the firm and the household face the same value of real income per worker ε, we may write (6), due to (3), as:

$$u_z(q_d, z) = g' u_q(q_d, z) \tag{15}$$

Then we substitute (4) into (15) and differentiate the latter equation with respect to *p*, using (13), (11), (3) and the envelope theorem:

$$\frac{dl_s}{dp} = \frac{c[E_l(\varepsilon u_{qq} - u_{qz}) - u_q]}{p^2 l_d (u_{zz} - 2\varepsilon u_{qz} + \varepsilon^2 u_{qq})} > 0 \quad \Leftarrow \quad E_l \geq 0 \tag{16}$$

Equation (16) thus characterizes the hypothetical response of the labor supply to a change in the product price, that is, the slope of the labor supply function $l_s(p)$.

To get the slope of the product demand function $q_d(p)$ we substitute (16) into (13), and obtain, due to Assumption 2:

$$\frac{dq_d}{dp} = \frac{c[E_l(\varepsilon u_{qz} - u_{zz}) - \varepsilon u_q]}{p^2 l_d (u_{zz} - 2\varepsilon u_{qz} + \varepsilon^2 u_{qq})} > 0 \quad \Leftarrow \quad E_l \leq 0 \tag{17}$$

Thus for the nonpositive excess demand for labor the households' demand for a consumption good is (perversely) increasing in *p*. Furthermore, the continuity argument implies that the same is true for $0 < E_l \leq E_l^{\alpha}$, where E_l^{α} is sufficiently small.

*

In the above analysis both the labor supply l_s and the labor demand l_d – just like the product demand q_d and the product supply q_s - are the functions of *p*. Therefore, the clearance of the labor market, implied by Proposition 1, may be regarded as being effectuated *via* the product price:

$$\begin{aligned} l_d(p_0) &= l_s(p_0) \\ &= l_0 \end{aligned} \tag{18}$$

Thus the clearance of the labor market leads, due to the Walras law, to the equilibration of the output market, and *vice versa*. Formally, we substitute (18) into (5) to obtain:

$$q_d(p_0) = q_s(p_0) \quad \Leftrightarrow \quad l_d(p_0) = l_s(p_0) \tag{19}$$

For the Cobb-Douglas economy, the labor market and the product market equilibrium are depicted in figures 1.1 and 1.2.

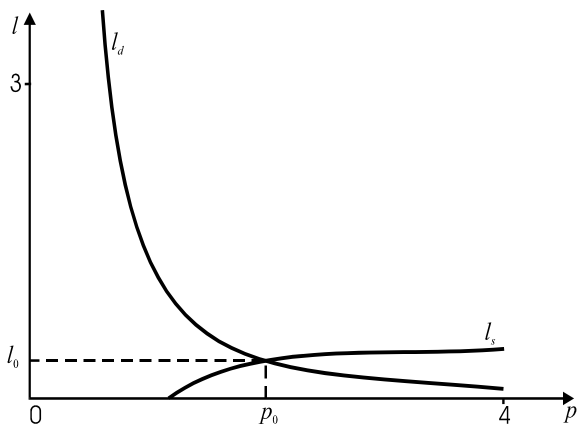

Figure 1.1 The Clearance of the Labor Market in a WME [u=q(1-l); $g(l)$=$l^{0.5}$; c=$3^{0.5}$/3 ; l_s=(p^2-4/3)/2p^2; l_d=(4/3)/p^2; p_0=2, l_0=1/3].

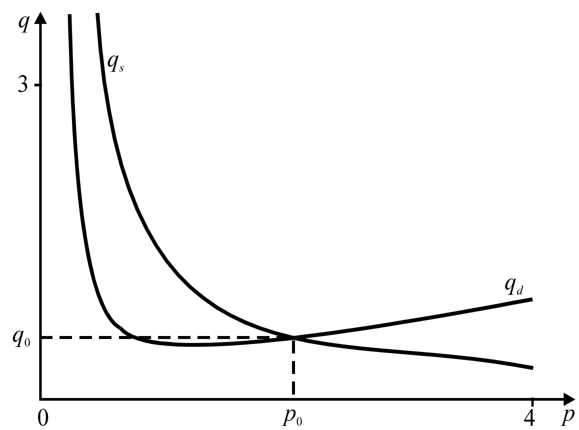

Figure 1.2 The Clearance of the Product Market in a WME [u=q(1-l); $g(l)$=$l^{0.5}$; c=$3^{0.5}$/3 ; q_d=(p^2+4/3)·$3^{0.5}$/8p; q_s=2·$3^{0.5}$/3p; p_0=2; q_0=$3^{0.5}$/3].

