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MERGERS AND DISEQUILIBRIUM  
IN LABOUR-MANAGED ECONOMIES

by

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MERGERS AND DISEQUILIBRIUM IN LABOUR-MANAGED ECONOMIES

Summary

Cooperative mergers are both theoretically possible and empirically observable in labour-managed economies. This paper discusses system-specific differences between mergers in a capitalist and in a labour-managed economy. Beside the systemic attraction of conglomerate mergers in labour managed economies for the sake of risk-reduction through diversification, two system-specific types of mergers are considered: i) between capital-hungry and product-hungry cooperatives and ii) between cooperatives at least one of which experiences labour-surplus. The typical short-term inefficiency of labour deployment in labour-managed economies is shown to be reduced by the existence of the first type of merger and the apparent absence of the second type. In particular, the non-fulfilment of conditions for labour-redeployment mergers is used to attribute income inequality in Yugoslavia also to factors other than labour allocation disequilibrium.



1. Mergers and separations under labour-management

In a labour-managed economy the freedom of enterprise and association includes the right of enterprises to merge with each other or to split into separate subunits. This right exists both in the Yugoslav economy, which comes closest to the labour-managed model, and in Western cooperatives; it is a corollary of collective entrepreneurship and therefore can be regarded as an integral feature of self-management instead of a local anomaly (such as the virtually free use of endowment capital by Yugoslav cooperatives, which is not a necessary prerequisite of self-management).

In Yugoslavia mergers are frequently reported; their occurrence on a substantial scale is reflected in the slow and occasionally negative growth rate in the number of firms (Jan Vanek, 1972; Sacks, 1983) and the virtual absence of bankruptcies (Moore, 1980) as well as large and rising average size and industrial concentration over and above corresponding values in comparable capitalist economies (Dirlam and Plummer, 1973; Sacks, 1983; Estrin, 1983). Between 1960 and 1974, on average, some 4 per cent of Yugoslav firms merged in any year, though following a cyclical pattern (Estrin, 1983). At the same time the autonomy of enterprise subunits has also been recognised and gradually strengthened; in Yugoslav law the basic economic unit that holds assets and takes all but major decisions is the "basic organisation of associated labour" (usually referred to as BOAL in English literature), many of which may make up a single enterprise (which is then called an "or-

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ganisation of associated labour") or OAL, many OALs in turn joining together to form a complex OAL, or COAL. Enterprise divisions can withdraw from the enterprise and become totally separate units, or merge with other enterprises or their divisions (Sacks, 1983); although usually partition per se, i.e. the setting up of autonomous divisions within an enterprise, is a process leading to decentralisation within the enterprise rather than fragmentation of economic activity. Western cooperatives are also capable of merging and splitting; these are much rarer occurrences than in Yugoslavia, because in a capitalist setting cooperatives tend to concentrate in sectors without major economies of scale, but mergers do occur (for instance, recently among Italian cooperatives as a response to economic recession).

## 2. A neglected phenomenon

Mergers (and divisions) have been mentioned in empirical literature on self-managed firms, though they have not been subjected to the same statistical and econometric analysis of capitalist firms, while theoretical literature has wholly neglected the issue. In Vanek (Jaroslav Vanek, 1971) and Vanek-inspired literature the birth of firms is equivalent to foundation while death only occurs through liquidation or bankruptcy. A thorough search<sup>1</sup> through the massive proliferation of literature since Ward's first paper (1958) has only yielded a couple of references, all very recent and not of much use.

Tyson (1979, p. 286), Sacks (1980) and Ireland and Law (1982, section 4.3) note in passing that partition of cooperatives into divisions strengthens the work incentive effect of income sharing, because it reduces the attraction of Sen's "free

riding" effect (Sen, 1966). Presumably this might encourage actual separation, though Ireland and Law also note that conglomerate mergers reduce income risk of members through diversification (1982, section 4.7) and this might discourage BOALs from splitting away from a conglomerate.

