

## COMMENT ON THE BOGETIĆ PAPER

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I have been asked by the editors of this journal to review for publication a contribution by Željko Bogetić dealing with equilibria in the labor-managed economy. I felt that the paper could not be published as it is. But at the same time the paper deals with some serious issues of theory of self-management that ought to be clarified. Therefore I asked the editors whether it would be suitable to write a critical paper which could be published together with the Bogetić paper, for purposes of clarification of some important issues. I have been told that such a paper would be desirable, and that is what follows.

Before I start with my analysis I would like to note two other reasons for this writing. First, things have changed a lot in the fortunes of self-management as a viable economic system – primarily so because of the onslaught of an army of (underemployed) apologists of capitalism only too eager to prove that their system is better; and also because of the more recent demise and crisis of Yugoslavia, the only economy in the world associated with self-management. In my teaching and advisory work in Czechoslovakia and the Soviet Union I am always forced to explain extensively the apparent incongruity between my recommending economic democracy and the »failure« of the Yugoslav economy. Under such conditions it is especially necessary to try to rectify theoretical insights which could do even more damage in this direction. It is not good to beat the downtrodden; it is good to protect the oppressed.

My second reason is personal. It is now over twenty years since my »General Theory of Labor-Managed Market economies« was published. Even then my conclusions were quite different from the Ward-Vanek theses for which my work is most often credited. Perhaps Professor Meade's long review article in the *Economic Journal* was in retrospect not much of a blessing, because he reviewed only the first of the four parts which was neoclassical. Perhaps more important I have myself learned a lot over the past twenty years about the nature of self-management, from both theory and practice, and I use here the opportunity to share some of this learning with the readers of *Economic Analysis*.

1. In the abstract of his paper Bogetić refers to Dreze's general equilibrium optimality proof. It seems that he never read my much earlier »General Theo-

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- ry« chapter 7 which proves the same type of optimality and specifies the necessary conditions of long run equilibrium.
2. Concerning the paradox of Wardian backward supply in the short run, people have proposed many explanations, refutations or justifications. But I now feel that only one notion is necessary. The Wardian supply function is not correctly specified. Suppose there is an initial supply position. Then in the short run prices increase. If supply were reduced over say a period of some months, or a year, this would imply that maximisation of income per worker occurred ONLY for those remaining in the firm while it was very likely minimised for those thrown out of work. Moreover the remaining workers could never compensate the loses of jobs because the total revenue with layoffs and higher price is higher than total revenue without layoff. And thus the only sensible theoretical conclusion, fully confirmed by practical experience, is that in the short run supply functions of labor-managed firms are zero elastic but not negatively elastic.
  3. Given this, all the artificial arguments about instability or multiplicity of equilibria also lose any merit.
  4. This low or zero elasticity which is often deplored on grounds of efficiency of resource allocation in fact has an enormous positive value: when prices fluctuate, people are not just thrown out of work as under capitalism. In the view of any sensible and compassionate person, this is infinitely more valuable than some temporary marginal misallocation of resources. Such misallocations, if the Meade second best index is used, turn out to be of very small significance, or even nil (in the case of fixed-coefficient technologies, which are very likely in the short run). The no-fire policy is also a typical characteristic of all democratic (or democratic-aspiring such as the Japanese) firms and it bears enormous advantages in producing a more humane situation. Workers then can leave when they find a better job but do not have to undergo the frustrations related to being fired.
  5. The absurdity of the backward bending supply function in the short run is further underscored by the following consideration. Suppose that prices of a product double. Because of the short run fixed cost, income per worker must more than double, say increase three times, even without any adjustment in employment. The Wardian result now postulates that workers who have seen their incomes grow three times are willing to throw out say ten per cent of their colleagues, in order to increase further their incomes from 300 per cent of the initial income to say 305 per cent of that income. Only a degenerate neoclassical mind which never saw the real world could expect such conduct. The only case where a solitary group has hurt or destroyed some of its members for the benefit of the remaining members is the case where a polar expedition ate a member – but that was to save the life of the others, and not after the others had become three times better off than when the hurting member(s) belonged to the community.
  6. In my teaching and consulting work in Czechoslovakia and the Soviet Union one very practical aspect has been coming up - a Solomonian-type wisdom - which should be shared with the readers. Everyone will agree that throwing out of work say ten per cent of one's fellow workers as in the case of a backward bending supply curve is a serious matter. This being so and assuming that self-managed firms are truly self-managed, it would stand to reason that a referendum or a vote in the entire general assembly should be taken on such a grave issue. Of course there must be at least a simple majority vote favoring the decision to fire. But if that happens, it is clear whether through simple logic and common sense or through a complex theory of revealed preference that