3.2 Tâtonnement Instability

Figure 1.2 confirms the result given in eq. (17), which indicates the "wrong" sign of the slope of q_d in the price region which contains the equilibrium price as an interior point. This, coupled with the negative slope of the supply function $q_s(p)$, is sufficient, though not necessary, for instability of the Walrasian *tâtonnement*.

Formally, we introduce the excess demand function $E_q = q_d(p) - q_s(p)$, the slope of which may be written as:

$$\frac{dE_q}{dp} = \frac{dq_d}{dp} - \frac{dq_s}{dp} \tag{20}$$

Substituting (17) and (12) into (20) we now have, due to Assumption 2 and given the fact that $g'' < 0$:

$$\frac{dE_q}{dp} = \frac{c\left[g''(\varepsilon u_{qz} - u_{zz})E_l - \varepsilon g'' u_q - \varepsilon(u_{zz} - 2\varepsilon u_{qz} + \varepsilon^2 u_{qq})\right]}{p^2 l_d g''(u_{zz} - 2\varepsilon u_{qz} + \varepsilon^2 u_{qq})} > 0 \quad \Leftarrow \quad E_l \leq 0 \tag{21}$$

Thus the product market equilibrium is unstable. This, in turn, implies instability of equilibrium of the remaining (labor) market. Hence the following proposition is shown to be true:

Proposition 2. In a WME the Walrasian tâtonnement process is unstable[7].

Finally, we go back to equation (20) to observe that the presence of the Ward supply effect, i.e., the negative sign of dq_s/dp, may not be sufficient for instability of the general equilibrium in a WME. It is the almost equally paradoxical positive demand effect of equation (17), coupled with the Ward supply effect, that ensures instability of this equilibrium.

4. The Ward Effect within the General Equilibrium Framework

In this section we consider the disturbance of the economy's equilibrium due to the underlying structural change, in the form of a shift in preferences from leisure to

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[7] In the corresponding profit-maximizing economy the equation analogous to (21) reads:

$$\frac{dE_q}{dp} = \frac{p^2 g''(u_{zz} - u_{qz})E_l + p^2 g'' u_q + (p^2 u_{zz} - 2pu_{qz} + u_{qq})}{p^3 g''(p^2 u_{zz} - 2pu_{qz} + u_{qq})} < 0 \quad \Leftarrow \quad E_l \leq 0 \tag{i}$$

However, due to the continuity argument, we also have: $dE_q/dp < 0 \quad \Leftarrow \quad 0 < E_l \leq E_l^{\beta}$, where E_l^{β} is sufficiently small. Thus the PME's equilibrium is (locally) stable. The derivation of (i) is available from the authors on request.

consumption. In so doing, we in fact search for a general equilibrium counterpart of the Ward supply effect.

We first make the following two assumptions:

Assumption 3. There is a change in preferences, represented by a shift from the F family of Remark 2, to the analogous Φ family, consisting of the functions $\varphi_j(l)$, analogous to the functions $f_i(l)$ of (9) and Remarks 1 and 2.

Assumption 4. Let the function $\varphi_1(l)$ from Φ generate the equilibrium employment l_1, defined by $\varphi_1'(l_1) = g'(l_1)$, where $\varphi_1(l_1) = g(l_1)$. Also, recall that the function $f_0(l)$ from F generates the equilibrium employment l_0, defined by $f_0'(l_0) = g'(l_0)$, given in (10), where $f_0(l_0) = g(l_0)$.

To consider the general case of a shift in preferences from leisure to consumption, we propose the following definition:

Definition 1. The shift in preferences from F to Φ is consumption intensive if and only if

$$\varphi_j'(l_{ij}) < f_i'(l_{ij}), \quad \forall i,j \tag{22}$$

where φ_j' and f_i' are, respectively, the derivatives of the $\varphi_j(l)$ and $f_i(l)$ functions, and where $l_{ij} := \arg\,[f_i(l) - \varphi_j(l) = 0]$, $\forall i,j$.

We can now establish the proposition that equally applies to WM and PM economies:

Proposition 3. If the shift in preferences is consumption intensive, the after-shift equilibrium employment l_1 is greater than the initial equilibrium employment l_0 .