Ireland and Law (1982, section 4.7) investigate the conditions under which a conglomerate merger would take place so as to benefit from the efficient labour redeployment within the resulting unit. They argue that two firms in short-term equilibrium and decreasing value of the marginal product of labour, with different average and therefore marginal product of labour, will merge because internal labour redeployment will increase total combined net revenue. In figure 1 below (which is figure 4.9 of Ireland and Law, 1982) curves  $y_1$  and  $VMP_1$  with origin  $O_1$  give respectively the value of average income and marginal product of labour in firm 1 as a function of membership, and  $O_1A$  is its pre-merger member-

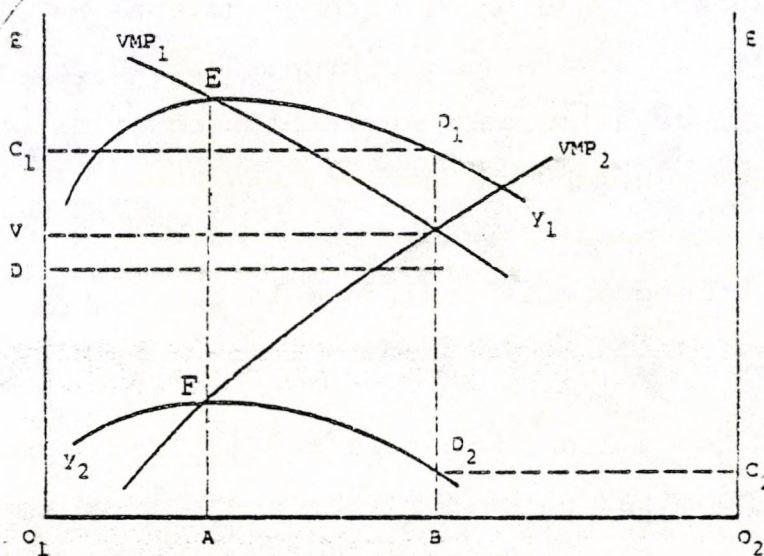


Figure 1. Merger and membership reallocation

ship. Curves  $y_2$  and  $VMP_2$  with origin  $O_2$  are the mirror image of the equivalent picture for firm 2, and  $AO_2$  is its pre-merger membership. After merger, Ireland and Law claim, labour will be re-deployed efficiently and a number of workers corresponding to AB in figure 1 will move from division 2 (formerly firm 2) to division 1 (formerly firm 1)<sup>2</sup> of the new conglomerate, equalising the value of the marginal product of labour at a level equal to  $O_1V$ ; if this is greater than the new, increased level of joint average income per worker, the newly formed conglomerate will expand membership (Ireland and Law, 1982).

The implausibility of Ireland and Law's analysis will be immediately apparent by applying it to the standard short-run equilibrium of Vanek's labour-managed economy, where a large number of firms are in equilibrium each with the value of marginal and average product of labour equalised at a different level. Any arbitrarily chosen pair of such firms would merge following the Ireland and Law analysis; unless some of the resulting conglomerates happened by sheer chance to have identical values of the marginal product of labour the merger process would continue through further rounds of mergers (even between firms who are no longer in short-term equilibrium, as long as MPVs differ) until the entire economy was encompassed by one single giant firm. For this to be a plausible process workers would have to be entitled to free access to jobs in any firm of their choice (Nutti, 1983).

The point is that a higher post-merger average income per worker in the two combined firms now forming the conglomerate is a necessary but not sufficient condition for a merger to take place. In the newly formed conglomerate average income must be



the same for all members and, therefore, post-merger average income must also be higher than pre-merger average income in both firm 1 and firm 2. This is not the case in figure 1, nor can it be the case by construction if both firms display decreasing value of marginal product of labour and start from an equilibrium position.<sup>3</sup> Workers from firm 2 will vote unanimously and enthusiastically for merger with firm 1, but workers of firm 1 will unanimously and fiercely resist it. In fact Ireland and Law assume that the transfer is "a centrally taken decision" but this can hardly explain why Yugoslav or Western cooperatives merge; it is against the rules of the game, since if labour was centrally deployed the economy in question would be undistinguishable from any centrally planned economy.

