

On some alleged ‘problems’ and alleged ‘solutions’ in the labor-managed firm literature¹

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Abstract

This paper will discuss two problems that have plagued the literature on the Ward-Domar-Vanek labor-managed firm (LMF) model, the perverse supply response problem and the Furubotn-Pejovich horizon problem. The paper shows how the perverse supply response can also occur—under similar assumptions about a control group being able to manipulate membership to their advantage—in a conventional corporation. There is even a discussion in the *Harvard Business Review* as early as 1927 about that problem. The conventional assumption that such manipulations would not be allowed in a joint stock company with a far-flung anonymous ‘membership’ but would be allowed in a LMF with its face-to-face membership only shows the desperation to find some ‘problem’ in the idea of workplace democracy.

Unlike the perverse supply response ‘problem,’ the horizon problem is a real problem and it has a real solution, namely the system of internal capital accounts. However, the LMF literature also has the alleged ‘solution’ of a membership market. Several problems, some obvious and some more subtle, in that ‘solution’ are analyzed.

Then the paper reviews how the standard bundle of conventional ownership rights is parsed into personal right and property rights in a worker cooperative with internal capital accounts. Finally the paper reviews the four independent ways that the idea of internal capital accounts was discovered and rediscovered. Throughout, the paper touches on the ideas and contributions of the late Jaroslav Vanek, to whom the paper is dedicated.

Introduction

Much of the analysis of the labor-managed firm (LMF) in the conventional literature naturally uses the conceptual repertoire of neo-classical economics which, when applied to institutional issues, is referred to as the “new institutional economics.” Some alleged problems in the LMF are easy to set aside by showing that a similar problem would arise in the standard corporation *under similar assumptions*. Other problems require a much deeper analysis of neo-classical theory itself which takes us—almost by definition—outside the conventional literature. There are certain fallacies in neo-classical theory, particularly in the treatment of property rights, and those fallacies creep into some analysis of the alleged problems of a LMF and into some proposed ‘solutions.’

¹ Dedicated to the memory of Jaroslav Vanek (1930-2017).

This paper will focus on one problem of each type: 1) the problem of the perverse supply response in an LMF assumed to be will and able to ‘fire’ some members to increase the return to the remaining members, and 2) the horizon problem in an LMF where the members have no recoupable claim on reinvested net income.

The alleged problem of the perverse supply response in LMFs

Instead of characterizing the conventional corporation by its structure of property rights, much of the literature just characterizes it by its maximand, total profits in a one-period comparative statics. The Ward-Domar-Vanek version of the LMF also characterizes it not by its structure of property (and personal) rights but only by its maximand of net income per member. The presence of the number of members in the denominator of the maximand plus the assumption that some (minority) of members could be ‘fired’ or expelled at will for no cause leads to the familiar perverse supply response (Ward 1958).

But is total profits or total discounted present value of the corporation really the rational maximand for the corporation (always assumed “conventional” unless otherwise stated)? After all, corporations can also increase or decrease their ‘members’ by respectively selling new shares or buying back old shares. Hence the number of members (or shares outstanding) is also a controlled variable in a corporation. Thus any controlling group of shareholders (e.g., a majority of shareholders) would rationally maximize the total value of the shares *held* by the controlling shareholders making the decision.

Some writers on LMFs take the key issue to be the LMF assumption of net income *per member* while conventional corporations maximize total profits or total value of the company. But this is a misunderstanding of the conventional corporation which also maximizes that total value per current shareholder.

The decision x maximizes the value of the equity of the original shareholders at period 1 but does not maximize the value of the firm at period 1. ... Thus the market value rule for current decisions within a firm applies to the market value of the equity of the current owners and not to the total market value of the firm. (Fama, and Miller 1972, fn. 14, pp. 83-4)

Then it is easily seen that similar perverse supply responses might be obtained if a corporation could similarly ‘fire members,’ i.e., exercise a mandatory call on certain shares at the last closing price for the shares (or last transacted price if the shares were not publicly traded). Suppose some unexpected event occurs that will increase the demand for the product. This would generally lead to an eventual increase in the price of all the shares, but if the corporation could exercise a mandatory call on some shares (outside the control group) at the old price, then that would yield a greater increase in share price for the still outstanding shares (i.e., those held by the control group). But under the usual assumption that all resources were optimally utilized prior to the unexpected event, the use of cash to merely buy back some shares would require a reduction in the level of output—and hence the perverse response in a conventional corporation.

