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ORGANIZATIONAL LOYALTY: A PRELIMINARY STUDY*

KAZUHIRO ARAI

Abstract

Organizational loyalty can be defined as identification with a group to which an individual belongs. A person identifies himself with a group when, in making a decision, he evaluates the available alternatives in terms of their consequences for the specified group. This paper argues that a fundamental factor that generates organizational loyalty is high job security. Other important factors are the ability of managers and the culture of the society within which the organization exists. We construct a model in which some firms in an industry utilize organizational loyalty in production and the others do not.

I. *What Is Organizational Loyalty?*

Organizational loyalty is an important concept in production which has largely been ingored by neo-classical economics. It is a concept which is defined in terms of an individual's identification with a group, in particular, an individual worker's identification with his firm or organization. An individual can be recognized as identifying with a group when, in making a decision, he evaluates the available alternatives of choice in terms of their consequences for the group rather than in terms of his own self-interest [Simon (1976, 1991)]. It is thus essential that the individual internalizes the organizational goals. It should be noted that organizational loyalty does not mean to blindly follow other members of the same organization.

Organizational loyalty is based on a discrimination between a 'we' and a 'they.'

> Identification with the 'we,' which may be a family, a company, a city, a nation, or the local baseball team, allows indivuduals to experience satisfaction (gain utility) from successes of the unit thus selected. Thus organizational identification becomes a motivation for employees to work actively for organizational goals. Of course, identification is not an exclusive source of motivation; it exists side by side with material rewards and enforcement mechanisms that are part of the employment contract. [Simon (1991)]

The significance of organizational loyalty for production lies in its potential to increase organizational efficiency. It is essential for both efficient teamwork and use of information, and also decreases transaction costs in an organization. Japan has had a long history of promoting

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organizational loyalty. Its industrial success must in part be due to this history, particularly given the promotion of organizational loyalty by Japanese management methods and culture. Evidence for the effect of organizational loyalty promoted by a Japanese company in the U. S. can be found in the productivity increase which followed a joint venture between Toyota and General Motors.

> Toyota took over a former General Motors plant, equipped it with standard state-of-the-art machinery, rehired employees mainly from the previous work force and accepted the same union. They have been able to produce automobiles with about 45 percent fewer labor hours than an entirely comparable GM plant that uses American managers and management methods, and about 30 percent fewer hours than a new GM plant having more modern "hitech" equipment, and only about 15 percent *more* labor hours than a comparable Toyota plant in Japan. [Simon (1991)]

It should be added, however, that the extent of efficiency gains expected from organizational loyalty depends on the engineering technology employed. While organizational loyalty is essential for some types of jobs, it is not so useful in other areas. For instance, if a job does not require worker discretion and worker productivity can be easily measured, organizational loyalty is not necessary. In general, organizational loyalty is more important in less routine jobs. Thus the need for organizational loyalty in a firm is dependent upon the available engineering technology.

This paper claims that the most fundamental factor generating organizational loyalty is high job security or long-term employment. If employees of a firm faced high lay-off probabilities or short-term employment, they obviously would not have organizational identification, nor would it be easy for them to internalize organizational goals. It therefore follows that high job security promotes organizational loyalty.

However, high job security is not sufficient for promoting organizational loyalty. Another important factor is the managers' ability to foster organizational loyalty through inculcation, encouragement, exemplification, communication with employees, and so on. Note that this factor works well only when high job security is offered. If the managers of a firm are very good at promoting organizational loyalty, their subordinates act mainly in accordance with the firm's goals. If not, the subordinates are motivated mainly by self-interest.

A third important factor is the culture of the society within which the firm exists. Even if the same maganement method is applied together with high job security, the achieved degree of organizational loyalty is likely to differ among different cultures. Workers of culture X may be more responsive, for example, to the same inculcation than those of culture Y. These factors imply that there can be substantial interorganizational and intercultural differences in the degree of organizational loyalty.