Even if, untypically, a different average income was allowed in division 1 and division 2, within each division income would have to be uniform; for merger to be agreed by workers in division 1 their income must remain at a level AE; uniformity within a division requires that workers AB should also be paid an income AE per head; but the workers remaining in division 2, far from being able to subsidise division 1 to enable it to pay out AE to the new enlarged membership  $O_1B$  which only produces  $BD_1$  per head, are actually worse off than before. Therefore the merger will not take place.

For the two firms to merge two additional conditions are necessary, with respect to those assumed by Ireland and Law: 1) that the merger be conditional on instant partition in order to allow the two divisions to have different income per head; 2) that division 2 retain membership size  $AO_2$  but hire out the

services of workers AB to division 1 at a transfer price equal to  $O_1D$ , the resulting fee being divided out between all workers  $AO_2$  of division 2. This kind of transfer pricing is precisely what is envisaged by Sacks (1977, 1983) in his analysis of divisionalised BOALs, in order to allow some efficient redeployment of labour between divisions of the same enterprise without violating the condition of uniform income within each division. "Now, - Sacks writes - hiring workers without giving them a full share in profits and management conflicts with the basic principles of the Yugoslav economy. However, buying a service at a fixed price from another firm or division . . . does not violate these principles, although it amounts to the same thing. Thus the internal sale of services reallocates labor legitimately" (Sacks, 1983, p. 49, emphasis added).

Two comments are in order. First, this kind of transfer pricing is a device for the efficient redeployment of labour in the short run which divisions of a single enterprise may wish to use, but which separate firms can also use without having to merge; hence the Ireland-Law-Sacks propositions do not explain cooperative merger at all. Second, if the principle of equality within the self-managed enterprise is violated, it seems preferable to use inequality efficiently and adopt the "unequal shares" model devised by Meade (1974), which at least has the merit of eliminating all the troublesome eccentricities and inefficiencies of the egalitarian cooperative, including the well-known short-term perverse response to price changes on its employment and output.

### 3. Mergers of cooperatives and of capitalist firms

A comparative analysis of mergers of cooperatives and of capitalist firms reveals a number of important differences, which affect both the scope for and the consequences of mergers.

Unlike capitalist firms, cooperatives are not subject to "takeover bids", i.e. attempts at acquiring a controlling interest in the shares of a joint stock company, which may be successful in spite of resistance of management and the majority of shareholders. In the case of cooperatives all mergers must be agreed by both firms, therefore establishing a presumption that, in the absence of other offsetting factors, mergers between cooperatives are less likely to occur. In the theory of managerial capitalism (Marris, 1964) the sheer potential threat of a successful takeover bid is sufficient to prevent managers from asserting their own growth-minded interests over the more profit-oriented interests of shareholders, therefore maintaining the stock market valuation of shares in the neighbourhood of the underlying value of assets because of managers' fear of losing their jobs following a successful takeover bid (which would be bound to take place if managers' reckless policies depressed the value of shares sufficiently below that of company assets, i.e. if the valuation ratio fell sufficiently below unity). There is no analogous mechanism for the cooperative to be kept close to the allocative solution of a traditional (i.e. non "managerial") capitalist firm.

Given the cooperative's obligation to maintain the value of its net assets there is no incentive for anybody, in any case, to take advantage of opportunities to strip assets to pay for the takeover; while, given cooperative members' entitlement to tenure

in the merged just as in the original firm, asset stripping opportunities are themselves restricted. Members' entitlement to continued membership also means that the takeover value of the assets of a cooperative - even if it could be taken over - is zero, unless a merger affords fresh opportunities for a more advantageous redeployment of joint resources; while the takeover value of an equivalent (joint stock or traditional) capitalist enterprise is at least equal to the net value of its assets, thereby providing the possibility of mergers simply for the purpose of achieving a growth rate of the value of assets greater than obtainable from gradual own expansion.

