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Worker Discontent, Voice, and EI Programs in Japan

Evidence from the Japanese Worker Representation and Participation Survey*

by

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Abstract

Using a unique new survey, the Japanese Worker Representation and Participation Survey (JWRPS), this paper documents that there is currently an alarming degree of worker discontent in Japan. Specifically, we find that: (i) nearly one in two Japanese workers usually do not look forward to going to work; (ii) almost one third of Japanese workers are dissatisfied with their current jobs and do not at all feel loyal to their employers or feel loyal only a little; (iii) nearly one in five Japanese workers either do not at all trust information provided by their firm or trust such information only a little; and (iv) fully 40 percent of Japanese workers rate labor management relations as only fair or poor. Estimating probit models, we find systematic evidence that such worker discontent is significantly related to the lack of strong employee voice on decisions affecting workplaces, and that the lack of or weakened use of Japan's once celebrated EI programs (such as Shopfloor Committees, Small Group Activities, and Joint Labor-Management Committees) is in part responsible for weak voice and hence an alarming degree of worker discontent. An important policy implication of our findings is that weakening Japan's participatory employment system (as the popular rhetoric at times suggests) may result in exacerbating the already alarming degree of worker discontent in Japan, and ultimately weakening the competitiveness of the Japanese economy.

I. Introduction: the JWRPS and Field Evidence

Japan was traditionally viewed as a nirvana for employee participation and involvement, and attracted much attention and often envy from around the world in the 1980s.[1] To promote employee participation and involvement, Japanese firms often rely on a bundle of participatory employment practices consisting typically of (i) EI (Employee Involvement) programs, including Joint Labor Management Committees (JLMCs); Shop Floor Committees (SFCs); and Small Group Activities (SGAs); and (ii) financial participation schemes, such as Employee Stock Ownership Plans (ESOPs); and Profit Sharing Plans (PSPs).[2]

In recent years, however, with Japan's prolonged economic slowdown, the popular rhetoric within Japan as well as outside of Japan has been shifting and has become less positive about traditional Japanese management with particular emphasis on employee participation and involvement (some even suggest the replacement of the participatory system with the Anglo-

[1] As Levine (1995; pp. 115-121) suggests, relatively higher job security and strong group cohesiveness (supported by compression of wage and status differentials) of workers in large manufacturing firms in the postwar Japanese economy point to an industrial relations system favorable to successful employee participation. Moreover, relatively more rapid and stable growth, lower unemployment, and stable financial corporate grouping (banks and institutional shareholders as stable, long-term suppliers of capital) point to an external environment favorable to successful employee participation. Probably as a result of these favorable environments in the postwar Japanese economy, particularly in large firms in manufacturing, participatory employment practices spread widely and were established firmly (Kato and Morishima, 2002). Indeed, these practices became the hallmark of "Japanese management," which in recent years has been inspiring (or in some instances necessitating) U.S. corporate experimentation with employee involvement and labor-management cooperation (Levine, 1995).

[2] JLMC is established at the corporate/establishment level, involves both management and union representatives, and serves as a mechanism for representative participation at the top; SFC is established at the shop floor level and supervisors and employees on shop floor discuss issues such as shop-floor operations and shop-floor environments as well as business plans; and SGA is an activity such as quality control (QC) circle and Zero Defects in which small groups at the workplace level voluntarily set plans and goals concerning operations and work together toward accomplishing these plans and goals. ESOP is a plan through which the firm forms an ESOP trust consisting of its employees and promotes ownership of its own shares by the trust; PSP is a pay system in which the total amount of bonuses are linked to a measure of firm performance, such as profit; For EI programs in Japan, see for instance Kato and Morishima (2002), Isa and Tsuru (2002), and Kato (2003). For financial participation such as ESOPs and PSPs used by Japanese firms, see for instance, Ohashi (1989), Ohkusa and Ohtake (1997), and Kato and Morishima (2003) for PSPs, and Jones and Kato (1993, 1995) for ESOPs.

American-style shareholder model of corporate governance and active external labor market).[3] While the rhetoric of "the end of the Japanese employment system" is presently rampant, recent research on the Japanese economy tends to focus on the financial market, deregulations and macroeconomic policies, and systematic evidence on the current state of the Japanese labor market, in particular evidence on changes in Japan's once celebrated participatory employment system is relatively scarce.[4]

Furthermore, the existing studies on evolving participatory employment practices tend to be motivated by two traditional research questions in the literature: (i) what these practices do to the firm (e.g., their effects on firm performance);[5] and (ii) what kinds of firms are more likely to introduce them (e.g., technologically advanced firms with skilled labor force vs. other more traditional firms).[6] Naturally, the unit of observation in these studies tends to be the firm or the establishment and researchers interview and/or survey managers who are familiar with their firm's or establishment's use of employment practices. Researchers occasionally add union officials to the sample universe yet getting the perspectives of regular front-line employees are

[3] See for example a series of proposals and recommendations made by influential associations of Japanese business leaders, such as Keizai Doyukai (Japan Association of Corporate Executives) and Nippon Keidanren (Japan Business Federation) in the last decade.