Yet it is doubtful that this example—having a mandatory call at the last price—would be allowed in corporations. Even though the shareholders in a publicly traded are scattered far and wide, they would thus not be allowed to ‘fire some members’ just to increase the profits of the remaining members. How silly it is to assume that the members in the face-to-face community of

a worker-managed firm would do the same to some of their fellow members. Gregory Dow put it well:

Scenarios of this sort do not even remotely resemble the governance procedures or property rights found in real LMFs, a point made repeatedly by early critics of the Illyrian model LMFs are renowned for maintaining membership levels under adversity while sharing economic pain through lower wages or hours for their existing members, and rarely expel members except for poor work performance. (Dow 2003, p. 147)

The neoclassical literature has been hard put to find some flaws in the concept of a democratic workplace, and hence the perverse persistence of the assumption that worker-members would do to each other what the far-flung shareholders in a conventional corporation would not be allowed to do to one other.

To move from idealized models to actual practice, share buyback abuses of some shareholders by some controlling group in *ordinary* corporations has long been a controversial practice from at least the early 20th century (HBR, 1927) up to the present time (Lazonik, 2015).

Hence the “perverse supply response” for LMFs is easily rejected as a pseudo-problem persisting only because of the ideological need to find something ‘wrong’ with the idea of workplace democracy.

The real horizon problem in some LMFs and an alleged solution

Unlike the alleged perverse supply response problem, the Furubotn-Pejovich horizon problem (Furubotn and Pejovich 1970)—the lack of any recoupable claim on retained earnings as in the Yugoslav self-managed firm—is a real problem and it has a real solution—internal capital accounts (Ellerman 1986). However, there has also been an alleged ‘solution’ to the horizon problem, namely the membership markets proposed in connection with the perverse response pseudo-problem by Murat Sertel (1987) and proposed as also solving the horizon problem by Gregory Dow (1986, 2003).

In a LMF with a membership market, for new workers to become members, they must buy membership shares either from exiting members or as newly issued membership shares from the firm. Such a purchase of a membership share is not to be confused with the membership fee charged to new members in a Mondragon-style worker cooperative with internal capital accounts (ICAs). The difference is very simple; the membership fee in the Mondragon-style worker cooperatives does not accrue to the existing or departing members. It is divided between the new member’s individual capital account and a collective or undivided reserve so in both cases, it does not accrue to the existing or departing members. In accounting terms, the increase in cash on the asset side of the balance sheet is balanced by the increases in the entering member’s internal capital account balance and the increase in the collective account balance—with *no change* in the existing members’ accounts.

But the whole point of the payment for the membership shares in a LMF with a membership market is precisely to accrue to the existing or exiting members to sustain or pay off the value of their membership shares. In the absence of a membership market, it would in general be advantageous to the existing members to hire the new worker as a non-member than to allow them in as a member. Hence, the membership market is supposed to “compensate” the existing members for the difference in not hiring the new worker as a non-member. The technical analysis is usually presented in a one-period model (e.g., Sertel 1987; Dow 2003) so that for a

competitive membership market, the new worker as a new member would only receive a *net* income equal to the prevailing wage *as if* they have been hired as a non-member. Examples of a “worker enterprise” with a membership market (however imperfect) include the plywood cooperatives in the Pacific Northwest (Berman 1967). These firms have been criticized as violating the basic principles of a democratic firm, a criticism that is independent of imperfections in the membership market.

It is interesting to note that the almost universally accepted principle is that the right to manage or more broadly, to control—an economic enterprise derives from the ownership of the capital assets used by the enterprise. That principle is equally applicable in western capitalism where the owners are private individuals, in Soviet-type socialist countries where the owner is society, or more operationally the state; and even in many traditional producer cooperatives where control has been linked to shares of joint ownership of the participants. The principle of labor management is entirely different, not having anything to do with ownership of productive assets. Rather, it postulates that in a productive activity where a group of men cooperate in a joint effort, the right to control and manage that effort rests with all the members of the group. (Vanek 1970, p. 4)

One might imagine an analogous principle applied to a democratic polity. Anyone desiring to become a voting resident in a private corporate city (e.g., Foldvary 2006) would have to purchase a resident’s share of stock (paying annually or all at once) to compensate the existing residents for allowing the resulting increased usage of city facilities and other dilution effects. This in effect treats the city not as a democratic association but as a collectively owned piece of property where new user/owners would have to buy into the property at a rate to compensate for the net effect on the existing owners.

Another more practical criticism (Ellerman 1990) is that the membership share tries to combine two quite independent functions in a single instrument so one function or the other will be poorly served. The membership share carries the personal rights to membership (which should be based on labor in the firm, not on a purchased piece of property) and it also carries the property right to each member’s average share of the net asset value in the firm. If entering workers cannot afford to buy a share, then that creates pressure to hire new workers as non-members (as in the plywood co-ops), or pressure from the remaining members on the exiting member to sell the share at a lower price so the entering worker can afford it as in some SAL (*Sociedad Anonima Laboral*) firms in Spain. The fairytale response to this practical criticism is to point out that these problems would not exist in a world of perfectly competitive markets.

