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THE SHORT-RUN POLICIES OF THE LABOR-MANAGED UNCERTAIN-EXPORT-PRICE TAKER

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ABSTRACT

This paper considers the optimal short-run production policies of the labor-managed firm that exercises some market power in its home market and has the option to be a price-taking exporter to the rest of the world. Uncertainty as to the export price is introduced and the subsequent effects on the membership's policies are studied, revealing once again the ubiquitous nature of the labor-managed firm's behavior.

1. INTRODUCTION

Proceeding from Ward's (1958) seminal article, the labor-managed (L—M) firm has been studied in a variety of contexts. The present paper adds to that literature by considering the short-run response of a L—M firm that may have price-setting power in its home market to the prospect of exporting to the rest-of-the-world market as a price taker, where the price to be taken by the firm in that separate and distinct market is uncertain.

The price-discriminating L—M firm has been considered by Suckling (1978), Clarke and Else (1979), and Mai and Shih (1984), as well as by Katz and Berrebi (1980) in an international setting; Vanek (1970) and Meade (1974) have considered at length the L—M firm in imperfect competition. Also, Muzondo (1979), Bonin (1980), Hey and Suckling (1980), and Paroush and Kahana (1980), among others, have considered the price-taking L—M firm under uncertainty. As will be seen, their general conclusions to the effect that the L—M firm will produce less than its profit-maximizing (P—M) counterpart can be extended to the price-taking exporter under certainty (Katz and Berrebi (1980, p. 101), but the inference that, in contrast to the P—M firm, the risk-avoiding L—M firm will expand output in the face of short-run price uncertainty does not hold up for the L—M *exporter*. The

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exposition yields insights into why the L—M exporter behaves as it does, and why its reactions to environmental changes are more ambiguous than is the case for the P—M firm.

2. THE IMPACT OF THE EXPORT OPTION ON THE L—M FIRM

Joan Robinson (1936) provided the initial development for the P—M firm that, operating from an isolated home market, has the opportunity to export to foreign markets as a price taker in those foreign markets. The portrayal of a home-market producer as an exporting price taker to a rest-of-the-world market has subsequently been suggested by White (1974, p. 1013), Hitritis (1979, p. 48), Pugel (1980, p. 123), Katz and Berrebi (1980, p. 99) and Jacquemin (1982, p. 77), and is one that is adopted here. For the P—M firm, that situation leads to the well-known result that production takes place where $MR_h = P_x = MC$, where P_x is the export price, MC is marginal cost and MR_h is marginal revenue in the home market. The export price is net of all costs of supplying the firm's single product for export, including transportation costs and any unique, fixed costs per unit associated with an importing nation's specification demands.

The P—M firm is assumed to produce a homogeneous product for both domestic and foreign sale, in accordance with the short-run production function $Q = q_h + q_x = q\,(L, z)$, where Q denotes total output, q_h and q_x are domestic and foreign sales, respectively, and L denotes labor input, which is the only variable factor in the short run; z is a vector of other factor inputs, such as land and capital, which are fixed in the short run under consideration. It will be assumed that there are decreasing returns to labor, given z; or, $\partial q/\partial L = Q' > 0$ and $\partial^2 q/\partial L^2 < 0$.

Management seeks to maximize its short-run profit of $\pi = P_h q_h + P_x q_x - wL - F$, where $P_h = p\,(q_h)$ is the domestic price and $dP_h/dq_h \leqq 0$ and $dMR_h/dq_h \leqq 0$, w is the wage rate, and F denotes fixed costs. To accomplish this, the P—M management computes $\partial\pi/\partial L = MR_h\,(\partial q_h/\partial L) + P_x\,(\partial q_x/\partial L) - MFC = 0$, where MFC is marginal factor cost. Assuming that the second-order conditions for a unique interior ($q_h > 0$, $q_x > 0$) optimum hold where the first-order conditions hold, this requires $MR_h\,(\partial q_h/\partial L) + P_x\,(\partial q_x/\partial L) = MFC$. But, $MR_h = P_x$ and $\partial q_h/\partial L + \partial q_x/\partial L = Q'$, so that after substitution $P_x Q' = MFC$. That is, marginal revenue product (MRP) and marginal factor cost are equated as long as the export price is at least as great as the P—M firm's pre-export profit-maximizing home-market marginal revenue. The effect of the export option, then, is to shift the P—M firm's demand curve for labor to the right, at all values of P_x in excess of the latter value of MR_h.