Thus cooperative merger will always be due to the presence of opportunities for a more advantageous redeployment of joint resources. These will be due to one of the following factors: increased (monopolistic or monopsonistic) market power as a result of higher size; technological economies of scale in horizontal integration; commercial economies of scale in (vertical, horizontal or conglomerate) integration for the use of a single distribution network; greater security of supplies and costs due to vertical integration; security of revenues due to diversification following a conglomerate merger; other forms of greater joint allocational efficiency in raising the firm's maximand. All these factors can also be present in the case of capitalist firms' mergers, and mergers due to these factors are always a quick way of bridging or reducing a disequilibrium, quicker than the gradual build-up of assets through the successive acquisition of individual items. There remain, however, important differences between the merger of cooperatives and of capitalist firms:

i) in cooperatives merger a more advantageous redeployment of joint resources is a necessary and not just a sufficient condi-

tion, because there lack the merger opportunities reviewed above for the capitalist firm;

ii) the allocative solution after a cooperatives merger is different from that prevailing after a capitalist firms merger and indeed, more generally, in the presence of the same type and intensity of factors a merger might occur in one but not the other type of firms. This is due primarily to the system-specific maximand in cooperative enterprises, i.e. income per head (or its present value) instead of profits (or their present value) in capitalist firms; however the difference can also be due to other system specific features of the labour managed economy, such as the workers' inability to reduce income risk through diversification (unlike capitalists with capital), which gives a system-specific attraction to conglomerate merger (see above, section 2);

iii) there are system-specific factors in the case of the cooperative mergers due to redeployment opportunities which are only advantageous (from the viewpoint of income per head) because of the system-specific disequilibrium in the short-term adjustment process of capital and employment in the labour-managed firm. Because of system-specific factors both in the case of capitalist and cooperative firms nothing can be said, a priori, as to the probability of mergers occurring more frequently in one or the other framework.

In the rest of this paper two such system-specific cases of possible cooperatives mergers are discussed, namely the merger between a capital-hungry and a product-hungry cooperative, and the merger between cooperatives at least one of which has a membership surplus; far-reaching though tentative conclusions are

drawn from the observation of actual instances of the first type of merger and the lack of observations of the second type.

Partitions of firms (with or without splitting) are not discussed further here. In a capitalist economy such partitions are dictated exclusively by efficiency considerations; subunits are either disposed of or controlled by a holding unit and are not capable of voluntary separation as in the cooperative case. In the self-managed cooperative economy the partition of enterprises into subunits seems primarily a form of equality avoidance (which has already been illustrated in the previous section) or the consequence of divergence of views, between members associated with different products or processes, about future prospects and investment policy for their part of the firm, as long as assets can be separated without prejudice for the whole operation (which goes beyond the scope of this paper).

4. System-specific mergers: i) capital-hungry and product-hungry cooperatives

The specific and adverse features of the cooperative firm and the economic system it generates manifest themselves primarily in the process of adjustment to change. Therefore it is natural to see whether system-specific mergers would affect that adjustment process. In the case of capital it is usually assumed that capital is brought to a sector experiencing a price increase (and therefore a typically perverse negative response on employment and output) through the formation of new firms. Presumably this is due to the specific nature of capital goods required for output expansion, otherwise an already existing cooperative could

hire capital from firms in other sectors that have not experienced a price increase, and eliminate or at least alleviate the perverse response by own expansion or by taking a leading role in the formation of new divisions producing the same output and employing members who otherwise would be redundant. Hence the importance of access to capital for new cooperatives and for existing cooperatives in any sector experiencing a price increase. An enterprise in these circumstances will be "capital-hungry". On the other hand, any enterprise depending on the output of that sector for its own productive activity will be "product-hungry" and in a difficult position, because any attempt at obtaining more of that product by bidding up its price will lead to further perverse responses.