Another problem is that the membership market has nothing in particular to do with labor in general or the labor of the person buying the share. Indeed, the membership market idea is presented as having the ‘virtue’ that it mimics the usual labor market; the net economic return to the new member is the same as if they were hired as a non-member (and the governance implications of admitting the new worker as a member are ignored in the economic models of membership markets).

Such firms [with membership markets] have precisely the same behavioral properties as the profit-maximizing firms of textbook theory. In particular, it can be shown at the level of theory that a membership market is a perfect substitute for the conventional labor market. (Dow 2003, p. 143)

The argument tracks the usual argument for the provision of new capital (instead of new labor) for a firm selling conventional ‘membership’ shares (e.g., Fama and Miller 1972, pp. 81-84). Moreover, nowhere in the whole argument is there any rationale for the person buying the membership share to be the person supplying the extra labor. That is, unless otherwise forbidden, the person buying the shares could hire another person to do the job (although there would be no profit in doing that in the idealized model of perfectly competitive markets). This is what happens in the cities that sell medallions as membership shares to participate in the city’s taxi business; the medallion-owners typically hire others to drive the cabs. While the assumption—that the person buying the membership share and the person providing the labor services are one and the same—plays no role in the analysis, it is clearly the intent of those who advocate LMFs with membership markets to have that additional assumption.²

The capital-theoretic fallacy in the membership-market LMF

Perhaps the subtlest fallacy involved in the membership market idea is its use of the “fundamental myth” underlying the basic fallacy in conventional capital theory. The *fundamental myth* (e.g., Ellerman 2007) is the idea that the net returns to a productive opportunity (as well as the management rights) are part and parcel of the property rights to the capital assets involved in the opportunity. For instance, if there is a widget-maker machine providing the flow of capital services K in a productive opportunity described by $Q = f(K,L)$ per period, then the myth interprets the products Q as “products of the asset” and the ownership of the machine as including the “right of ownership-over-the-asset’s-products, or *jus fruendi*” (Montias 1976, p. 116) or simply “the right to the products of the asset” (Putterman 1996, p. 361).

This interpretation of the ownership of a capital asset is easily defeated by considering the case where the asset is rented out to another party who pays the asset owner the rental RK and who also pays WL for the labor L and who can thus appropriate the product Q which is sold for PQ yielding the profit $\pi = PQ - RK - WL$. The asset owner still owns the asset but does not own the product Q nor have the management rights over that productive process.

Before considering capital theory, it might be noted that the fallacious attachment of the product rights (and management rights) to the capital assets involved in a productive opportunity is behind the common misnomer “capitalism” (due essentially to Marx) for the current economic system. It is also behind the fallacious idea that there is some special role of capital in the conventional corporation, e.g., its characterization as a capital-managed firm or KMF (Dow 2003) or a “capital cooperative” (Hansmann 1996, p. 14).³ The most philosophically sophisticated and forthright defender of the current system was Frank Knight who explicitly made this point about the “superficial observer.”

Karl Marx, who in so many respects is more classical than the classical themselves, had abundant historical justification for calling, i.e., miscalling—the modern economic order “capitalism.” Ricardo and his followers certainly thought of the system as centering around the employment and control of labor by the capitalist. In theory, this is of course diametrically wrong. The entrepreneur employs and directs both labor and capital (the latter including land), and laborer and capitalist

² This disallows *Locke’s pun* that “the Turfs my Servant has cut” count as the fruits of the “labour that was mine” (Locke, Second Treatise, Section 28).

³ This point is expanded upon at some length in Ellerman (2007).

play the same passive role, over against the active one of the entrepreneur. It is true that entrepreneurship is not completely separable from the function of the capitalist, but neither is it completely separable from that of labor. The superficial observer is typically confused by the ambiguity of the concept of ownership. (Knight 1956, p. 68, fn. 40)

Thus, the system of labor-management or workplace democracy is not symmetrical to the current system in the sense that one assigns control to labor and the other to capital. The characteristic feature of the current system is thus not that the product and control rights are attached to capital (fundamental myth) since capital can be rented—but that people can also be rented or hired. Capital goods and people are symmetrical in that both may be rented or hired in the current system and since capital can also be rented (indeed, *must* be rented) in the labor-management system, the name of the current system based on its characteristic feature is the *human-rental system*. In contrast, the labor-management system is based on the abolition of not only owning human beings but also of renting of human beings.⁴ Hence labor-management is based on the *asymmetrical* treatment of persons and things.