It should be emphasized that although high job security promotes organizational loyalty, it also involves the cost for the firm of being unable to adjust labor input in accordance with variations in product demand. Hence, it is not likely to be offered by all firms if they are heterogeneous. A firm chooses the level of job security it offers under this product demand uncertainly, taking account of its managers' ability to promote organizational loyalty, available engineering technology, and the culture of the society. This paper constructs a model in which some firms (primary firms) in an industry offer high job security to promote organizational loyalty and the remaining firms (secondary firms) offer low job security to adjust labor input freely.

In Section II the basic assumptions are introduced. Section III proves the existence of an equilibrium in which some firms offer high job security and the others low job security. Concluding remarks follow in Section IV.

II. *The Model*

The model considers a continuum of firms in the closed interval of $I \equiv [0, 1]$. They constitute an industry in an economy. A representative firm is denoted by $s \in I$. The product price is determined exogenously in the world market. There are two types, T1 and T2, of workers who are seeking jobs in this industry. The number of T1 workers is $N>0$ and their labor supply is fixed. Initially, they are identical in the economic sence. The model endogenizes segmentation of the firms and T1 workers. T2 workers consist of those who adjust their labor supply to this industry in response to its wage rate. Examples are (part-time) housewives, peasants, students, and 'retirees'. They are assumed to work only for the secondary sector of the industry if they wish. A unit of T2 labor (or workers) is equivalent in productivity to $k>0$ units of T1 labor (or workers) in this sector.

The model considers finite time periods from 0 to T. The above firms exist in these periods and the T1 workers work from period 1 to period T. The total supply of T2 labor in each period after period 0 is given by

$$A(1-B/y) \quad \text{if } y>B, \tag{1}$$

and 0 otherwise, where y is the wage for a unit of T2 labor, $A>0$ is the upper limit of the supply, and $B>0$ is the wage above which a positive amount of labor is supplied. In period 0 the firms are set up but production is not undertaken. This setting up period is for planning and designing organizations. At this time each firm makes a decision about the level of job security to offer. This decision is made under uncertainty as to future product prices. Production is undertaken in all the subsequent periods by employing workers.

It is assumed that the product price p_t in each production period becomes known at the beginning of that period ($t=1,2,\ldots,T$). Each firm starts employing workers in period 1 and thereafter its employment size can (but need not) be adjusted at the beginning of each period in accordance with the realized level of product price. Suppose that these prices are identically and independently distributed in the interval of $0<p' \leqq p_t \leqq p'' < +\infty$. This distribution is either discrete or continuous and is known to all individuals,[1] who are assumed to be risk-neutral. The model assumes for simplicity that all individuals have a common discount factor equal to 1.

If a firm is to utilize organizational loyalty in production, it must offer high job security. We assume for simplicity that in order for any sort of organizational loyalty to be formed, it must offer perfect job security, i. e., it should never lay off its workers for any realized level of product price. Otherwise, no organizational loyalty is assumed to be formed and the firms's

[1] The next section will make the dispersion of p small to find conditions that generate equilibria. It is assumed here that this is possible because p takes on the value of its mean (and values near the mean).

employment size is determined by maximizing short-term profit in each production period. We assume further that for either of the following reasons, each firm applies the same level of job security to all its workers: The first is that there are economies of scale in management. The second is that available engineering technology allows only uniform levels of separability of work or intensity of interdependence among all workers of a firm and thus it is not efficient from this standpoint to separate the workforce and apply differential management. Hence each firm in this model faces two options in period 0; either to offer or not to offer perfect job security to its entire workforce. If it chooses the former (latter), it it said to belong to the primary (secondary) sector in this paper.

In order to focus only on interfirm differences in the ability of managers or entrepreneurs to promote organizational loyalty, the model assumes that all firms have equal access to all types of engineering technology. These differences give rise to differing levels of organizational loyalty in the primary sector. As secondary firms do not utilize organizational loyalty, there is no difference among them in this model.

Assume that the best obtainable technology to firm s when it opts to be primary is expressed by the following production function for each period:

$$(1+cs)\log(L+1), \tag{2}$$

where c is a positive constant, log is the natural logarithm, and L is the number of T1 workers employed. This technology is obtainable under the following conditions: first, the firm offers perfect job security to all its workers; secondly, it uses its managers' ability to promote organizational loyalty of workers; thirdly, it designs its organization so as to promote organizational loyalty; and fourthly, it adopts engineering technology suited to organizational loyalty.