The cooperative, however, seeks to maximize the dividend per worker — that is, the average net revenue product of labor (ANRP) — or $Y = (P_h q_h + P_x q_x - F)/L$. Thus, the firm produces where ANRP is at a maximum, which occurs at an employment level that cannot exceed that of its P—M counterpart. Moreover, while the P—M exporter will *necessarily* produce at a higher level than when it produced for the home market alone, this is not the case for the L—M firm. The latter result follows, since the "upward shifts" of the MRP and ANRP curves induced by acceptance of the export option, will not necessarily imply that the post-export *maximum* ANRP will occur "to the right" of the pre-export maximum.

Specifically, the cooperative first determines $dY/dL = [MR_h (\partial q_h/\partial L) + P_x (\partial q_x/\partial L) - Y]/L = 0$; or, $MR_h (\partial q_h/\partial L) + P_x (\partial q_x/\partial L) = Y$. Simultaneously, to determine how much of the optimal output Q^* should be sold where, the cooperative chooses q_h and q_x to maximize Y subject to $q_h + q_x = Q^*$, which requires $MR_h/L - \lambda = 0$ and $P_x/L - \lambda = 0$, where λ is the Lagrange multiplier. Thus the cooperative also requires that $P_x = MR_h$, but will only accept the export option if the export price is at least as great as its pre-export home-market marginal revenue. The cooperative therefore requires a greater inducement to jump into the export market than does its P—M counterpart. As previously shown by Katz and Berrebi (1980, p. 100), however, once the cooperative decides to export, its home-market production and price will exactly match that of the P—M exporter.

Substituting $P_x = MR_h$ and $\partial q_h/\partial L + \partial q_x/\partial L$ into the $dY/dL = 0$ condition yields $P_xQ' = Y$, or MPR = ANRP. Alternatively, given that the firm exports, the latter equality can be rearranged to yield $P_x (Q' - q_x/L) = (P_hq_h - F)/L$. Writing $q_x = Q^* - q_h$, substituting and rearranging, $(Q' - Q^*/L) = [(P_h - P_x)q_h - F]/P_xL$, where $P_h > P_x$. Further, with $\partial^2Q/\partial L^2 < 0$, $Q' - Q^*/L = Q'(1 - 1/\varepsilon) < 0$, where $\varepsilon < 1$ is the elasticity of total output with respect to labor input. The greater are fixed costs, *ceteris paribus*, the larger is $Q' - Q^*/L$ and the greater is total uotput. In any event, whether and in which direction the cooperative will alter total production when given the export option is not *a priori* determinate. Indeed, even the effect of a change in P_x on either exports or total output is ambiguous [Katz and Berrebi, 1980, p. 102].

3. OPTIMAL PRODUCTION UNDER EXPORT-PRICE UNCERTAINTY

Suppose, now, that the export price is uncertain, say because of uncertainty as to exchange rates, transportation costs, and so forth; or, $\tilde{P}_x$ is a random variable with an expected value of $E[\tilde{P}_x] = \bar{P}_x$ and a variance of $\sigma^2 \geqq 0$. The tilde (~) denotes a random variable, E is the expectations operator, and the bar (—) denotes expected value. Suppose, too, that membership commitments, as well as output commitments for both the domestic and export markets, must be made prior to having the export-price uncertainty resolved. Similar situations have been analyzed for the P—M firm by Hu (1975), Katz, Paroush and Kahana (1983), Blair and Cheng (1984), and Horowitz (1987).