[4] The recent research focus on the financial market, macroeconomic policies, and deregulations is understandable, considering the likely causes of Japan's prolonged recession in the 1990s. For reviews of the literature on the causes of Japan's prolonged recession, see for example Patrick (1998) and Hoshi and Kashyap (2004).

[5] We are currently witnessing an impressive accumulation of systematic evidence on the effects on firm performance of such practices in the U.S. See, for example, in the economics literature, Ichniowski, Shaw and Prennushi (1997), Helper (1998), Batt (1999), Cappelli and Neumark (1999), Freeman, Kleiner, and Ostroff (2000), Appelbaum (2000), Black and Lynch (2001), Hamilton, Nickerson, Owan (2003), Bartel (2004), and articles featured in a special issue of Industrial Relations Vol. 35, July 1996. However, such evidence is still relatively limited elsewhere. See, for example, Jones and Kato (1995), Kato and Morishima (2002), and Isa and Tsuru (2002) for Japan; Leoni, et. al (2001) for Italy; Addison and Belfield (2000) for the U.K.; Eriksson (2003) for Denmark; Bayo-Moriones, Galilea-Salvatierra, and Merino-Diaz de Cerio (2003) for Spain; Zwick (2004) for German; and Janod and Saint-Martin (2004) for France.

[6] The adoption literature is smaller than the outcome effect literature. See, for example, Pil and MacDuffie (1996) and Ichniowski and Shaw (1995). For Japan, see Jones and Kato (1993), Kato and Morishima (2002).

almost always considered of secondary importance. Thus, we know little about what regular workers think of these practices and what such practices are doing to them?[7]

We believe this omission is particularly troublesome in light of the current popular rhetoric in Japan that her once celebrated employment system of long-term employment coupled with a variety of participatory employment practices ought to be replaced with the Anglo-American model of active external labor market. Reliable and systematic evidence on regular workers' perspectives on the current state of Japan's participatory employment practices is urgently needed to inform the public discourse. For example, as we document in the paper, weakening participatory employment practices is likely to exacerbate the already alarming degree of worker discontent in Japan, which could ultimately undermine the global competitiveness of the Japanese economy.

It is against this backdrop of limited data and research on workers' perspectives that we conceived the idea of conducting the Japanese Worker Representation and Participation Survey (JWRP).[8] The survey was administered in full collaboration with Denki Rengo (Japanese Electrical, Electronic, and Information Union) from December of 2003 to January of 2004.

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[7] The importance of employee perspectives on new work practices has been pointed out forcibly by Freeman and Rogers (1999), and a number of attempts have been made to fill this important gap in the literature by studying North American workers lately, including Freeman and Rogers (1999), Godard (2001), Appelbaum, et. al. (2003), Jones, Kato and Weinberg (2003) and Batt (2004). Relatedly research on the effects on wages of new work practices is currently under way, and new findings are being reported (see, for example, Bailey, Berg and Sandy (2003), Handel and Levine (2004), Black, Lynch, and Krivelyova (2004), Forth and Millward (2004), and Handel and Gittleman (2004).

[8] Freeman and Rogers (1999) conducted the original Worker Representation and Participation Survey (WRPS) and presented the first evidence on what U.S. workers tell us about their experiences with the degree of their involvement and influence on firm decisions affecting their worklife in general and the impact of new work practices in particular. As part of a global network of labor economists and industrial relations specialists who share the same sense of urgent need to conduct a survey similar to WRPS and provide the perspectives of workers, we conducted the JWRPS. By now there are a number of WRPSs in the Anglo-American world (Australia, Canada, Ireland, New Zealand, the U.K. and the U.S.) according to a session of the 2005 LERA (formerly IRRA) annual meeting in Philadelphia "Employee Voice in the Anglo-American World: Contours & Consequences." We believe our survey is the first WRPS outside of the Anglo-American world.