Assume next that the best obtainable technology when firm s chooses to be secondary is expressed by the following production function for each period:

$$\log(L(p)+1), \tag{3}$$

where $L(p)$ is the number of T1 equvalent workers employed from the spot labor market when the product price is p. This technology is realized by most appropriately combining available engineering technology with an organizational design which does not rely on organizational loyalty of workers.

The firm is to use different technology in the two sectors. For all firms (except firm 0), worker productivity is higher if they utilize organizational loyalty: The level of c in (2) measures the efficiency gains of organizational loyalty. However, productivity differs across primary firms because it depends on each firms's managerial ability. Since secondary firms do not need managerial ability to promote organizational loyalty, they face the same technology as given by (3).

Each firms signs a contract with each of its new workers. It specifies firstly whether or not perfect job security is offered and secondly the wage for each state in each contract period or the rule of how it is determined.[2] If, in period 0, a firm chooses to be primary, it decides at that time the level of L without observing product prices. At the beginning of period 1, if offers

[2] It is assumed that the realized level of product price will be common knowledge in each period.

lifetime employment contracts to L workers and continues to employ only them until the end of period T. On the other hand, if it chooses to be secondary, the functional form of $L(p)$ is determined in period 0. At the beginning of each subsequent period, it picks a particular level of $L(p)$ and offers the corresponding number of contracts after observing the product price for that period. These can be called spot market employment contracts.

Consider first the case in which firm s belongs to the primary sector. Let $w_t\ (p_t)$ denote the wage it offers in period t to a T1 worker when the product price is p_t. Then using (2) with the common discount factor equal to 1, the present value of the stream of its expected profits is given by

$$E[p_1(1+cs)\log(L+1)-w_1(p_1)L]+\ \dots \\ +E[p_T(1+cs)\log(L+1)-w_T(p_T)L], \qquad (4)$$

where E denotes an expectations operator for the product prices. Next consider the case in which firm s is secondary. It then pays a T1 (equivalent) worker the spot market wage $v(p_t)$. Since this wage for each level of product price is to be determined under the same market clearing condition in each period, its functional form is independent of t. Hence, using (3), the present value of the stream of the firm's expected profits is given by

$$E[p_1 \log(L(p_1)+1)-v(p_1)L(p_1)]+\ \dots \\ +E[p_T \log(L(p_T)+1)-v(p_T)L(p_T)]. \qquad (5)$$

If firm s is primary, it has to choose $w_t\ (p_t)$ $(t=1,2,\dots,T)$ firstly so as to attract T1 workers in period 1 and secondly to discourage them from quitting in the subsequent periods. Because all T1 workers are assumed to be initialy identical, the first condition is satisfied if[3]

$$Ew_1(p_1)+\ \dots\ +Ew_T(p_T)=Ev(p_1)+\ \dots\ +Ev(p_T). \qquad (6)$$

Various wage profiles satisfy the first and second conditions simultaneously and thus there is a large degree of freedom in the determination of a wage profile. But for the purpose of the present model, it is sufficient to give a simple example where $w_t\ (p_t)=v_t\ (p_t)$ for all $t \geqq 1$. This satisfies (6). The second condition is also satisfied because a T1 worker who has obtained employment in firm s and become loyal to it will strictly prefer staying to quitting in any period.