The cooperative assigns a von Neumann-Morgenstern risk preference function $V = v(Y)$, such that $V' > 0$ and $V'' \leqq 0$. That is, the membership is assumed to be non risk preferring. Here, then, $ANRP = \tilde{Y}$, $\bar{Y} = (P_hq_h + \bar{P}_xq_x - F)/L$, and, the firm seeks to maximize

$\overline{V} = E[V(\tilde{Y})]$. Under the previous assumptions, the second-order conditions necessarily hold where $d\overline{V}/dL = 0$, which determines the optimum employment and production levels, and where $\partial\overline{V}/\partial q_h = 0 = \partial\overline{V}/\partial q_x$, which determines the distribution of output between the domestic and export markets.

It is shown in the Appendix that $\partial\overline{V}/\partial q_h = 0$ implies

$$MR_h = (\partial L/\partial q_h)\,[\overline{Y} + (q_x/L)^2\sigma^2 v''(\overline{Y})/(\overline{V}')], \tag{1}$$

that $\partial\overline{V}/\partial q_x = 0$ implies

$$\overline{P}_x + (q_x/L)\,\sigma^2 v''(\overline{Y})/\overline{V}' = (\partial L/\partial q_x)\,[\overline{Y} + (q_x/L)^2\sigma^2 v''(\overline{Y})/\overline{V}'], \tag{2}$$

and that (1) and (2) together imply

$$\overline{P}_x - MR_h = -\,[v''(\overline{Y})/\overline{V}']\,[(q_x/L)^2\sigma^2] \geqq 0, \tag{3}$$

since $v''(\overline{Y}) \leqq 0$ and all other terms are non-negative. Letting $\overline{P}_x$ equal the earlier certainty price, if either $\sigma^2 = 0$ (the certainty case) or $v''(\overline{Y}) = 0$ (the case of risk neutrality), $\overline{P}_x = MR_h$ and the certainty solution obtains. Otherwise $\overline{P}_x > MR_h$, which implies the following proposition:

PROPOSITION 1.

Uncertainty in the export price leads a risk-averse membership to expand home-market production and reduce home-market price.

The intuitive explanation for the latter behavior is that the risk-averse exporter, seeking a hedge against the vagaries of the competitive export market, expands its activities in a home market in which it has some monopoly power, beyond the risk-neutral or certainly level. The beneficiaries are the consumers who enjoy the fruits of a lower price.

As regards total output and employment, solving $E[d\tilde{V}/dL] = 0$ yields:

$$MR_h q'_h + ([v''(\overline{Y})/\overline{V}']\,(q_x/L)\sigma^2 + P_x)\;(q'_x - q_x/\overline{L}) = (P_h q_h - F)/L. \tag{4}$$

But, from (3), $MR_h = R + \overline{P}_x$, where $R = [v''(\overline{Y})/\overline{V}']\,(q_x/L)\sigma^2$. Hence, (4) may be written as $(R + \overline{P}_x)q_h + (R + \overline{P}_x)\,(q'_x - q_x/L) = (P_h q_h - F)/L$. Once again writing $q_h' = Q' - q'_x$ and $q_x = Q^* - q_h$, and rearranging terms, the previous equality can be written as

$$Q' - Q^*/L = [(P_h - \overline{P}_x - R)\, q_h - F]/L\,(R + \overline{P}_x). \qquad (4')$$

Since $R \leqq 0$, the new value for $Q' - Q^*/L$ will equal the certainty value if the membership is risk neutral ($R = 0$), and total output will be unaltered. Otherwise, $R < 0$ and thus the direction of the change in total output will depend upon $-\partial(Q' - Q^*/L)/\partial R = (P_h q_h - F)/L(R + \overline{P}_x)^2$. That is, the output effects of risk aversion hinge exclusively on whether at the risk-neutral optimum total revenue in the home market covers fixed costs. In particular, if $P_h q_h > F$ at the risk-neutral optimum $Q' - Q^*/L$ *increases* as R decreases, and thus total output is less for the risk-averse L—M firm; if the inequality is reversed, total output is greater. In conjunction with PROPOSITION 1, this leads to:

PROPOSITION 2.