those who vote in favor should constitute the subgroup from among which those to be fired should be selected. This is so because those voting for by their revealed attitude will suffer least from losing their jobs, and thus a social optimum will be attained. But in true practice this method of revealed preference – like the real mother in the case of king Solomon's judgment – normally leads to the more solidary and more humane praxis.

7. But let us now turn to the essence of Bogetić's analysis. Although the paper is short and apparently uncomplicated, it takes a while to understand its main points and to detect where and how they are in error. To make it easier for the reader I will restate in simple terms the Bogetić analysis using his assumptions and indicate where the analysis appears to me incorrect or imperfectly specified or interpreted. Later I will use the thus amended analysis to present some interesting conclusions about the differences between the capitalist and democratic solutions.

8. I turn first to the supply side, equations (1) through (5) and the labor managed firm. The tax and subsidy parameters,  $t$ , and  $s$ , seem to me to be nonessential constants and thus for simplicity of exposition let us not use them. The real problem which must be answered and has not been answered by Bogetić is the dimensionality of the variables in equation (1). Although by implication  $Y$  and  $P$  are expressed in money terms, say, dinars, there is not a money equation to determine the absolute price levels. And thus I take it, especially because later we turn to a neoclassical general equilibrium, that we deal with relative (barter) prices. To be able to be precise, we must postulate that  $Q$  is some real output, refer to it as apples. Using thus apples as the numeraire price of apples remains equal to unity and the only significant relative price is the income per worker, measured in terms of apples. Labor  $L$  is measured in Bogetić's paper in terms of worker-years of homogeneous well-defined labor which is supplied by households in varying quantities depending on the barter exchange ratio between labor and apples. Bogetić assumes a single preference function for a household which might be questioned, but we do not do so to keep the analysis simple. The remaining problem is the dimensionality of capital. Because no other physical product  $K$  was mentioned and there is no defined market for  $K$  the only consistent assumption is to say that  $K$  also consists of a physical amount of apples, the product produced by the self-managed firm. The constant rental on the fixed capital  $K$  ( $\bar{r}$ ) thus is a fixed percentage of  $K$  also measured in terms of apples, say ten per cent of  $K$  ( $\bar{r}$ ).

9. Of course it could be assumed that  $K$  ( $\bar{r}$ ) consists of some imported or donated capital assets which are not part of the economy on which a money price is levied in dinars. In that situation fluctuations in money prices would affect the real cost of capital and the equilibrium of the labor-managed firm. We will comment on this situation briefly later; but most of our following analysis is based on paragraph 8 above. The interpretation of a fixed real cost of capital in the short run is also consistent with the Yugoslav practice of revaluing capital assets with overall inflation.

10. With these necessary qualifications and specifications required by the general equilibrium analysis, the essence of the Bogetić paper can be represented using two diagrams reproduced in Figures 1 and 2, the first referring to the production side, the second to the household demand side.