The above argument is based on an implicit assumption that the capital market is perfect. If it was assumed to be imperfect, a more realistic rising wage profile would be likely to arise. If the market rate of interest was very low because of capital market imperfection and the living cost increased with age, workers under lifetime employment would prefer a rising wage profile which would generate reasonably high interest. When $v_t\ (p_t)$ does not vary significantly

[3] Organizational loyalty enables workers to experience satisfaction from the successes of their finms. Thus the workers of firms with larger values of s tend to experience larger satisfaction. But they also tend to lose more individual freedom. This paper assumes for simplicity that these psychological costs and benefits cancal out. Hence, at the time of job search, workers behave as if they are interested only in wages and so are indifferent between firms offering wages that satisfy (6). However, it is not difficult to modify (6) by explicity incorporating the effects of these psychological costs and benefits on wages without using this simple assumption.

across periods, w_t need not be strictly equal to v_t in each period in contrast to the above example, because loyal workers will not quit for small temporary gains from wage differences between firms. Under these circumstances, the wage profile of a primary firm could be determined so that it would be similar to a T1 worker's life-cycle expenditure profile and the expected total wage under it would equal that under the wage profile in the secondary sector.

III. *Equilibrium*

Under the assumption that p is identically distributed with p_t, constraint (6) implies that (4) can be rewritten as

$$TE[p(1+cs)\log(L+1)-v(p)L]. \tag{7}$$

On the other hand, (5) can be rewritten as

$$TE[p\log(L(p)+1)-v(p)L(p)]. \tag{8}$$

A primary firm chooses L before p is realized so as to masimize (7). Thus

$$L=(1+cs)Ep/Ev(p)-1. \tag{9}$$

Substitution of (9) into (7) gives the present value of the maximized expected profits

$$TV_1\equiv T[Ep(1+cs)\log\{(1+cs)Ep/Ev(p)\}-(1+cs)Ep+Ev(p)]. \tag{10}$$

A secondary firm decides its employment size $L(p)$ after p is realized so as to maximize the expression inside the square brackets in (8). Thus

$$L(p)=p/v(p)-1, \tag{11}$$

which is a function of p. Substituting (11) into (8) gives the present expected value of the maximized profits:

$$TV_2\equiv T[E\{p\log(p/v(p))\}-Ep+Ev(p)]. \tag{12}$$

Firm s chooses a sector by comparing (10) with (12) or V_1 with V_2. If the former (latter) is larger, it opts to be primary (secondary). Suppose that there exists a real number $x\in I$ at which $V_1=V_2$. Then, since labor productivity increases with s when organizational loyalty is utilized, $V_1<V_2$ for $s<x$ and $V_1>V_2$ for $s>x$. Thus x divides the set of all firms into the primary and secondary sectors, with firm x on the boundary, provided that x is an interior point of I. By letting x be an unknown variable in the following, we examine whether such an x exists.

Our first task is to derive $v(p)$ that equates labor demand with supply for each p in the secondary labor market. To do so, the total demand L_1 for T1 workers in the primary sector must be computed by integrating (9) with respect to s from x to 1:

$$L_1 = (1-x)[Ep/Ev(p) - 1 + (1+x)cEp/2Ev(p)]. \tag{13}$$

Similarly, the total demand $L_2(p)$ for T1 equivalent workers in the secondary sector must be computed by integrating (11) from 0 to x:

$$L_2(p) = (p/v(p) - 1)x. \tag{14}$$

Because a unit of T2 labor is equivalent to k units of T1 labor in the secondary sector, the wage for the former equals $kv(p)$. According to (1), the total supply of T2 labor at p is equivalent to

$$kA\{1 - B/kv(p)\} \tag{15}$$

T1 workers. On the other hand, the total supply of T1 workers in the secondary sector equals $N - L_1$. Hence, the total supply of secondary labor in terms of the number of T1 equivalent workers is the sum of $N - L_1$ and (15).

In an equilibrium, $v(p)$ must equate this total supply with (14):

$$\begin{aligned} &N - (1-x)[Ep/Ev(p) - 1 + (1+x)cEp/2Ev(p)] + kA\{1 - B/kv(p)\} \\ &= (p/v(p) - 1)x. \end{aligned} \tag{16}$$

This is a necessary condition for labor market equilibrium when firm x is the boundary firm. It must hold for all p including the lowest or p'. Thus

$$\begin{aligned} &N - (1-x)[Ep/Ev(p) - 1 + (1+x)cEp/2Ev(p)] + kA\{1 - B/kv(p')\} \\ &= (p'/v(p') - 1)x. \end{aligned} \tag{17}$$