Returning to capital theory, let us for the sake of simplicity suppose that the capital asset yields the stream of services K in perpetuity. Each year, the labor L uses up those services to produce the product Q . If the owner of the capital asset was also the residual claimant in perpetuity then each year they would receive the same net property vector $(Q, 0, -L)$ which can be parsed as in Table 1 into the actually own capital rights $(0, K, 0)$ and the production vector or whole product $(Q, -K, -L)$ appropriated each year by virtue of the presumed contractual role of being the residual claimant.

Table 1: Parsing the Property Vectors

	Year 1	Year 2	...
Property vector owned by asset owner.	$(0, K, 0)$	$(0, K, 0)$...
Property vector appropriated by last owner of inputs (residual claimant).	$+ (Q, -K, -L)$	$+ (Q, -K, -L)$...
Net property vector accruing to asset owner who is <i>also</i> the residual claimant.	$= (Q, 0, -L)$	$= (Q, 0, -L)$...

These property theoretic arguments can be translated into value terms by multiplying through by prices. Let P , R , and W be the unit prices of output, capital services (rental rate), and labor services respectively, and let r be the interest rate—all assumed constant for the sake of simplicity. The discounted present value of a constant income stream is obtained by dividing the constant “annuity” by the interest rate r , so the present value of the stream of rentals RK from the capital asset is RK/r which is the economic value of the asset. The value of whole product is the pure or economic profit $\pi = PQ - RK - WL$. The present value of the net property stream accruing to the combined asset owner and residual claimant is what is called the:

⁴ “Since slavery was abolished, human earning power is forbidden by law to be capitalized. A man is not even free to sell himself: he must *rent* himself at a wage.” (Samuelson 1976, p. 52 {his italics})

Capitalized Value “of the Asset” = $(PQ - WL)/r = RK/r + \pi/r = \text{Asset value} + \text{Goodwill}$.

The capitalized value of the future pure profits is usually called the “goodwill” (the difference between the capitalized value of the whole net income stream and the value of the underlying economic assets). Including the capitalized profits or goodwill in what is called the “capitalized value of the asset” in effect assigns the future to-be-appropriated whole products to the current owner of the capital asset—the capital theory version of the fundamental myth.

The same conceptual analysis is applied in corporate finance theory to a corporation as a capital asset. In Miller and Modigliani's article on the dividend irrelevance principle (1961), they gave four equivalent formulas for corporate valuation starting with the capitalized stream of dividends formula. The (net) asset value + goodwill formula is equivalent to the other four formulas (see Ellerman 1982 for a proof), and it is the only one of the formulas that allows one to parse the underlying property rights into the actual assets and liabilities of the corporation (the stream K, K, \dots) plus the assets and liabilities to be appropriated in the future (the stream $(Q, -K, -L), (Q, -K, -L), \dots$).

In the context of a corporation, the net asset value is the current economic value of the company's actual assets and liabilities RK/r . In addition, corporate finance theory *assumes* that the company perpetually has the contractual role of being the residual claimant to additionally appropriate the whole product in each time period. The present value of the perfectly tangible but future to-be-appropriated whole products is the goodwill π/r . Thus, the net assets + goodwill formula allows us to parse the property rights into what is actually owned and what may or may not be owned depending on future contractual roles.

The future whole product vectors will accrue to the asset owner if they maintain their contractual role of being the residual claimant in the future time periods, but that assumption about the future contracts with suppliers and customers does not represent a present property right of the asset owner. Hence, it is another more subtle example of the fundamental myth to impute the goodwill $(PQ - RK - WL)/r$ to the asset owner as part of the “capitalized value of the asset”—as is done in contemporary neoclassical capital and finance theory.

It is this version of the fundamental myth that is subtly involved in the reasoning behind the membership-market LMF. The current members of the LMF play the role of the owner of the asset yielding the stream K, K, \dots , and the future income stream (in the example, $RK + \pi$ in each period) is imputed back to that investment (thereby using the fundamental myth for the π component). Then the membership market

enables each departing member to appropriate the present value of future investment returns by selling her membership position, either to a replacement worker or back to the firm itself. When new members enter, they must either buy a membership position from an incumbent or a newly created position from the firm itself. This eliminates both the horizon and common-property problems by allowing current workers to capitalize future returns and requiring newcomers to compensate incumbents for sharing in the income streams generated by past investments. (Dow 2003, p. 154)

What the current members actually jointly own through the legal shell of the LMF is the bundle of assets yielding the stream of capital services K, K, \dots with the present value RK/r . When, say, a new member replaces an exiting member, the new member owes the exiting member the latter's share of RK/r . In a democratic firm with internal capital accounts, the exiting member's

share of the actual net asset value of RK/r is the balance in their capital account which is paid out over a period of time.⁵ And the entering member *does pay* for using up their part of those capital services K each period—not by buying a membership share at the profit-inflated price—but because what accrues to the members in each period is the value-added $PQ - RK$ *after* the subtraction of the value RK of the capital services in the form of depreciation (or perhaps lease payments).