If the certainty home-market revenue exceeds fixed costs, then uncertainty in the export price leads a risk-averse membership to reduce *both* exports and total output; if home-market revenue equals fixed costs, then total output is unaltered, but exports are reduced in the amount that home-market production is increased; and if home-market revenue does not cover fixed costs, then total output is increased, but exports may increase, decrease, or remain unchanged.

The intuitive explanation for the latter behavior is that once the risk-averse membership is assured of covering its fixed costs in its sheltered home market, it seeks to temper the vagaries of the uncertain and competitive export market by reducing its activities therein. When fixed costs are not covered in the home market, then *total* output is increased in the face of an uncertain export price in an effort to increase the likelihood of covering those fixed costs through the firm's overall operations.

The risk-averse P—M firm, in contrast, always reduces total output and exports, while increasing home-market production, when faced with an uncertain export price [Katz, Paroush, and Kahana, 1983].

4. COMPARATIVE STATICS

An excursion into comparative statics yields only the following rather frustrating general result:

PROPORTION 3.

The effects of *any* exogenous change on the risk-averse membership's home-market production, exports, or total output are ambiguous — with some minor special-case exceptions.

To see why this is so, consider a change in some parameter γ. The effects of this change are revealed by totally differentiating

$\partial\overline{V}/\partial q_h = 0$ and $\partial\overline{V}/\partial q_x = 0$ wit respect to γ and solving simultaneously for $dq_h/d\gamma$ and $dq_x/d\gamma$ at the optima. From eqs. (1) and (2), after minor rearrangement of terms and recognizing that $\partial^2\overline{V}/\partial q_h\partial q_x = \partial^2\overline{V}/\partial q^2_x - \partial R/\partial q_x$, it is immediately determined that at the optimal q_h and q_x,

$$\frac{dq_h}{d\gamma} = \frac{-\dfrac{\partial^2\overline{V}}{\partial q_x^2}\dfrac{\partial^2\overline{V}}{\partial q_h\partial\gamma} - \dfrac{\partial^2\overline{V}}{\partial q_x\partial\gamma} - \dfrac{\partial^2\overline{V}}{\partial q_x\partial\gamma}\dfrac{\partial R}{\partial q_x}}{\Delta} \tag{5a}$$

$$\frac{dq_x}{d\gamma} = \frac{-\dfrac{\partial^2\overline{V}}{\partial q^2}\dfrac{\partial^2\overline{V}}{\partial q_x\partial\gamma} + \dfrac{\partial^2\overline{V}}{\partial q_h\partial} - \dfrac{\partial^2\overline{V}}{\partial q_x\partial q_h}}{\Delta} \tag{5b}$$

where $\Delta = (\partial^2\overline{V}/\partial q_h^2)(\partial^2\overline{V}/\partial q_x^2) - (\partial^2\overline{V}/\partial q_h\partial q_x)^2 > 0$ and $\partial^2\overline{V}/\partial q^2_x < 0$ by the second-order sufficiency conditions. Hence, the signs of $dq_h/d\gamma$ and $dq_x/d\gamma$ will be the same as the signs of the numerators in eqs. (5a) and (5b), respectively.

Now, consider a seemingly straight-forward parameter, $\lambda = \sigma^2$. If some positive variance introduced into the export price induces a risk-averse membership to increase home-market production, it would seem that greater increases in the variance should induce greater increases in home-market production; that is, we would expect to find that $dq_h/d\sigma^2 > 0$. Such, however, is not *always* the case, because of the second term in the numerator.