Subtracting (17) side by side from (16) results in

$$v(p) = [(AB + xp)/(AB + xp')]v(p'), \tag{18}$$

which must also hold at each p. Taking an expectation of (18) gives

$$Ev(p) = [(AB + xEp)/(AB + xp')]v(p'). \tag{19}$$

Substitution of (19) into (17) and some computation lead to

$$v(p') = \frac{AB + Ep + (1-x^2)cEp/2}{N + 1 + kA} \cdot \frac{AB + xp'}{AB + xEp} \tag{20}$$

where the dot is for multiplication. Substituting (20) into (18) produces

$$v(p) = \frac{AB + Ep + (1-x^2)cEp/2}{N + 1 + kA} \cdot \frac{AB + xp}{AB + xEp}. \tag{21}$$

This implies that

$$Ev(p)=\frac{AB+Ep+(1-x^2)cEp/2}{N+1+kA}. \tag{22}$$

All of the above have been obtained on the basis of two implicit assumptions, which have been made to ease computation. The first is that all firms have positive labor demand at each p. A sufficient condition for it can be found easily. Since (21) implies $p/v\ (p)$ is increasing in p, $L(p)>0$ in (11) for all p *if* $p'>v(p')$. As (20) implies that $v(p')$ is decreasing in x, $p'>v(p')$ for any x if this inequality holds when $x=0$, i. e.,

$$(N+1+kA)/(AB/Ep+1+c/2)>Ep/p'. \tag{23}$$

$L(p)$ is positive for all p under (23). It is obvious that $L>0$ in (9) if $L(p)>0$ for all p. Inequality (23) is a condition that makes the spot market wages low enough. It is satisfied, e. g., when N is large enough. It may happen under (23) that some T1 workers continue to work for the same secondary firms in an equilibrium. (The degree to which it happens depends partly on how T1 workers are allocated among secondary firms in period 1.) However, they do not develop organizational loyalty, because the secondary firms do not promote it as assumed in Section II. Since organizational loyalty is not utilized in the secondary sector, the firms there are indifferent between new and old workers. Also, those T1 workers are indifferent between secondary firms they may work for in each period. This situation sould be understood to describe highly unstable employment in the secondary sector, since quite minor reasons which are not considered in this model tend to induce mobility.

The second implicit assumption is that $v(p)$ is high enough to make the supply of T2 labor in (15) positive for all p. This supply is positive if B is sufficiently small or $B<kv(p)$ for all p. Note that $v(p)$ is increasing in p in (21) and that $v(p')$ is decreasing in x in (20). Thus substitution of $v(p')$ with $x=1$ into this inequality produces a condition for a positive supply of T2 labor for all p and any $x\in I$. The resulting contidion is:

$$B<kp'/(N+1). \tag{24}$$

The market wage rates in (21), which individuals expect, have been obrained for a given x. In order for these expectations to be consistent, those market wage rates must make firm x just indifferent between being in the primary sector and being in the secondary sector. This condition holds if (10) and (12) are equal at $s=x$. To consider this, define $F(x)$ as the difference between V_1 evaluated at x and V_2, i. e.,

$$F(x)\equiv cEpx[\log\frac{(N+1+kA)(1+cx)}{AB/Ep+1+c(1-x^2)/2}-1]+Ep\log(1+cx)$$

$$+[E\{p\log(AB/p+x)\}-Ep\log(AB/Ep+x)], \tag{25}$$

which has been obtained by using (10), (12), (21), and (22). Then the above condition is given by the following equation that x must satisfy:

$$F(x)=0. \tag{26}$$

Let us first examine whether (26) holds for $x=0$. By substitution

$$F(0)=E\{p\log(AB/p)\}-Ep\log(AB/Ep)<0, \tag{27}$$

where the inequality follows from the fact that $p\log(AB/p)$ is strictly concave in p. Therefore, firm 0 can never become a 'boundary firm'.