A merger between the capital-hungry and the product-hungry cooperatives might give the capital-hungry cooperative access to the further capital it needs to maintain and perhaps develop its membership and output already in the short run, and the product-hungry cooperative access to a continued and expanding source of supply of the product it needs for maintaining its activity. Such a merger would ease the adjustment process, and weaken the perverse response to a price increase, over and above the usual advantages of security of supply offered by vertical integration.

There is evidence of this kind of integration in literature on Yugoslavia. Usually vertical integration takes the form of long-term agreements, or for an indefinite period subject to termination with prior long notice of several years, for joint expansion usually under a "joint business council"; given the self-partitioning ability of Yugoslav enterprises the effects of these arrangements on economic efficiency (though not on income distribu-

tion) are identical to those of total mergers. Sacks (1983) reports three specific cases of this kind, involving agreements between the publishing and newspaper BIGZ enterprise and the MATROZ paper enterprise; between tractor producer IMT and engines manufacturer IMR; between three firms making respectively light alloy metal castings (PD), internal combustion engines (DPM) and automobiles (CZ, making the Yugoslav version of Fiat cars).

5. System-specific mergers: ii) redeployment from labour-surplus cooperatives

Let us consider two cooperative firms, labelled 1 and 2, whose symbols have subscript  $i = 1, 2$ . Prices are assumed to be constant and value variables are in money terms. We use the following notation and relationships:

$L_i$  = membership = employment

$q_i$  = output, given by the production function

$$(1) \quad q_i = F_i(L_i), \quad F'_i > 0, \quad F''_i < 0$$

$A_i$  = fixed costs

$Y_i$  = average income per head

$$(2) \quad Y_i = [F_i(L_i) - A_i] / L_i = y_i(L_i)$$

$\tilde{L}_i$  = pre-merger actual membership

$\tilde{Y}_i = y_i(\tilde{L}_i)$  = pre-merger income per head

$L_i^*$  = pre-merger desired (equilibrium) membership, given

by the equilibrium condition:

$$(3) \quad Y_i(L_i^*) = F'_i(L_i^*).$$

A necessary condition for merger to generate a benefit at all is that pre-merger marginal product should differ, i.e.



$$(5) \quad \tilde{F}'_1 \neq \tilde{F}'_2$$

Without any loss of generality let us label 1 the enterprise with the lower marginal product of labour, or

$$(5') \quad \tilde{F}'_1 < \tilde{F}'_2.$$

Redeployment will therefore take place, if at all (i.e. if a merger occurs), from 1 to 2. Therefore enterprise 1 must be a labour-surplus cooperative; otherwise labour could be drawn from other sources where it could be redeployed without loss (if no such alternative sources of labour are available the overall labour shortage should drive up labour incomes throughout the economy). In principle enterprise 2 does not have to be a membership-expanding cooperative, but any cooperative capable of absorbing the surplus labour of cooperative 1 through its own planned expansion of membership will be naturally preferred as merger partner to any labour-surplus cooperative, which could only absorb labour at a positive cost.