Specifically, $\partial^2\overline{V}/\partial q_h\partial\sigma^2 = -(q_x/L)\ (\partial L/\partial q_h)(\partial R/\partial\sigma^2)$ and $\partial^2\overline{V}/\partial q_x\sigma^2 = [1-(q_x/L)\ (\partial L/\partial q_x)]\ (\partial R/\partial\sigma^2)$. Since at the optimum $\partial L/\partial q_h = \partial L/\partial q_x$, $(\partial^2\overline{V}/\partial q_h\partial\sigma^2 - \partial^2\overline{V}/\partial q_x\partial\sigma^2) = -\partial R/\partial\sigma^2 > 0$ as $\partial R/\partial\sigma^2 = [v''(\overline{Y})/\overline{V}']\ [q_x/L] < 0$ for $v''(\overline{Y}) < 0$. By the second-order condition $\partial^2 V/\partial q^2_x < 0$, so that the entire first term in the numerator of (5a) is positive.

To sign the second term, we first observe that $\partial^2\overline{V}/\partial q_x\partial\sigma^2 = [1-(q_x/L)\ (\partial L/\partial q_x)]\ (\partial R/\partial\sigma^2) > 0$ for $1-(q_x/L)\ (\partial L/\partial q_x) = 1-1/\varepsilon_x < 0$, as ε_x, the elasticity of export production with respect to labor, is less than unity by the assumption as to the concave shape of the production function. Hence, the entire numerator will be unambiguously positive *only* if $\partial R/\partial q = v''(\overline{Y})/\overline{V}]\ [\sigma^2/L]\ [1-1/\varepsilon_x) + q_x(\partial\,[v''(\overline{Y})/\overline{V}']/\partial\overline{Y})\ (\partial\overline{Y}/\partial q_x)]$ is unambiguously negative. Inasmuch as $(1-1/\varepsilon_x) < 0$, there is an inherent ambiguity in the situation.

Now, whether $\partial\,[v''(\overline{Y})/\overline{V}']/\partial\overline{Y}$ is positive or negative can be shown to depend upon whether the membership is decreasingly or increasingly risk averse (in the Arrow-Partt absolute sense) by taking the Taylor Series expansion of $\overline{V'}$ about $\overline{Y}$; for example, taking the first-order expansion, $\overline{V'} = v'(\overline{Y})$ and $v''(\overline{Y})/\overline{V'} = -r(Y)$ the (negative of the) Arrow-Partt measure.

Whether $\partial\overline{Y}/\partial q_x = L\overline{P_x}(1-1/\varepsilon_x) - (\partial L/\partial q_x)(P_h q_h - F)$ is unambiguously negative depends upon whether $P_h q_h - F > 0$. We can, however, determine that *if* $P_h q_h - F > 0$, and *if* the membership is increasingly risk averse, then the entire bracketed third term *might* be positive, whereupon $\partial R/\partial q_x < 0$.

All of these machinations therefore yield only the weak conclusion that when a risk-averse membership is "sufficiently" increasingly risk averse and is "amply" covering its fixed costs in its home market, then increasing price uncertainty in the export market — as indicated by an increased price variance — will effect increases in home-market production. Analogous difficulties in reaching even this tepid a conclusion hold for any γ, including a γ that would effect a shift in home-market demand, since the unsignable $(\partial^2\overline{V}/\partial q_x\partial\gamma)(\partial R/\partial q_x)$ term simply cannot be made to go away.

As an aside, the P—M exporter would produce in accordance with a decision rule that is comparable to eq. (3) in every respect, except for the "L" in the denominator on the right-hand side [Horowitz, 1987]. Thus, if the P—M firm and the L—M firm have the same risk preferences, except that the L—M firm's risk preference function has Y for an argument whereas the P—M firm's function has π for an argument, the difference between $\overline{P}_x$ and MR_h for the L—M firm will be *less* than that for its P—M counterpart, for any given level of exports, q_x. Hence, while under certainty the L—M firm requires a higher export price than does its P—M counterpart before being willing to export, this might not be so under uncertainty.