11. In Figure 1 we find the conventional maximum income per worker solution which needs little explanation. For simplicity and to be able to refer later to the solutions we assign hypothetical numerical values to the various equilibrium solutions of the representative firm. The seventeen workers employed corre-

corresponding to equilibrium at E are producing twenty seven tons of apples and paying to the lenders (providers) of capital ten tons while keeping seventeen tons for themselves, a ton per worker. P does not appear in this unique solution, given by the production function, k and the maximising postulate (1), except as a relative price of L and apples A, the real income per worker.

12. The demand for labor (i.e. equilibrium membership of 17 members of a democratic community) is a constant not depending on money price P nor for that matter on the real income of labor. As explained in (9) above, the money price of apples could affect the equilibrium of the firm in a special situation, but this would not affect essentially our analysis. Moreover such a postulate would be subject to the anomalies explained in paragraphs (2) through (6) above. In terms of the mathematics of Bogetić equation (5), both sides are homogeneous in money price P and can be written as  $P(Y/P) = PY(1,r,K, \text{etc.})$  and money price P drops out on both sides and the real income of labor is a constant, in our case one ton of apples. The link between Y and P expressed in money as implied by Bogetić thus does not exist; but we will return to these issues of general equilibrium later.

13. Turning now to Figure 2, we find on the two axes the output of apples measured in tons and leisure measured in »person-years of labor«. Assuming that the household described by this diagram participates in one of the labor-managed firms its price (budget) line is anchored at the point of total availability of leisure (point Z-bar) and has the fixed slope given by the equilibrium income per worker equivalent to one ton of apples. The equilibrium supply of labor is found at the highest indifference curve and amounts to say two worker years.

14. Of course nothing guarantees that given  $N_f$  and  $N_h$  the number of workers willing to work according to Figure 2 will equal the number of workers entering the democratic associations of the  $N_f$  firms. It should be emphasised that this is not a conventional demand for labor as under capitalist conditions but a fixed number of members basically determined by the short run equilibrium of the characteristic firm and  $N_f$ .

15. The full equilibrium of the democratic economy where all will find work (membership) in democratic firms will be obtained ONLY through free entry of new firms and a competitive capital market, neither of which postulates was made by Bogetić. This will also lead to Pareto optimality, as I have shown in my General Theory.

16. It is opportune to comment here that the tragedy of Yugoslavia's self-management failure – the failure to create the most efficient and most equitable economy in the world – is precisely the failure to guarantee perfect capital markets and freedom of entry of democratic firms. (But it is not too late yet!!!)

17. Now to turn to Bogetić's comparisons with the capitalistic system, I feel that we must disappoint our capitalist friends and most of the Western economic profession. On the assumption of given  $N_f$  and  $N_h$ ,

- I. Nothing guarantees full employment under capitalist conditions either. (For example assume that  $N_f=1$  and  $N_h=1\ 000\ 000$ , with the firm described by Figure 1.)
- II. Freedom of entry and competitive capital markets also are required for Pareto optimum at full employment.
- III. Under profit maximising capitalism without labor unions, wages will be depressed to survival minimum if  $N_f$  is small relative to  $N_h$  and those who will not find work cannot survive if they have no other income.

IV. Under such »army of unemployed« conditions profits will normally be enormous under capitalism.

V. By contrast those in democratic firms under self-management will normally have better incomes with only the capital rentals going to the capital owners, but with the same  $N_f$  under both systems employment at starvation wages will be higher in the capitalist economy.

18. Let us now further clarify our analysis by turning to the Bogetić general equilibrium equations (18) through (21). As implied by Bogetić there are two physical variables to be determined,  $L$  and  $Q$ , and two corresponding markets. In such a general equilibrium there is only one relative price to be determined, the real income of labor (our one ton of apples) or if we want the price of apples measured in terms of labor. By Walras law only one of the two market equilibria is significant because the equilibrium in the other is implied. The situation here considered is further complicated by the fact that the labor market is a quasi-market because the democratic firm (like any association of individuals, club or fraternity) does not have a demand curve for labor depending on market wages but rather a »membership point« in the wage-employment plane.