It can be shown that $F(x)$ is strictly increasing under a certain condition. This is proved by differentiating (25):

$$\begin{aligned} F'(x)=&cEp[\log\frac{(N+1+kA)(1+cx)}{AB/Ep+1+c(1-x^2)/2}-1] \\ &+cEpx[\frac{c}{1+cx}+\frac{cx}{AB/Ep+1+c(1-x^2)/2}] \\ &+cEp/(1+cx)+[E\{p/(AB/p+x)\}-Ep/(AB/Ep+x)]. \end{aligned} \tag{28}$$

If the first term of $F'(x)$ is positive, $F'(x)$ is positive, as the second term is nonnegative, the third is positive, and the fourth is positive because of the strict convexity of $p/(AB/p+x)$ in p. Since the argument of log in (28) is increasing in x, the first term is positive for any x if

$$(N+1+kA)/(AB/Ep+1+c/2)>e, \tag{29}$$

where e denotes the base of the natural logarithm. Note that the left-hand side of (29) equals that of (23). This paper also assumes inequality (29).

The solution of (26) is a competitive equilibrium if and only if $0\leqq L_1\leqq N$. It certainly involves segmentation of the firms and T1 workers if

$$0<L_1<N. \tag{30}$$

Substitution of (22) into (13) leads to

$$L_1=(1-x)[\frac{(N+1+kA)\{1+c(1+x)/2\}}{AB/EP+1+c(1-x^2)/2}-1]. \tag{31}$$

$L1$ is continuous in x and $L_1>0$ for $0\leqq x<1$ by (29). $L_1=0$ at $x=1$. It can be easily shown that the value of L_1 at $x=0$ is larger than N under (24). Thus there is a set of x values for which (30) holds. In the following, we show that there are sets of parameter values which generate such x values.

Let Ω denote the collection of all sets of the parameter values that satisfy (23), (24), and (29) simultaneously. The question here is whether Ω has elements that satisfy (30). It is easy to show that Ω is nonempty: Choose an arbitrary set of parameter values. If it is not an element of Ω, an element of Ω can be obtained from it by increasing the value of N so that (23) and (29) hold and then reducing that of B so that (24) holds.

Let us choose an arbitrary element of Ω and examine $F(1)$:

$$F(1)=cEp[\log\frac{(N+1+kA)(1+c)}{AB/Ep+1}-1]+Ep\log(1+c)$$

$$+[E\{p\log(AB/p+1)\}-Ep\log(AB/Ep+1)]. \tag{32}$$

The first term on the right-hand side is positive by (29). The second is obviously positive. The third is negative, since $p\log(AB/p+1)$ is strictly concave in p. The value of the third term depends on the dispersion of p. The more spread it is, the larger the absolute value of the term.

If it has happened under this choice that $F(1)>0$, reduce only the value of c so that $F(1)=0$. As this reduction never violates (23), (24), or (29), the new set of parameter values also belongs to Ω. In contrast, if it has happened that $F(1)<0$, make the dispersion of p small so that $F(1)=0$ by keeping the values that p takes on fixed and shifting some probabilities from near the tails of the initially chosen distribution to the values of p near Ep without changing Ep. As this change in the dispersion does not violate (23), (24), or (29), the new set of parameter values so obtained also belongs to Ω. In this way, an element of Ω can be obtained that gives rise to $F(1)=0$. There are actually a continuum of such elements, since for each element with $F(1)=0$, another with $F(1)=0$ can be found by reducing the value of c slightly and making the dispersion of p correspondingly smaller.

Now pick an element of Ω with $F(1)=0$ and then only make the dispersion of p successively smaller as above. (By the same logic as above, these sets of parameter values with smaller dispersions are elements of Ω.) Observe $F(x)$ in (25). The first term on the right side is positive for $x>0$ by (29). The second is also positive for $x>0$. The third is negative by the strict concavity of $p\log\{AB/p+x\}$ in p. As the dispersion contracts, this term goes to zero, while the first two remain unchanged. Thus $F(x)$ shifts upward and becomes positive for any $x\in(0, 1]$. This implies that any number in (0, 1] becomes the solution of (26) if a suitable element of Ω is chosen. Note that L_1 does not shift under this operation on the dispersion of p. Hence, there exist elements of Ω that generate solutions of (26) with the property shown in (30). In fact, each particular solution can be generated by many different elements of Ω. It has been demonstrated, therefore, that there are sets of parameter values giving risee to competitive equilibria that segment the firms and T_1 workers into two sectors in terms of job security. This proof suggests additionally that Ω has elements which do not generate segmentation. For example, all firsm become secondary for elements of Ω with $F(1)<0$. The existence of segmentation is not self-evident and depends on several interacting factors.