The future workers produce the future labor products $(Q, -K, 0)$ with the value $PQ - RK$ and would receive that value in the LMF with ICAs. But in the membership-market LMF, the future whole products $(Q, -K, -L)$ are treated *as if* they were all owned by the past members (fundamental myth) since the values of the future whole products (i.e., future profits π) were capitalized into the value of the membership shares bought by the future members from the past members. Thus, in value terms, the past members are appropriating part of the fruits of the labor of the future workers—as is also evident since the future workers only receive the net amount WL in each period. This is avoided in the Mondragon-style LMFs with ICAs since they do not utilize the flawed capitalization (involving the fundamental myth) that assumes the current capital owners are getting “future investment returns” corresponding to playing the contractual residual claimant role (e.g., hiring future labor) through out the future time periods. In the literature on membership market LMFs, this avoidance of appropriating part of the value of the fruits of the labor of future workers is treated as a flaw rather than a virtue of the Mondragon-style LMFs since the past members:

cannot capitalize the value of their membership positions on departure, and therefore do get any signals about the present value of future investment returns. (Dow 2003, p. 155)

The future profits are part of the value of the fruits of the labor of future members, not part of the “future investment returns” of the current members.

Parsing the Corporate Ownership Rights

After considering the conceptual flaws in the membership-market LMF, it might be useful to repeat the structure of rights (and the underlying principles) in a democratic firm such as the Mondragon-style LMF with ICAs.

We start with the bundle of property rights in a conventional corporation by simplifying down to the essentials: the voting rights (to elect the board to select the management and to vote on any other questions put to the stockholders) and the economic value rights which can now be parsed into the net asset value and the (economic) profits rights. The net asset value is for the current time but the voting and profit rights need to be broken down into the current rights and future rights after the current time period. Thus we have the following taxonomy:

Corporate Ownership Rights

A. Voting Rights

A.1. Current Voting Rights

A.2. Future Voting Rights

B. Value Rights

B.1. Profit Rights

⁵ For simplicity of exposition, we ignore any collective account.

- B.1.a. Current Profit Rights
- B.1.b. Future Profit Rights
- B.2. Net Asset Value.

In the previous discussion of the fundamental myth, it was crucial to distinguish between the ways in which vague phrases like “ownership of the firm” are used. If by “firm” we mean a legal entity such as a corporation, then there is indeed the ownership of a (conventional) corporation but there is no property right or other legal obligation that a corporation would be the residual claimant in a productive opportunity using a capital asset owned by the corporation. In the “capitalist” economy, capital may be hired out just as people may be hired in. If by “firm” in the phrase “ownership of the firm” we mean the party which is the residual claimant in a productive opportunity, then that sort of “firmhood” is not something that can be “owned.” It is a contractual role in a “capitalist” economy.

In the above taxonomy, it is the corporate ownership rights which are being listed, not the non-existent rights to “ownership” of a productive opportunity, production function, production set, transformation locus, or any of the other abstract technological notions that economists all too often confuse with legal/institutional forms. Thus the (B.1.) profit rights *of the corporation* are indeed owned by the shareholders but they will be nil if the asset is rented out instead of labor being hired in to undertake production. The activity of the corporation maintains the value of asset but it does not participate in the productive opportunity where L uses up K to produce Q. Thus the profit rights (B.1.) of the corporation are there but add no value to the net asset rights (B.2.).

In the conventional joint stock company, these corporate ownership rights (voting + value rights) are property rights represented by the common voting shares that may be owned and freely transferred as any other property rights.

The Structure of Rights in a Democratic Firm

We focus on the rights structure in a type of LMF that I will just call a “democratic firm.” The corporate ownership rights are not only rebundled but are assigned on a different basis. The rights structure is derived from first principles which have been detailed elsewhere (see Ellerman 1984, 2016). The voting rights are assigned on the basis of democratic principle of self-government. The people working in the firm are the only people under the management of the firm's managers so by the democratic principle, the voting rights to elect those managers (perhaps indirectly through board election) should be assigned to the people working in the firm. Note that this assignment to those people is based on the assumption that those people are playing a certain functional role, i.e., working in the firm. They do not “own” the voting rights as property rights to be held or sold independently of their functional role. It is the same with political rights in a democracy. We call rights assigned to a functional role *personal rights* (but one can use whatever label so long as the concept is clear).

The workers in the firm change so the assignment of the voting rights will change with the workforce. The future workers, like the future citizens in a political democracy, should not have to buy their voting rights from the present holders (as in the membership-market LMF). Hence the separation of the (A) Voting Rights into the (A.1.) Current Voting Rights and (A.2.) Future Voting Rights. It is the (A.1.) Current Voting Rights that are part of the bundle of *Membership Rights* attached to the functional role of currently working in the democratic firm. The (A.2.) Future Voting Rights would be assigned when the future becomes the present.