Denki Rengo covers all regular employees (excluding middle and top management) working for nearly all major corporations in the electrical, electronic, and information industries in Japan, and its total membership at the time of the survey was 659,729 workers. We randomly selected 2,479 workers, and received usable responses from 2,090 of them (a response rate of 84 percent).[9]

The survey itself was preceded by a pilot phase in which an earlier version of the instrument was tested on a select group of Denki Rengo members. On the basis of what we learned from this, the questionnaire was revised.

Our focus on regular full-time workers working for large unionized firms in manufacturing is appropriate, for after all the celebrated Japanese employment system applies mostly to these workers, and workers in small to medium size firms as well as part-time and contingent workers in large firms typically enjoy neither long-term employment nor participatory employment practices.[10]

Our selection of the electrical, electronic and information industries was motivated in part by Denki Rengo's strong willingness to cooperate with us.[11] It was, however, also motivated by the fact that the electrical, electronic and information industries are generally considered as one

[9] The unusually high response rate of the JWRPS makes our analysis less susceptible to response bias which many survey data of this kind often suffer from, due to their typically low response rates. In addition to workers, we also received usable responses from 521 full-time union representatives. Since we are interested in the perspectives of regular workers who work for and paid by the companies, we exclude these 521 full-time union representatives who work for unions (and hence do not do any regular work for the firms) and are paid not by the firms but by unions.

[10] See, for instance, Koike (1991).

[11] Our long experiences with conducting surveys in Japan teach us that one of the best ways to ensure good response rates in Japan is to work with trade unions. Denki Rengo is known for conducting surveys successfully. Our impressive 84 percent response rate is yet another example of the great benefit of working with Denki Rengo.

of the twin engines of Japan's export machine.[12] Whatever happens to these industries will have serious consequences on the overall health of the Japanese economy.

While the JWRPS enables researchers to address a number of important topical questions, in this paper we focus on documenting the current degree of worker discontent and studying its link to employee voice and Japan's celebrated participatory employment practices. Our decision to center on these issues is strongly motivated by a recent case study of the semi-conductor industry (which Denki Rengo covers and hence part of the sample universe of our JWRPS).[13]

Throughout the 1990s, the Japanese semi-conductor industry lost its competitive edge considerably in the global market. Many blamed the lack of decisive actions by top management and the weakened prowess of R&D department for such diminished competitiveness of the industry. However, detailed field research at work sites points to a serious stagnation of actual shop floor work organizations as an equally important culprit of the disappointing performance of the industry in the 1990s.

For example, field research reveals that in many firms in the Japanese semi-conductor industry, operators (production workers) have only limited voice on shopfloor decision making. There appears to be a wide-spread sentiment that operators are supposed to only follow what engineers tell them to do. Operators are normally not allowed to stop operations even if they notice a serious problem in operations. Quality control engineers develop quality control manuals with very little feedback from operators. Operators have little say about any experiments that engineers wish to conduct using actual production lines. The division between engineers and production workers tends to be sharp and rigid, and collaboration between

[12] For instance, according to Japan Statistical Yearbook (2004), about 50 percent of total export from Japan was equally split between the electrical, electronic and information industries and the transportation equipment industry. We are currently planning to repeat the JWRPS in other industries in Japan.

[13] See Chuma (2002).

engineers and operators is at best superficial. In short, the lack of strong voice at workplaces appear to be making operators quite discontent with their work and less interested in sharing useful local information with engineers and managers.

In parallel to the diminished voice and weakened collaboration between operators and engineers/managers, field research suggests that EI programs have also become less active in the semi-conductor industry. Our JWRPS also provides corroborating evidence. The survey asks each SGA (Small Group Activity) participant whether SGAs are more or less active, compared to ten years ago. Overall, nearly one in two SGA participants believe that SGAs are LESS active now than 10 years ago whereas only 17 percent think SGAs are MORE active now in the industry.

Inspired by the above field evidence, this paper will first try to document quantitatively that there is an alarmingly wide spread discontent with work and labor-management relations among regular full-time workers in large unionized firms in the vitally important exporting industries of the Japanese economy. Specifically, we will find from our analysis of the WRPS that: (i) nearly one in two Japanese workers usually do not look forward to going to work; (ii) almost one third of Japanese workers are dissatisfied with their current jobs, and do not at all feel loyal to their employers or feel loyal only a little; (iii) nearly one in five Japanese workers either do not at all trust information provided by their firm or trust such information only a little; and (iv) fully 40 percent of Japanese workers rate labor management relations as only fair or as poor. Overall these findings are in contrast to a standard view of the Japanese work ethics characterized by the robust work motivation of Japanese workers and their strong sense of commitment and loyalty to their firms (especially industrial workers in large firms).[14]