Proof. First we focus on some φ_0 from Φ such that $\varphi_0(l_0) = g(l_0)$, where, by Definition 1, $\varphi_0'(l_0) < f_0'(l_0) = g'(l_0)$. Hence $\varphi_0'(l_0) < g'(l_0)$ and $l_1 \neq l_0$, where l_1 is given in Assumption 4. Furthermore, due to Assumption 4 and since φ_0', φ_0'', g'>0 and g''< 0, we have $l_1 \notin [0, l_0]$, that is $l_1 > l_0$. ■

The impact of the above change in preferences on the WME's (and PME's) equilibrium allocation is depicted in figure 2.

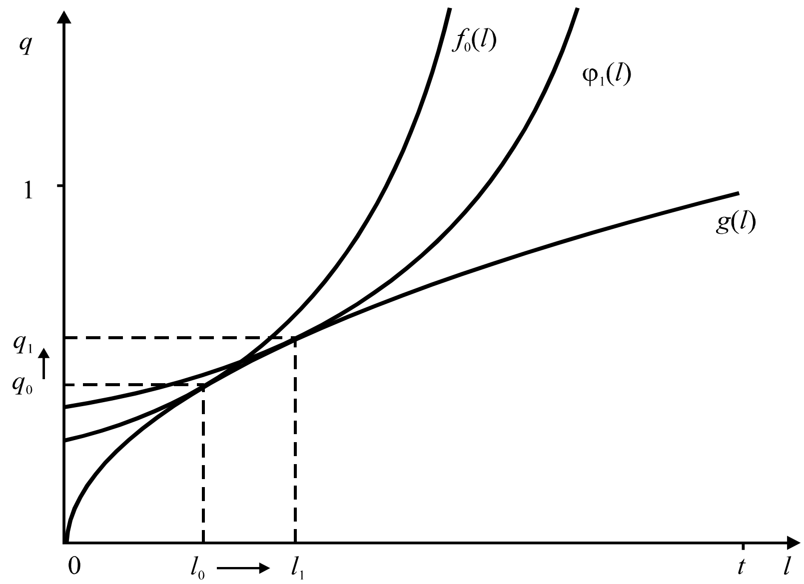

Figure 2. The Change of a WME's (and a PME's) Equilibrium Allocation [$g(l)=l^{0.5}$; $c=3^{0.5}/3$; $f_0(l) = 16\cdot 5^{0.5}/125(1-l)^2$; $\varphi_1(l) = 2\cdot 3^{0.5}/9(1-l)$; t=1; l_0=1/5; l_1=1/3; $q_0=5^{0.5}/5$; $q_1=3^{0.5}/3$].

It is now that the general equilibrium implication of the Ward supply effect, displayed by eq. (12), is easily seen.

Due to the production function $g(l)$, Proposition 3 also applies to changes in the equilibrium level of output. And since the shift in preferences does not affect the product supply curve, the increased output level is exclusively brought about by an upward shift of the product demand schedule. At the same time, and by definition, the new equilibrium output price lays on the product supply curve which, due to (12), is negatively sloped. Therefore, the following proposition on the output pricing is shown to hold:

Proposition 4. An increase in demand for a consumption good, caused by a consumption intensive shift in preferences, leads in a WME to a decrease in this good's equilibrium price, associated with an increase in its output.

Proposition 4 thus indicates the existence of paradoxical pro-scarcity pricing in wage-maximizing economies: The more households want a (composite) consumption good, they will eventually obtain (a greater amount of) this good at a lower real price[8].

The same propositions also shows that there exists an exact general equilibrium analogue to the Ward supply effect, linked to the partial equilibrium framework.

For the Cobb-Douglas tastes and technology, the pricing scenario predicted by Proposition 4 is depicted in figure 3.