The second normative principle is just the standard jurisprudential norm of assigning to people the legal responsibility for the results of their deliberate and intentional actions. The intentional actions L of the people working in the firm produce the outputs Q by using up the capital services K . In vector terms, the product of the human activity L is $(Q, -K, 0)$. Since the so-called “capitalist” system hypostatizes this human activity L as a service “owned” by the workers and “used up” in production, we can parse the product of this human activity as:

$$\text{Labor Product} = (Q, -K, 0) = (0, 0, L) + (Q, -K, -L) = \text{Labor Services} + \text{Whole Product}.$$

Since the workers already “own” their labor $(0, 0, L)$, by imputing labor's product to the workers, the standard juridical norm would additionally be imputing the whole product to the workers. That is precisely the (B.1.a.) Current Profit Rights. Thus, those rights would also be in the bundle of membership rights assigned as personal rights to the functional role of working in the firm. The (B.1.b) Future Profits Rights represent the future whole products that would be assigned to the future workers who produce them, and which the future workers should not have to pay for to the present members (as in the membership-market LMF). Thus, on the basis of the first principles of democracy and the juridical norm of imputation, we have accounted for all the rights except the (B.2.) Net Asset Value rights. In terms of the point-in-time versus time-period distinction (e.g., balance sheet versus income statement), the net asset value is a current value relating to a point in time, while votes are cast and profits are earned in each time period. There is no reason to assume that the net asset value is supplied by or produced by the current workers. Current workers will, to be sure, use up the capital services K derived from the asset with value RK and that is why they are held legally responsible for the liabilities $-K$, but we are now concerned with the rights to the net asset value. This value represents property rights accumulated by production and exchange in the past so the claims on the value by past and present members would be determined by the history of past transactions. The system of internal capital accounts is quite simply the means of keeping track of that history so that the net asset value is in whole or part owed in varying amounts to current and past members. They contributed to that value through any membership fees paid in and through any profits (or losses) retained in the firm rather than being paid out (or assessed in the case of losses). These claims could be thought of as a form of “internal” debt (like a shareholder's loan) subordinate to all other (external) debts. Indeed, the internal capital accounts should be interest bearing. The balance is a property right, not a personal right. One test to distinguish personal and property rights is inheritability. If a member dies, the voting and profit rights (like political voting rights) do not pass to the person's estate, but the internal capital account balance would be a debt of the company to the estate of the deceased member.

Thus, we have seen how all the corporate ownership rights are rebundled and assigned in a democratic firm. The current voting and profit rights are bundled together as the *membership rights* attached to the functional role of working in the firm (in practical terms, usually after a certain probationary period) so the future voting and profit rights would go to future members, and the remaining net asset value rights are captured in the system of internal capital accounts held by the current members. The accounts of past members would be closed and elevated into an external debt of the company to the ex-member. The rights structure in the so-called “capitalist corporation” and the democratic firm can now be compared point-by-point in Table 2.

Table 2. Parsing the Rights in “Capitalist” and Democratic Corporations

Rights Structure	“Capitalist” Corporation	Democratic Corporation
Current membership rights (A.1. + B.1.a.)	Owned as property rights by shareholders	Assigned as personal rights to the current workers
Future membership rights (A.2.+B.1.b)	Owned as property rights by shareholders	Assigned as personal rights to the future workers
Net Asset Value rights (B.2.)	Owned as property rights by shareholders	Owned as property rights by the current workers.

Origins of Internal Capital Accounts

There has been some controversy about how the net asset value should be treated. One widespread socialist belief was that the net asset value must be collectively owned as in the English common-ownership firms or the former Yugoslav self-managed firms—a holdover from the mistaken view that “capitalism” was based on the “private ownership of the means of production.” This is the source of the Furubotn-Pejovich horizon problem. To analyze this view, it must first be recalled that the voting and profit rights have been partitioned away from the rights to the net asset value. The phrase “private ownership of the means of production” usually does include specifically the rights to control and reap the profits as if those rights were part and parcel of owning the means of production (the fundamental myth). Those rights have been restructured as personal rights assigned to labor in the democratic firm. Hence the remaining right to the net asset value does *not* include the control and profit rights traditionally associated with “equity capital” or with the “ownership of the means of production.” In a democratic firm, a member’s voting and net income rights are independent of the balance in their ICA.