[14] Based on a path-breaking cross-national field research, Dore (1973) argues that a coherent employment system adopted and practiced effectively by Japanese firms (in particular large industrial

Moreover, as the above field evidence suggests, such an alarming degree of worker discontent may be caused in part by the lack of strong employee voice on decisions affecting workplaces. We will provide rigorous evidence on such a link between worker discontent and voice. The field evidence further points to an additional hypothesis that employee voice will be enhanced by the active use of EI programs (or diminished by the weakened use of EI programs). In Section III, we will test this hypothesis using the JWRPS, followed by the concluding section in which we summarize the findings, discuss their key implication, and offer a point of hope by reporting a recent case from the semi-conductor industry which vividly demonstrates the crucial role that employee involvement and empowerment may play in reviving desolated workplace morale and restoring the global competitiveness of this important industry.

II. Worker Discontent and Voice in Japan

We first document how prevalent employee discontent with jobs and labor-management relations is in Japan currently. Following Freeman and Rogers (1999), we consider a multitude of measures to gauge worker discontent with jobs and labor-management relations. First, we consider two measures of the proportion of workers discontented with jobs. In the JWRPS, we ask each worker whether he/she is overall satisfied with his/her current job. Throughout our JWRPS, we follow the convention used by Freeman and Rogers (1999) in their original WRPS, and scale responses using a four-point scale: (i) very, (ii) somewhat; (iii) not too; and (iv) not at all.[15] Thus, our first measure of the proportion of discontented workers is the proportion of workers who are not too satisfied or not at all satisfied with their current jobs (%workers with

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firms) generates the committed and diligent workforce with strong work motivation and loyalty to their firms. The study inspired a number of scholars to conduct comparative studies of the Japanese and U.S. employment systems (see, for example, Koike, 1977; Cole, 1979; and Lincoln and Kalleberg, 1996).

[15] See, Freeman and Rogers (1999) for a lucid discussion on the advantages of the use of four-point scale over five-point scale with a neutral position.

JOB DISSATISFACTION$_i$=1 where JOB DISSATISFACTIONi=1 if the ith employee is not too satisfied or not at all satisfied with their current jobs, 0 otherwise). In addition, worker discontent with jobs can be expressed as their feelings about going to work at the time of leaving home for work on an average day. An alternative measure of the proportion of workers discontented with their jobs is then the proportion of workers who agree or somewhat agree that they usually do not look forward to going to work (%workers with WEAK MOTIVATION$_i$=1).[16]

The proportion of workers discontented with labor management relations is gauged by three measures: (i) the proportion of workers who feel only a little loyal or not at all loyal to their firm (%workers with WEAK LOYALTY$_i$=1); (ii) the proportion of workers who trust information provided by their firm only a little or do not trust it at all (%workers with WEAK TRUST$_i$=1);[17] and (iii) the proportion of workers who rate labor management relations as only fair or as poor (%workers with POOR IR$_i$=1).[18]

We believe the aforementioned five variables capture key aspects of worker attitudes toward their jobs and management, and can serve as good barometers of the wellbeing or health of the workplace. It seems quite plausible that the workplace will lose vigor, and become stagnant when filled with workers who are dissatisfied with their current jobs, do not feel like

[16] Again the four-point scale was used: (i) I agree that I look forward to going to work: (ii) I somewhat agree that I look forward to going to work; (iii) I somewhat agree that I do not look forward to going to work; and (iv) I agree that I do not look forward to going to work. WEAK MOTIVATIONi=1 if the ith employee agrees or somewhat agrees that he/she usually does not look forward to going to work, 0 otherwise.

[17] The JWRPS asks each respondent to respond to this question in the four-point scale again as the original WRPS did ("a lot", "some", "only a little", or "not at all"). WEAK LOYALTYi=1 if the ith employee feels only a little loyal or not at all loyal to their firm , 0 otherwise. WEAK TRUSTi=1 if the ith employee trusts information provided by management only a little or not at all, 0 otherwise.

[18] Following the original WRPS, we use the following four-point scale: (i) excellent; (ii) good; (iii) only fair; and (iv) poor. POOR IRi=1 if the ith employee rates labor management relations as only fair or as poor , 0 otherwise.

going to work every morning, disloyal to their firms, mistrust management, and perceive labor-management relations negatively.