5. CONCLUSION

Ward's initial work on the competitive Illyrian firm led him to conclude that a change in its fixed costs "leads to a change in output in the same direction" (1958, p. 573), whereas a change in price "leads to a change in the opposite direction" (p. 575). In not very short order, Vanek (1970, pp. 105—107) and Meade (1974, pp. 819—821) demonstrated that under conditions of imperfect competition, the cooperative firm's response to demand shifts is not unambiguous, and indeed will depend upon the elasticity of demand and the extent of the increase. The subsequent finding that under price uncertainty the price-taking cooperative, in the short run, "even if risk averse, produce *more* and increases its demand for labor input" [Paroush and Kahana, 1980, p. 213] in contrast to its profit-maximizing counterpart, and thus might actually produce *more* under price uncertainty than that counterpart, called further attention to the ubiquity of the cooperative firm's behavior.

Following that well-established tradition, the present paper has shown that, given the opportunity to export to what is, from the perspective of a price taker in the rest of the world, a competitive market, the cooperative's short-run behavior continues to be ambiguous. The ambiguity carries over to the firm's behavior when the export price becomes uncertain. Confronted by such uncertainty, a risk-averse membership reacts in the cautious manner that risk aversion would imply, insofar as it adjusts output in its imperfectly competitive and certain home market in an unambiguous manner, in effect seeking to shelter itself there.

The risk-averse cooperative's export behavior, however, is not *a priori* determinate, except in the case where home-market revenue is covering fixed costs. Then once again, and like its profit-maximizing counterpart, the cooperative's inclination to act cautiously manifests itself in reduced exports. That is, fixed costs play a critical role in the reactions of the risk-averse L—M firm to uncertainty.

It was also observed that although the cooperative requires a higher certain export price before being induced to export than would be required by its profit-maximizing counterpart, this is not necessarily the case when the export price is uncertain. But, when both variants are induced to export, they carry out somewhat similar price and production policies in their home markets. In combination these results lead to the conjecture that in a "shrinking," but nonetheless uncertain world, the home markets of cooperatives and profit-seeking enterprises may tend to look more alike, at least as regards short-run performance, and that the real differences will be reflected in the differing extents to which these enterprises are willing to export. Whether the conjecture can survive the empirical test, or whether it can survive the rigors of a long-run analysis, remains to be seen.

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APPENDIX

To establish eqs. (1), (2), and (3), first consider $\partial\overline{V}/\partial q_h = E[\tilde{V}'(\partial\tilde{Y}/\partial q_h)] = E[\tilde{V}'(MR_h L - (\partial L/\partial q_h)(P_h q_h + \tilde{P}_x q_x - F))/L^2] = E[\tilde{V}'(MR_h - (\partial L/\partial q_x)\tilde{Y}/L)] = \overline{V}' MR_h/L - (\partial L/\partial q_h) E[\tilde{V}'\tilde{Y}]/L$. But, $E[\tilde{V}'\tilde{Y}] = E[V'(P_h q_h + \tilde{P}_x q_x - F)/L] = \overline{V}'[P_h q_h - F]/L + E[\tilde{V}'\tilde{P}_x] q_x/L$, and $E[\tilde{V}'\tilde{P}_x] = Cov(V', P_x) + \overline{V}'\overline{P}_x$, where $Cov(V', P_x)$ is the covariance between V' and P_x. By a well-known first-order approximation [Kendall and Stuart, 1963, p. 232], $Cov(g(\overline{z}), h(\overline{z})) = g'(z) h'(z) \sigma^2_z$. Since $dP_x/dP_x = 1$ and $\partial V'/\partial P_x = (dV'/\partial Y)(\partial Y/\partial P_x) = V''(q_x/L)$, $Cov(V', \overline{P_x}) = v''(\overline{Y})(\overline{q_x}/\overline{L})\sigma^2$. Hence, $E[\tilde{V}'\tilde{Y}] = V'[P_h q_h - F]/L + (v''(Y)(q_x/L)\sigma^2 + V'P_x) q_x/L$.