Let us suppose that it is still argued that any private claim (for example, by past workers) on the net asset value of a democratic firm would be “appropriating social property to private uses.” Now some net asset value might come from a historical endowment that should not be appropriated by whoever happen to be the current workers. Very well, that endowment could be captured in a separate (bearing interest to reflect its scarcity) “collective account” (as in the Mondragon cooperatives). But what about that portion of the net asset value that comes from retained earnings in the past or paid-in membership fees?

In a democratic firm, the past workers could, in theory, have used their voting and profit rights to pay out all the net earnings instead of retaining any in the firm, assuming they could cover any financing needs by borrowing. Suppose they retained some earnings to finance a machine. Why should those workers lose their claim on that value—except as they use up the machine? Why should the value of the fruits of their labor suddenly become “social property” simply because they choose to reinvest it in their company?

Consider the following *gedanken* experiment in a “social property” LMF. Instead of retaining the earnings to finance a machine, suppose the workers paid out the earnings as bonuses, deposited them all in one savings bank, and then took out a loan from the bank to finance the machine using the deposits as collateral. Then the workers would not lose the value of those earnings since that value is represented in the balance in their savings accounts in the bank. And the enterprise still gets to finance the machine. Since the finance was raised by a loan, there was no private claim on the social equity capital of the enterprise. The loan capital is capital hired by labor; it gets only interest with no votes and no share of the profits. This hired capital satisfied Jaroslav Vanek’s (1975) idea of “external” finance as opposed to self-finance.

Now we come to the point of the thought-experiment. How is it different in principle if we simply leave the bank out and move the workers' savings accounts into the firm itself? Instead of going through the whole circuitous loop of paying out the earnings, depositing them in the bank's savings accounts, and then borrowing the money back—suppose the firm directly retains the earnings, credits the workers' savings accounts in the firm, and buys the machine. The capital balance represented in the savings accounts is essentially *loan* capital. It is hired by labor, it receives interest, and it has no votes or profit shares. This was the conceptual route followed by the author in the mid-70s and incorporated in the literature of the Industrial Cooperative Association (ICA 1978) before learning about the Mondragon accounts (described in Oakeshott 1978). Jaroslav Vanek seems to have followed a similar route since he explicitly noted that his notion of “external” funding would include such capital accounts.

Into our concept of external funding we also include redeemable savings deposits of members, bearing a market rate of return paid, as to other creditors, prior to the distribution of labor incomes. To the extent that our analysis comes out in favor of external funding, it also favors this type of individualized funding by members. (Vanek 1975, p. 445)

Vanek describes the internal capital accounts in all but name.

If some of the capital must come from the firm's own savings, it should come in a manner separate from the rest of the activities of the firm; especially, the claims on principal and income should be traceable to individual members of the working collective. (Vanek 1977, p. 9)

The idea of the internal capital accounts was thus developed independently at least four times, by the Mondragon cooperatives in the 1950s and by Jaroslav Vanek and the author in the 1970s. The fourth and earliest case is an old practice in partnerships that is equivalent to the ICAs. When a partnership needed to finance a capital investment partly through retained partner income, then that retained partner income was kept track of in a partner capital account to be eventually paid out in the future. The voting rights and share of net income of each partner was independent of the size of the partner's capital account.

Concluding Remarks

This paper has focused on the alleged ‘problem’ of the perverse supply response in LMFs and on the alleged membership market ‘solution’ to the horizon problem. It was shown that since the conventional corporation rationally maximizes the “market value of the equity of the current owners” (not total market value), the assumption that some control group of current owners can manipulate the ‘membership’ (e.g., a mandatory call on certain outstanding shares) leads to the same perverse supply response that supposedly might occur in a LMF maximizing net income per member. Yet if it is assumed that such share manipulations are not allowed in a conventional company (with shareholders flung far and wide), how much sillier it is to think that a LMF would make such manipulations to the detriment of some of their face-to-face membership. The endurance of the perverse supply response in the conventional literature is a testimony to the need to find some ‘problems’ in the idea of workplace democracy.

In contrast, the Furubotn-Pejovich horizon problem is a real problem in a certain type of LMF and it has a real solution, namely the system of internal capital accounts. But there is another alleged ‘solution,’ namely the LMF with a membership market. This ‘solution’ suffers from a

number of problems, some obvious and some rather subtle. One obvious problem, emphasized by Jaroslav Vanek, is that the membership market turns what should be a personal or human right of membership based on working in the LMF into a property right that has to be purchased from the existing members. A more subtle problem is the assumption that the profits earned by future members are really a return to the capital investments of current members, so future members must compensate the current members for those profits in order to be in a member's position to recover some of those profits in the future.