An important factor determining the size of each sector is the dispersion of p. *Ceteris paribus* the smaller the dispersion, the smaller the equilibrium value of x and the larger the primary sector. This result corresponds to the fact that a large primary sector can often be found in an industry where uncertainty is small. The result holds under the assumption of risk-neutrality on the part of firms. If there was no uncertainty, all firms facing even slight gains from organizational loyalty would become primary. Hence, uncertainty is a crucial factor generating segmentation.

Another important, though rather obvious, factor is the level of c, which determines the efficiency gains from organizational loyalty in each firm. To see its effect formally, let $x_c=\partial x/\partial c$. Then (26) implies that

$$(x+cx_c)\ Ep[\log\frac{(N+1+kA)(1+cx)}{AB/Ep+1+c(1-x^2)/2}-1]$$

$$+Epcx_c+\frac{AB/Ep+1+c^2\ xx_c}{AB/Ep+1+c(1-x^2)/2}Epx$$

$$+x_c[E\{p/(AB/p+x)\}-Ep/(AB/Ep+x)]=0. \tag{33}$$

The expressions inside the square brackets in the first and fourth terms are positive by (29) and convexity, respectively. Thus x_c must be negative. This implies in particular that *ceteris paribus* the more appropriate the culture of a society for organizational loyalty, the larger the primary sector.

IV. *Concluding Remarks*

Promoting organizational loyalty by offering high job security has both benefits and costs. The benefits derive from increased efficiency, and the costs from reduced freedom in employment adjustment. A firm decides whether to offer high or low job security by taking into consideration how much organizational loyalty it is able to promote and comparing the resulting benefits with costs. Thus the number of primary firms, which promote organizational loyalty, will depend on the distribution of managerial abilities to promote organizational loyalty. It will also depend on the culture of the society within which the firms exist.

The recent serious recession has obliged Japanese firms to reconsider their employment practices, especially lifetime employment practices. In view of the theory of this paper, this recession has changed the distribution of p or it has brought about increases in the (expected) cost of high job security. Thus it may now be rational for some firms to alter their employment practices and lay off some of their employees. However, it must be noted that the workers who have been loyal to those firms and unwillingly laid off tend to bear large psychological and pecuniary costs. Hence, the alteration of employment practices should involve compensation to these workers. It must also be noted that after this alteration those firms can no longer expect the same high level of organizational loyalty from its remaining workers, as they too will feel vulnerable to layoff.

Japan has developed a culture which emphasizes organizational loyalty for the past few hundred years. This is likely to have facilitated a utilization of the advantages of organizational loyalty in increasing productive efficiency. However, if Japanese workers, especially young workers, become less inclined to organizational loyalty, firms will likewise be less able to benefit in terms of efficiency gains. Then the advantage of lifetime employment might decrease to that extent and the size of the primary sector might become smaller.

Although organizational loyalty of workers has contributed to efficiency in Japan, it has not been free from problems. It is worth indicating two problems about organizational loyaley before concluding this paper. The first is that organizational loyalty can be misused. For instance, some decisions and actions may be forced on all members of an organization in the name of organizational loyalty, when only a small number of members benefit. This causes large costs to most members and is obviously inefficient. The second problem is that a member can have stronger loyalty to a subgroup (section) or an informal group than to the entire organization (Simon, 1976). This type of organizational loyalty greatly impairs the efficiency of the entire organization and may sometimes be worse than an absence of organizational loyalty. Whether this problem seriously arises depends upon the culture of the society and the values held by the members of the organization. It also depends upon the ability of the managers to direct organizational loyalty of the members to the entire organization.

HITOTSUBASHI UNIVERSITY

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