Redeployment from 1 to 2 will take place up to the equilibrium point characterised by employment  $\hat{L}_1$  and  $\hat{L}_2$ , and income per man  $\hat{y}_1$  and  $\hat{y}_2$ , for which

$$(6) \quad \hat{F}'_1 = \hat{F}'_2.$$

(Note that the hat designates variables after the merger in the two firms, now regarded as subdivisions of the resulting unit.) We define  $\lambda$  as the number of redeployed workers, or

$$(7) \quad \lambda \equiv \tilde{L}_1 - \hat{L}_1 = \hat{L}_2 - \tilde{L}_2.$$

Total gains  $G$  from after-merger internal redeployment of workers are:

$$(8) \quad G = \hat{L}_1(\hat{Y}_1 - \tilde{Y}_1) + \hat{L}_2(\hat{Y}_2 - \tilde{Y}_2) + \lambda(\tilde{Y}_2 - \tilde{Y}_1)$$

which can also be written in the form

$$(8') \quad G = \int_{\tilde{L}_2}^{\tilde{L}_2 + \lambda} F'_2 dL_2 - \int_{\tilde{L}_1 - \lambda}^{\tilde{L}_1} F'_1 dL_2$$

which together with (5') and (6) gives

$$(9) \quad G > 0$$

as a general case following solely from assumption (5). This is the condition given by Ireland and Law as sufficient for the merger to take place. It is, however, only a necessary but not sufficient condition. In the unit resulting from merger all members have to be treated equally, and for the merger to gain consensus within both cooperatives the after-merger income per head  $y$  has to be at least equal to the highest of the pre-merger incomes per head, i.e. equal to  $\max(\tilde{y}_1, \tilde{y}_2)$ . Let us define  $R$  as the total amount necessary to bring up the members of the lower paid cooperative (which can be either 1 or 2, since the ranking of marginal product of labour given in (5') will not necessarily correspond to the ranking of pre-merger average incomes) up to the income level of the higher paid cooperative. Thus

$$(10) \quad R = \max \left[ \tilde{L}_1(\tilde{y}_2 - \tilde{y}_1), \tilde{L}_2(\tilde{y}_1 - \tilde{y}_2) \right]$$

For a merger to have the support of both cooperative memberships the condition must be satisfied:

$$(11) \quad G - R > 0,$$

in which case after-merger income per head  $\hat{y}$  is

$$(12) \quad \hat{y} = \frac{\tilde{y}_1 \tilde{L}_1 + \tilde{y}_2 \tilde{L}_2 + G}{\tilde{L}_1 + \tilde{L}_2} > \tilde{y}_1, \tilde{y}_2.$$

If both cooperatives had been in equilibrium (as in the case considered in section 2 above) condition (11) could not be satisfied and no merger would occur. In fact in equilibrium  $G = G^*$  is known to be positive from (8') being satisfied, but only because in equation (8) the expression  $(\tilde{y}_2 - \tilde{y}_1)$  and  $\lambda$  are positive and their product more than offsets the negative values of  $(\hat{y}_1 - \tilde{y}_1)$  and  $(\hat{y}_2 - \tilde{y}_2)$  weighted respectively by  $\hat{L}_1$  and  $\hat{L}_2$ . But  $R$  in that case is equal to  $\tilde{L}_1(\tilde{y}_2 - \tilde{y}_1)$  which is greater than  $\lambda(\tilde{y}_2 - \tilde{y}_1)$  because  $\lambda < \tilde{L}_1$ ; hence  $G^* - R^* < 0$ .

If cooperative 2 is seeking to expand membership and can recruit workers freely paying an equal share of its own revenue, without the envisaged merger it could reach an income per head equal to  $y_2^*$ ; therefore in that case  $R$  would have to be calculated substituting  $y_2^*$  for  $y_2$  in equation (10), making the fulfilment of condition (11) somewhat less likely.

Here we have shown that mergers between cooperatives one of which, at least, is characterised by surplus labour and the other is probably seeking expansion of membership, are a possible occurrence which in the absence of friction will take place whenever conditions (5) (and therefore condition (9) also) and (11) are satisfied. Of course there is not a single shred of evidence, in the massive literature on Yugoslav cooperatives, suggesting that this kind of adjustment to disequilibrium can be regarded as a possible explanation of the mergers that do occur. Paradoxically, it is precisely the fact that this kind of merger does not appear to occur that provides the opportunity to make interesting

deductions about the nature and extent of disequilibrium in the actual conditions of the Yugoslav economy.