Table 1A shows that the proportion of discontented workers in Japan is hardly negligible. Over 30 percent of Japanese workers are dissatisfied with their current jobs. Rather shockingly, nearly one in two Japanese workers agree or somewhat agree that they usually do not look forward to going to work. The proportion of Japanese workers with very weak or no loyalty to their firm is also nearly 30 percent. Close to 20 percent of Japanese workers either do not at all trust information provided by their firm or trust such information only little. Finally, surprisingly over 40 percent of Japanese workers rate labor management relations as only fair or as poor.[19]

The table further shows the proportion of discontented workers for different groups of workers. First, workers without supervisory responsibilities; and without union leadership responsibilities at the grass roots level appear to be more likely to be discontented with various aspects of their work than those with such responsibilities. Second, male workers and workers with a college degree are more likely to be discontented workers (the only exception is that male workers are LESS likely to have a trust problem with management than female workers). Third, in terms of occupations, office staff members seem to be less discontented with work than other occupational groups such as operators, engineers and scientists, and salespersons. Lastly, the proportion of discontented workers tends to fall with age.

To shed further light on the nature of this alarming degree of worker discontent at current workplaces in Japan, we calculated the proportion of discontented workers for workers with differing degrees of influence and involvement (or voice) on four different areas of company

[19] Cross-national comparison of worker discontent is particularly difficult and it is nearly impossible to construct survey instruments that are strictly comparable between Japan and the U.S. With that caution in mind, the degree of employee discontent revealed in our survey appear to be comparable or even greater than what Freeman and Rogers (1999) discovered for U.S. workers (especially the proportion of workers with weak motivation in Japan appears to be alarmingly high).

decisions affecting workplaces: (i) deciding on how to do job and organize the work; (ii) setting work schedules, including breaks, overtime and time off; (iii) setting goals for work group or department; and (vi) deciding on what training is needed for people in work group or department. As shown in Table 1B, workers lacking strong voice on each company decision (or workers with $VOICEJOB_i=0$; $VOICETIME_i=0$; $VOICEGOAL_i=0$; or $VOICESKILL_i=0$) appear to be more likely to have discontent with jobs and labor management relations.

To provide compelling evidence, however, that the lack of voice leads to worker discontent, it is necessary to establish the significant link between the lack of strong voice and worker discontent after controlling for a variety of variables which may affect worker discontent. To this end, we specify the following Probit model. Thus, we assume for the ith employee that:

(1) $$Pr(DISCONTENT_i = 1) = F(\alpha VOICE_i, X_i\beta)$$

For $DISCONTENT_i$, as discussed earlier, the data allow us to consider five specific variables: (i) JOB $DISSATISFACTION_i$ (=1 if the ith employee is not too satisfied or not at all satisfied with their current jobs, 0 otherwise); (ii) WEAK $MOTIVATION_i$ (=1 if the ith employee agrees or somewhat agrees that he/she usually does not look forward to going to work, 0 otherwise); (iii) WEAK $LOYALTY_i$ (=1 if the ith employee feels only a little loyal or not at all loyal to their firm , 0 otherwise); (iv) WEAK $TRUST_i$ (=1 if the ith employee trusts information provided by management only a little or not at all, 0 otherwise); and (v) POOR IR_i (=1 if the ith employee rates labor management relations as only fair or as poor , 0 otherwise).

For $VOICE_i$, as we discussed before, the data permits us to consider the following four dummy variables capturing whether the ith employee lacks strong voice on each of the four important company decisions affecting workplaces: (i) $VOICEJOB_i$ (=1 if the ith employee has a lot of involvement and influence on deciding how to do his/her job and organize the work, 0

otherwise); (ii) $VOICETIME_i$ (=1 if the ith employee has a lot of involvement and influence on setting work schedules, including breaks, overtime and time off, 0 otherwise); (iii) $VOICEGOAL_i$ (=1 if the ith employee has a lot of involvement and influence on setting goals for his/her work group or department, 0 otherwise); and (iv) $VOICESKILL_i$ (=1 if the ith employee has a lot of involvement and influence on deciding what training is needed for people in his/her work group or department, 0 otherwise).

The statistical significance of the estimated coefficient on each VOICE variable, α is of prime interest. That $\alpha<0$ supports our hypothesis that weak voice produces discontented workers.

X_i is a vector of variables that may affect the DISCONTENT variables. The JWPRS provides us with a rich set of such control variables. Having supervisory responsibilities may make the nature of work less repetitive and routine, and hence more fulfilling, resulting in a lower level of worker discontent for workers with supervisory responsibilities as compared to workers without such responsibilities. On the other hand, having supervisory responsibilities may make workers more prone to stress and disappointment, leading to a higher level of worker discontent for workers with supervisory responsibilities. To control for any possible impact on worker discontent of having supervisory responsibilities, we consider a dummy variable $NORANK_i$ (=1 if the ith employee has no supervisory responsibilities, 0 otherwise). As shown in Table 2, 64 percent of workers in our sample have no supervisory responsibilities.