An understanding of the legal structure of a workers' cooperative requires concepts, such as the notion of personal rights attached to a functional role, that go outside the conceptual repertoire of the "new institutional economics" or the literature that thinks different type of firms are only characterized by their objective functions. Hence, we reviewed how the bundle of ownership rights in a conventional company is parsed in a worker cooperative into personal rights attached to current workers, personal rights attached to future workers, and property rights attached to current workers (e.g., the internal capital accounts). Finally, we reviewed the four ways that the idea of internal capital accounts was discovered and rediscovered, e.g., Jaroslav Vanek's notion of 'external' finance that included "redeemable savings deposits of members."

References

- Berman, Katrina. 1967. *Worker-Owned Plywood Companies*. Pullman WA: Washington State University Press.
- Dow, Gregory. 1986. "Control Rights, Competitive Markets, and the Labor Management Debate." *Journal of Comparative Economics* 10 (1 March): 48–61.
- Dow, Gregory. 2003. *Governing the Firm: Workers' Control in Theory and Practice*. Cambridge: Cambridge University Press.
- Ellerman, David. 1982. *Economics, Accounting, and Property Theory*. Lexington MA: D.C. Heath. (all my references are available on: www.ellerman.org)
- Ellerman, David. 1984. "Theory of Legal Structure: Worker Cooperatives." *Journal of Economic Issues* XVIII (September): 861–91.
- Ellerman, David. 1986. "Horizon Problems and Property Rights in Labor-Managed Firms." *Journal of Comparative Economics* 10 (March): 62–78. Reprinted in (Pencavel 2013, 301–17).
- Ellerman, David. 1990. *The Democratic Worker-Owned Firm*. London: Unwin-Hyman Academic.
- Ellerman, David. 2007. "On the Role of Capital in 'Capitalist' and in Labor-Managed Firms." *Review of Radical Political Economics* 39 (1): 5–26. DOI: 10.1177/0486613406296895.
- Ellerman, David. 2016. "Worker Cooperatives as Based on First Principles." *Journal of Entrepreneurial and Organizational Diversity* V (1): 20–32.
- Fama, Eugene F., and Merton H. Miller. 1972. *The Theory of Finance*. New York: Holt, Rinehart and Winston.
- Foldvary, Fred E. 2006. "The Economic Case for Private Residential Government." In *Private Cities: Global and Local Perspectives*, edited by Georg Glasze, Chris Webster, and Klaus Frantz, 29–41. London: Routledge.
- Furubotn, Eirik, and Svetozar Pejovich. 1970. "Property Rights and the Behavior of the Firm in a Socialist State: The Example of Yugoslavia." *Zeitschrift Für National-ökonomie* 30 (Heft 3-4): 431–54.

- Hansmann, H. 1996. *The Ownership of Enterprise*. Cambridge: Harvard University Press.
- HBR. 1927. "Conflicting Interests in a Company's Purchase of Its Own Securities." *Harvard Business Review* V (4 July): 481–87.
- ICA. 1978. *What Is a Worker Cooperative?* Cambridge MA: Industrial Cooperative Association.
- Knight, Frank. 1956. *On the History and Method of Economics*. Chicago: Phoenix Books.
- Lazonick, William. 2015. "Ban the Stock Buyback Binge, Bring Back the Middle Class." *Boston Globe*, June 13, 2015, Opinion Section.
- Locke, John. 1960 (1690). *Two Treatises on Government*. New York: New American Library.
- Miller, Merton H., and Franco Modigliani. 1961. "Dividend Policy, Growth, and the Valuation of Shares." *The Journal of Business* 34 (October 1961): 411–33.
- Montias, J. M. 1976. *The Structure of Economic Systems*. New Haven: Yale University Press.
- Oakeshott, Robert. 1978. *The Case for Workers' Co-Ops*. London: Routledge and Kegan Paul.
- Pencavel, John, ed. 2013. *The Economics of Worker Cooperatives*. Aldershot UK: Edward Elgar Publishing.
- Putterman, Louis 1996. Ownership and the nature of the firm. In *The Economic Nature of the Firm*. L. Putterman and R. Kroszner Eds. Cambridge, Cambridge University Press: 361-369.
- Samuelson, Paul A. 1976. *Economics 10th Ed*. New York: McGraw-Hill.
- Sertel, Murat. 1987. "Workers' Enterprises Are Not Perverse." *European Economic Review* 31: 1619–25.
- Vanek, Jaroslav. 1970. *The General Theory of Labor-Managed Market Economies*. Ithaca: Cornell University Press.
- Vanek, Jaroslav 1975. The Basic Theory of Financing of Participatory Firms. In *Self-Management*. Jaroslav Vanek Ed. Harmondsworth: Penguin Books: 445-455.
- Vanek, Jaroslav 1977. *The Labor-Managed Economy*. Ithaca: Cornell University Press.
- Ward, Benjamin. 1958. "The firm in Illyria: Market Syndicalism." *American Economic Review* 48 (4 Sept.): 566–89.