We can rewrite equation (11) as:

$$(11') \quad \int_{\tilde{L}_2}^{\tilde{L}_2 + \lambda} F_2' dL_2 - \int_{\tilde{L}_1 - \lambda}^{\tilde{L}_1} F_1' dL_2 > \max [\tilde{L}_1 (\tilde{Y}_2 - \tilde{Y}_1), \tilde{L}_2 (\tilde{Y}_1 - \tilde{Y}_2)] .$$

The left-hand side is a measurement of disequilibrium, which for any two firms indicates the total gains obtainable at the margin in the two firms from internal redeployment of labour. The right-hand side is a measurement of differentials in average income per head in the two firms, weighted by the size of the lower income firm. The fact that no merger appears to take place, not even across sectors and regions, between expanding and contracting firms where gains from labour redeployment can be expected with certainty, can be used to make the following statements about the Yugoslav economy - that is, of course, if its characterisation as a market economy inhabited by optimising economic agents *à la* Vanek is to be taken seriously.

First, differentials in average incomes are greater than can be justified by disequilibrium in the deployment of labour. In other words, there is substance in the so-called "capital" school of thought attributing Yugoslav income differential at least partly to different capital endowments per head and different capital profitability and not, or not only, to short-run disequilibrium in the allocation of labour.

Second, our neglect of the merger-induced advantages of monopolistic price-fixing strengthens considerably the above prop-

osition: if there are no labour-redeployment mergers in spite of this added attraction, then net benefits from labour redeployment - and hence the size of disequilibrium - are all that much lower than indicated even by the non-fulfilment of condition (11).

Finally, the continued non-fulfilment of condition (11) over time indicates that even if there is, at any moment of time, some disequilibrium (though not enough to trigger off system-specific mergers), there is no tendency for this disequilibrium to widen over time.

## 6. Conclusion

The starting point of this paper is the observation that cooperative mergers are both theoretically possible and empirically observable in actual practice (section 1). Yet there appears to be hardly any analysis of cooperative mergers, and the necessary condition of net advantages from labour redeployment is wrongly regarded as sufficient (section 2). The system-specific differences between mergers in a capitalist and in a labour-managed economy are discussed in section 3. Beside the systemic attraction of conglomerate mergers in labour-managed economies for the sake of risk-reduction through diversification, two system-specific types of mergers are considered: that between capital-hungry and product-hungry cooperatives (section 4) and that between cooperatives at least one of which experiences labour-surplus (section 5). The customary short-term inefficiency in labour-deployment and adjustment to change, typical of textbook analysis of self-management, is shown to be very considerably reduced both by the existence of the first type of merger, and by the apparent

absence of the second type. In particular, the non-fulfilment of conditions for labour-redeployment mergers is interpreted as indicating support for the "capital school" attributing income inequality in Yugoslavia to factors other than labour allocation disequilibrium. This support is strengthened by the consideration of possible monopolistic advantages from cooperative mergers, while the continued non-fulfilment of conditions necessary for labour-redeployment mergers is understood to indicate that disequilibrium - if any - is not widening over time.

NOTES

1. With the assistance of Will Bartlett and a Dialog search from the Economic Literature Index Database.
2. Ireland and Law talk of workers moving from firm 1 to firm 2 but this obviously must be a misprint or an oversight.
3. If one of the two firms exhibits increasing returns to scale its equilibrium is unstable and it should expand membership without merger; as long as the value of its average product is lower than that of the other firm it cannot offer attractive employment to the other firm's members; if it is higher it can attract new members from elsewhere without having to suffer from the fall of average product in the other firm that would result from drawing labourers from it. If both firms have an increasing value of marginal product of labour their equilibrium is unstable and they will both try to expand, attracting workers from elsewhere rather than from each other. On the impact of disequilibrium as a starting point for the analysis of merger, see section 3.





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