A similar argument could be made for union responsibilities. Thus, to control for the possible effects on worker discontent of having union responsibilities, we also consider a dummy variable $LEADER_i$ (=1 if the ith employee is a grassroots-level union representative, 0 otherwise). Table 2 shows that 39 percent of workers have some union responsibilities at the grassroots level although all of them carry out their regular work as full-time employees while

fulfilling union responsibilities after hours except that they are allowed to leave their workplaces during regular hours when attending SFCs (Shop Floor Committees) as shop floor union representatives. Their hours absent from work due to participation in SFCs are paid by unions.

Conceivably the level of worker discontent differs significantly between different occupations. To control for possible cross-occupational differences in worker discontent, we consider four occupational dummy variables: (i) $OPERATOR_i$ (=1 if the ith employee is working in production as an operator or a maintenance worker, 0 otherwise (omitted as a reference group in the regressions). (ii) $ENGINEER_i$ (=1 if the ith employee is an engineer or a scientist, 0 otherwise; (iii) $STAFF_i$ (=1 if the ith employee is an office staff member, 0 otherwise); and (iv) $SALES_i$ (=1 if the ith employee is a salesperson, 0 otherwise). Table 2 shows that 44 percent of union members in the Electrical, Electronic, and Information industries in Japan are presently engineers or scientists working in technical fields; and the 26 percent are "blue-collar" workers working in production as operators or as maintenance workers. The remaining 30 percent are split between salespersons and office staff members working in accounting, finance, human resources and other staff functions.

To control for standard biographical characteristics, we further consider: (i) $MALE_i$ (=1 if the ith employee is male, 0 otherwise); (ii) AGE_i =age of the ith employee; and (iii) $HIGHEDU_i$ (=1 if the ith employee has a college degree, 0 otherwise). As shown in Table 2, 85 percent of workers are male with mean age of 36, and about one in two workers have some college degrees beyond high school diplomas. Finally, ß is a vector of unknown coefficients; and F(.) is the standard normal cumulative distribution function.[20]

[20] In addition to those control variables, we also consider a location dummy (indicating whether an employee lives in Tokyo), and ten wage level dummy variables: w350=1 if an employee's wage is less than 350,000 yen per year, 0 otherwise; w375=1 if an employee's wage is between 350,000 and 400,000, 0 otherwise; W425=1 if an employee's wage is between 400,000 and 450,000, 0 otherwise; W475=1 if an

The maximum likelihood estimates of Eq. (1) using JOB DISSATISFACTION as the DISCONTENT variable are reported in Table 3. As shown in Columns (i)-(iv) of the table, the estimated coefficients on VOICE are all negative and statistically significant at the 1 percent level (except for the case of VOICE=VOICESKILL in which it is statistically significant at the 5 percent level).[21] As such, we find consistent evidence supporting our hypothesis that weak voice (or the lack of strong voice) results in worker discontent measured by JOB DISSATISFACTION.[22] The link of weak voice to worker discontent measured by JOB DISSATISFACTION is found consistently for all four measures of VOICE (VOICEJOB, VOICETIME, VOICEGOAL, and VOICESKILL).

Many of the control variables also turn out to be statistically significantly related to worker discontent as measured by JOB DISSATISFACTION. Specifically, JOB DISSATISFACTION will be significantly greater for workers without supervisory responsibilities than workers with such responsibilities; for male workers than for female workers; for workers with a college degree than workers without such a degree; and for workers without union responsibilities than workers with such responsibilities.

Finally, to discern the relative importance of voice on each of the four areas of decision, we consider all four VOICE variables simultaneously. The last column of the table presents the

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employee's wage is between 450,000 and 500,000, 0 otherwise; W525=1 if an employee's wage is between 5000,000 and 550,000, 0 otherwise; W575=1 if an employee's wage is between 550,000 and 600,000, 0 otherwise; w625=1 if an employee's wage is between 600,000 and 650,000, 0 otherwise; W675=1 if an employee's wage is between 650,000 and 700,000, 0 otherwise; W725=1 if an employee's wage is between 700,000 and 750,000, 0 otherwise; and w775=1 if an employee's wage is between 750,000 and 800,000, 0 otherwise. W800 (=1 if an employee's wage is 800,000 or more yen per year, 0 otherwise) is omitted as a reference group in the regressions. While multicollinearity makes the estimates somewhat less precise overall, we find no discernable change in the estimated coefficients on VOICE. These and other unreported results are available from Takao Kato at tkato@mail.colgate.edu upon request.