19. Which of the equations (18) or (19) should be used? That is the question. The answer is simple: (18) is a total impossibility because the supply of apples ( $Q(s)$  equal to 27 tons in Figure 1) generates a real income of only 17 tons which by definition is the household demand of eight and a half households (assuming that  $N_h$  is larger than eight). It is clearly an impossibility that  $17 = 27!$  The problem is that the income of capital, ten tons going to the capital owners, is not accounted for. It would be easy to say that the households hold the capital assets, but this has not been done by Bogetić.

20. Consequently it is better to use equation (19) where the two sides of the equation at least have the potential of being equal. But given the concrete nature of our problem there are still difficulties or at least need for further specifications and analysis. We know already from Figure 1. that  $L(d)$  is equal to 17, but this is not from a demand for labor curve but from a membership point of democratic associations of labor. The supply of labor (see Figure 2) at the equilibrium real price of one ton of apples per labor-year is forthcoming so to speak by definition of the worker's association, at the rate of 2 labor years per household (except for the ninth household which for simplicity we may assume has only one working member).

21. Those are the essential ingredients of the general equilibrium solution considered by Bogetić. Everything else will depend on the arbitrarily chosen  $N_f$  and  $N_h$ . If  $N_h$  is equal to eight and half times  $N_f$ , there will be full employment with the relative prices and other solutions give by Figures 1 and 2. If there is an inequality, there will be no clear solution of the type implied by Bogetić. Bogetić's equations 20 and 21 have no substance that I can think of – for one thing the Bogetić equation (5) as we pointed out already does not provide the link between money price and income. And even if it did (see paragraph 9 above) there would still be only one solution of the type indicated by (18) above. The number of workers might be somewhat different from 17 in the representative firm, but that number would be the result of a possibly different number of households supplying the labor.

22. With a typical result of too many households relative to firms, some households will have to go without employment. But this is the case also for the capitalist world, except that, as we noted in paragraph 17. above, *ceteris paribus* employment will be higher and unemployment lower (the former at starvation wages and the latter having starved with no wages) than under economic democracy

where incomes of those employed will be much higher. The capitalist solution, very much resembling today's developing countries, moreover, will be characterised by very high profits of the capital owners (next to starvation wages and/or death on the part of the majority of working households).

23. Of course it could not be overemphasised that all these results based on the Bogetić analysis are imputable to the fixity and arbitrariness of the parameters  $N_f$  and  $N_h$ . With FREEDOM OF ENTRY AND COMPETITIVE CAPITAL MARKETS UNDER SELF-MANAGEMENT AND ECONOMIC DEMOCRACY THE NUMBER OF FIRMS WILL BE ESTABLISHED ENDOGENOUSLY CORRESPONDING TO THE NUMBER NEEDED FOR FULL EMPLOYMENT AND THE SOLUTION WILL BE OPTIMAL IN THE BROADEST SENSE OF THE EXPRESSION. It may also be useful to note that freeing of entry and competition for scarce capital resources by the households which in the initial situation do not have employment will be complementary in creating new jobs. This is so because the price (rental) of capital will be increased and thus lead *ceteris paribus* to higher employment through capital-labor substitution (see Figure 1) in the preexisting  $N_f$  firms. In addition new firms will be formed with the capital thus liberated and these new firms will also provide new jobs. Full employment thus will be rapidly obtained.

24. This would lead us far beyond the scope of the Bogetić and my paper, but it should also be noted that typically democratic firms use fixed and working capital more effectively, and thus with the same capital resources higher output and employment can be expected, *ceteris paribus*.

25. It also could not be overemphasised that unfortunately the Bogetić assumptions of no capital market and no free entry resemble the reality of self-management in Yugoslavia over the past 40 years. And thus by bringing out the analysis of that situation, even with imperfections, Bogetić deserves appreciation from those who, basing themselves on full and correct understanding of the subject, hope for a full democracy – both economic and political – in a future new world peace and order.

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