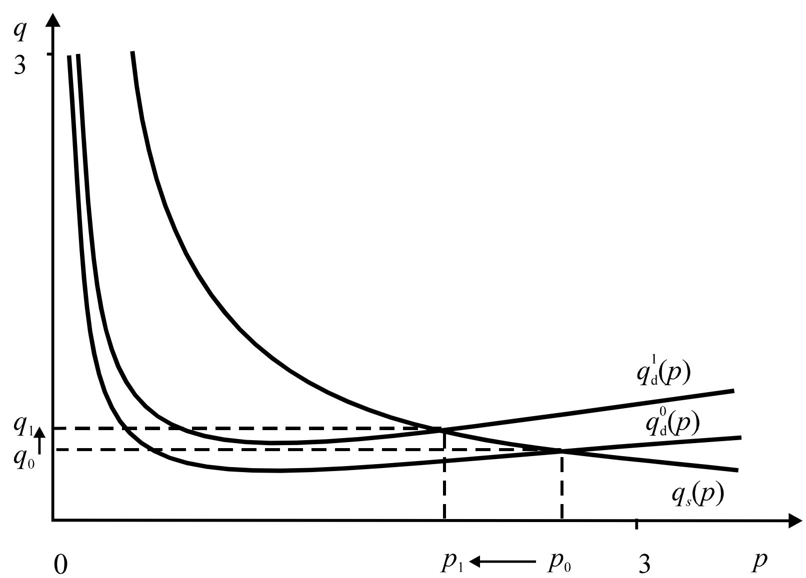

Figure 3. The Pricing Paradox in a WME [$g(l)=l^{0.5}$; $u^0=q^{0.5}(t\text{-}l)$; $u^1=q(t\text{-}l)$; $q_d^0=(p^2+4/3)3^{0.5}/12p$; $q_d^1=(p^2+4/3)3^{0.5}/8p$; $t=1$; $q_s=2\cdot 3^{0.5}/3p$; $c=3^{0.5}/3$; $q_0=5^{0.5}/5$; $p_0=2\cdot 15^{0.5}/3$; $q_1=3^{0.5}/3$; $p_1=2$].

[8] Note that in the corresponding profit-maximizing economy, due to the positive slope of the product supply curve, a consumption intensive shift in preferences will result in a higher, rather than lower price of a consumption good.

5. Summary and Concluding Remarks

In this paper we have used a simple though, given the context, certainly most relevant model of the Arrow-Debreu type to analyze the short-run performance of an economy composed of wage-maximizing, insider-controlled firms (WMFs), and referred to as a wage-maximizing economy (WME).

Our results may be summarized as follows.

First, we have found that, in the interval which contains the equilibrium price as an interior point, households' demand responds positively to changes in the product price. Such a demand behavior, coupled with the well-known Ward supply effect, inevitably makes the Walrasian tâtonnement unstable, in situations when the equilibrium of the corresponding profit-maximizing economy is characterized with (local) stability.

Second, we have focused on the general equilibrium pricing in a wage-maximizing economy. Here, a tastes-shift induced *increase* in a good's demand has been shown to lead to a *rise* in a good's quantity, accompanied by a decrease , rather than by a fall, in its price.

Thus, we have detected the general equilibrium analogue to the Ward product supply effect, which also indicates the existence of paradoxical, pro-scarcity price formation in a wage-maximizing economy. This has appeared to be the ultimate and the most profound microeconomic implication of the WMF so extensively studied (defective) supply behavior.

We have also pointed to the fact that the endogenous determination of general equilibrium in the present model differs essentially from the method of determining the equilibrium allocation in the more complex Arrow-Debreu model à la Drèze (1989). In the latter, it is the exogenous adjustments of rents (of non-marketed inputs) - or, more precisely, the public control - that plays a key role in equilibrating a wage-maximizing economy, as amply demonstrated by Drèze (1989)[9].

Finally, a note on possible macroeconomic implications of our results is in order.

Though our analysis is linked to the microeconomic framework, it indeed gives rise to some unexpected conjectures that might be of relevance for the *macro*economic performance of a wage-maximizing economy.

First, the revealed increase in the equilibrium output and employment, caused by an autonomous increase in demand, suggests that demand expanding fiscal or monetary policies are likely to *increase* (aggregate) employment and output, which contradicts the classical conclusion by Meade (1972) and Vanek (1970; 1977) on the counterproductive nature of such policies in WM economies. In fact, the working of such policies has already been demonstrated, within the fixprice macromodels, by Neary (1990) and Saldanha (1989). However, in these models the barrier to a successful demand management, in the form of the Ward effect, is absent almost by the (fixprice) assumption.

Second, the revealed fall in the equilibrium price, caused by an autonomous demand increase, suggests that in a WM economy demand expanding policies, along with increasing employment and output, may also generate *deflationary effects*, contrary to the notorious inflationary outcomes, predicted by Meade (1972) and Vanek (1977).

To sum up, this macroeconomic possibility scenario apart, our results further suggest that the majority employee ownership - *if* followed by wage maximization, and judged by the standards of equilibrium analysis - turns out, at least on average, to be inferior to conventional outside wealth holding arrangements.

Still, in spite of these facts, and due to nuerous practical reasons, we are not inclined to conclude that the ownership by insiders is generally unwelcome in post-communist economies. Rather, it seems that its scope should be limited - or the (supposedly) wage-maximizing behavior (somehow) prevented - in order to clear the way to the economy's performance typical of developed market systems.

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[9] See also Guesnerie and Laffont (1984) where such a way of equilibrating a wage-maximizing economy has correctly been labeled the public control

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