[21] For the sake of exposition, from now on, we omit subscripts i.

[22] Since our data are not panel data, unfortunately we are unable to control for unobserved worker heterogeneity that is time-invariant, such as innate ability and general attitude.

estimates of such a nested specification. The estimated coefficients on VOICEJOB and VOICEGOAL are statistically significant at least at the 5 percent level whereas the estimated coefficients on VOICETIME and VOICESKILL are not statistically significant at the 10 percent level. It appears that lacking strong voice on deciding how to do job and organize the work and setting group goals is more damaging for job satisfaction than lacking strong voice on setting work schedules and deciding training needs.

Tables 4-7 present the maximum likelihood estimates of Eq. (1), using different DISCONTENT variables. First, as shown in Table 4 with WEAK MOTIVATION as the DISCONTENT variable, the estimated coefficients on VOICE are again all negative, and statistically significant for three of the four specifications (i.e., VOICE=VOICEJOB, VOICETIME, and VOICEGOAL) and close to significant with VOICE=VOICESKILL). The evidence supports that weak employee voice produces discontented workers who usually do not look forward to going to work. The nested specification considering all VOICE variables together reveals again the relative importance of VOICEJOB and VOICEGOAL over VOICETIME and VOICESKILL in the incidence of discontented workers who do not look forward to going to work.

Second, Table 5 shows the maximum likelihood estimates of Eq. (1), using WEAK LOYALTY as the DISCONTENT variable. The estimated coefficients on VOICEJOB and VOICETIME are again negative and statistically significant at the 1 percent level. The estimated coefficients on VOICEGOAL and VOICESKILL are also negative though not quite significant at the 10 percent level. Overall, the evidence is again consistent with our hypothesis that the lack of strong voice generates more discontented workers with weak loyalty to their company. Among the four areas of decision, the lack of strong voice on deciding how to do job and

organize the work is proven to be the most important contributor to the incidence of discontented workers with weak loyalty.

Table 6 shows when WEAK TRUST is considered as the DISCONTENT variable, the estimated coefficients on VOICE are yet again all negative, and statistically significant at least at the 10 percent level with VOICETIME and VOICEGOAL as the VOICE variable. Insofar as employee voice on setting work schedules, and setting group goals are concerned, the absence of strong voice tends to produce more discontented workers with weak trust on management. As shown in the nested specification, the most important voice in terms of its impact on trust is the one on setting work schedules.

Finally, as shown in Table 7, with POOR IR as the DISCONTENT variable, the estimated coefficients on VOICE are negative for all four specifications and statistically significant at the 1 percent level in the first two specifications in which VOICEJOB and VOICETIME are considered as the VOICE variable. Workers lacking strong voice on deciding how to do job and organize the work; and setting work schedules are more likely to view labor-management relations poor, and are discontented with industrial relations.

III. The Efficacy of Japanese EI Programs

As Levine and Tyson (1990) suggest, relatively greater job security and strong group cohesiveness of Japanese workers in large manufacturing companies in the postwar era point to an industrial relations system favorable to successful employee participation. In addition, steady economic growth over the sample period, lower unemployment and stable financial corporate grouping point to an external environment favorable to successful employee participation.

Probably as a result of these favorable environments in the postwar Japanese economy, in particular in manufacturing, participatory employment practices diffused widely and were established firmly (Kato and Morishima, 2002). Indeed these practices became the hallmark of "Japanese management," which has been rousing (or requiring in some instances) many U.S. corporations to experiment with employee involvement and labor-management cooperation lately (see, for instance, Levine, 1995: 5). In short, the postwar Japanese economy (especially in manufacturing) clearly represents one of the most important examples of experimentation with participatory employment practices.[23]

The JWRPS enables us for the first time to investigate whether Japan's celebrated participatory employment practices are indeed helping Japanese workers develop a strong sense of involvement and influence on company decisions affecting their workplaces. It is particularly timely to study the link between participatory employment practices and employee sense of involvement and influence at this time in light of the popular rhetoric that once-celebrated Japanese participatory management is now less relevant and sometime even harmful in the rapidly changing globalized marketplace.

As shown in Table 8, we consider three EI (Employee Involvement) programs which are often considered key work practices of participatory Japanese management in the literature.[24] The table confirms the prevalence of these practices among Japanese workers in the electrical,

[23] The economic slowdown in the 1990s and a rapidly aging workforce in Japan have allegedly been eroding the aforementioned participation-friendly environments. See Kato (2001, 2003a), Chuma (1998, 2002), Ohashi and Tachibanaki (1998), and Kuruvilla and Erickson (2002) for evolving employment practices in Japan.