Now, setting $\partial\overline{V}/\partial q_h = 0$, which is the first of the first-order conditions, and substituting for $E[\tilde{V}'\tilde{Y}]$, yields $\partial\overline{V}/\partial q_h = \overline{V'}MR_h/L - (\partial L/\partial q_h)[\overline{V'}\overline{Y} + v''(\overline{Y})(q_x/L)^2\sigma^2]/L = 0$. Multiplying both sides of the latter equation by $L/\overline{V'}$ and rearranging terms immediately yields:

$$MR_h = (\partial L/\partial q_h)[\overline{Y} + (q_x/L)^2\sigma^2 v''(\overline{Y})/\overline{V'}].$$

Similarly, $\partial\overline{V}/\partial q_x = E[\tilde{V}'(\partial\tilde{Y}/\partial q_x)] = E[\tilde{V}'(\tilde{P}_x L - (\partial L/\partial q_x)(P_h q_h - - \tilde{P}_x q_x - F))/L^2]$. Setting $\partial\overline{V}/\partial q_x = 0$ and multiplying both sides of the latter by L implies $E[\tilde{V}'\tilde{P}_x] = (\partial L/\partial q_x)E[\tilde{V}'\tilde{Y}]$. Therefore, as shown above, $v''(\overline{Y})(q_x/L)\sigma^2 + \overline{V'}\,\overline{P}_x = (\partial L/\partial q_x)[\overline{V'}\overline{Y} + v''(\overline{Y})(q_x/L)^2)\sigma^2]$. Dividing both sides by $\overline{V'}$ immediately yields:

$$\overline{P}_x + (q_x/L)\sigma^2 v''(\overline{Y})/\overline{V'} = (\partial L/\partial q_x)[\overline{Y} + (q_x/L)^2\sigma^2 v'(\overline{Y})/\overline{V'}]. \quad (2)$$

Moreover, $\partial L/\partial q_x = \partial L/\partial q_h$ and $\partial L/\partial q_h + \partial L/\partial q_x = dL/dQ$. Hence, after subtracting (1) from (2) and rearranging:

$$\overline{P}_x - MR_h = -[v''(\overline{Y})/\overline{V'}] \qquad P_x - MR_h = -[v''(Y)/V'] \quad (3)$$

Finally, $E[d\tilde{V}/dL] = E[\tilde{V}'(\partial\tilde{Y}/\partial L)] = E[\tilde{V}'[(MR_h(\partial q_h/\partial L) + + \tilde{P}_x(\partial q_x/\partial L))L - (P_h q_h + \tilde{P}_x q_x - F)]/L^2] = \overline{V'}MR_h(\partial q_h/\partial L)/L + + (\partial q_x/\partial L)E[\tilde{V}'\tilde{P}_x]/L - E[\tilde{V}'\tilde{Y}]/L$. Setting $E[d\tilde{V}/dL] = 0$ and proceeding as above yields:

$$MR_h q'_h + ([v''(\overline{Y})/\overline{V'}](q_x/L)\sigma^2 + \overline{P}_x)(q'_x - q_x/L) = (P_h q_h - F)/L. \quad (4)$$

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KRATKOROČNA POLITIKA RADNIČKOG SAMOUPRAVNOG PREDUZEĆA U USLOVIMA NEIZVESNIH EKSPORTNIH CENA

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Rezime

U ovom članku posmatraju se optimalne kratkoročne proizvodne politike preduzeća sa radničkim upravljanjem, koje sprovode određenu tržišnu moć na svom domaćem tržištu, i imaju mogućnost da budu cenovno-orijentisan izvoznik u ostatak sveta. Uvodi se neizvesnost u pogledu izvorne cene i njihove posledice na politike članstva razmatraju se otkrivajući još jednom sveprisutno ponašanje preduzeća sa radničkim upravljanjem.