[24] As discussed earlier, Japan's participatory employment system consists of these EI programs and financial participation schemes such as PSPs (Profit Sharing Plans) and ESOPs (Employee Stock Ownership Plans). We are focusing on the EI programs in this paper, for the primary objective of EI programs is to enhance voice whereas it is less clear what financial participation schemes will do to voice itself (perhaps enhance employee desire for voice). We plan to study the impact on employee desire for voice of financial participation schemes in a separate paper.

electronic, and information industries. As such, over 60 percent of workers work for firms with SFCs (Shop Floor Committees) in which supervisors and employees on shop floor regularly discuss issues such as shop-floor operations and shop-floor environments. Among those workers in firms with SFCs, about one in two workers always attend SFC meetings.

Somewhat surprisingly, only 43 percent of workers in the electrical, electronic and information industries work in firms with SGAs (Small Group Activities) such as quality control (QC) circles and Zero Defects in which small groups at the workplace level voluntarily set plans and goals concerning operations and work together toward accomplishing these plans and goals. This is in part due to the fact that a significant number of firms in the industries terminated SGAs in recent years.[25] On the other hand, the participation rate of workers in firms with SGAs is remarkably high (87 percent), confirming that Japanese SGAs are indeed broad-based.

One of the core mechanisms for labor-management relations within a large Japanese firm is joint labor-management committees (JLMCs). Established at the top level (corporate and/or establishment level) and involving both management and union representatives, JLMCs serve as a mechanism for employee participation/involvement at the top level, covering a large variety of issues ranging from basic business policies to working conditions.[26] As Kato (2003b) shows, the productivity effects of JLMCs vary significantly, depending on how widely information shared in JLMCs is disseminated to the rank and files. To this end, we calculate the proportion of workers who agree that nearly all information provided in JLMCs is widely disseminated to them.

[25] Chuma (2003) documents the rising importance of information sharing between production workers and design and development engineers as the complexity of production process rises in Japan. Traditional SGAs with heavy reliance on production workers' problem solving skills may be less effective in recent years with the rising complexity of manufacturing process. We will examine this important issue in more details in our forthcoming paper.

[26] See, for example, Kato (2003a) for detailed institutional information on JLMCs.

Approximately 9 percent of workers agree that nearly all information provided in JLMCs reaches them.[27]

We expect these EI programs (SFCs, SGAs and JLMCs) to enhance employee sense of involvement and influence (or employee voice) since after all the main objective of these institutions is to foster employee voice. Table 9 shows preliminary evidence on the link between EI programs and VOICE. Specifically, workers in firms with SFCs, SGAs and JLMCs with full information sharing are indeed more likely to have strong voice (regardless of which of the four areas of decision is considered) than other workers. For SFCs and SGAs, the JWRPS will allow us to further examine if among workers in firms with each program, workers who actively participate in each program are more likely to have strong voice. Table 9 provides preliminary evidence that active participation in SFCs and SGAs appear to be in fact beneficial for workers enhancing voice.

Like in the previous section, to test more systematically and rigorously our hypothesis that EI programs enhance voice, we specify the following Probit model. Thus, we assume for the ith employee that:

(2) $\Pr(\text{VOICE} = 1) = F(\gamma EI, X\beta)$

For EI, as discussed above, we consider three major programs used widely by large firms in Japan: (i) SFC (=1 if the ith employee works in a firm with SFCs, 0 otherwise); (ii) SGA (=1 if the ith employee works in a firm with SGAs, 0 otherwise); and (iii) JLMC (=1 if the ith employee believes that nearly all information shared in JLMCs is made available to him/her, 0 otherwise). In addition, among those in firms with SFCs, the data further allow us to create SFC PARTICIPATE (=1 if the ith employee almost always attends SFC meetings, 0 otherwise).

[27] Since we excluded all full-time union officials from our sample, no worker in the sample actually attends JLMCs.

Likewise, among those in firms with SGAs, the data allow for the use of SGA PARTICIPATE (=1 if the ith employee participates in SGAs, 0 otherwise).

The statistical significance of the estimated coefficient on each EI variable, γ is of our main interest. That $\gamma>0$ supports our hypothesis that EI programs enhance employee voice. For control variables, X, we use the same set of variables used in the previous section. Finally, ß is a vector of unknown coefficients; and F(.) is the standard normal cumulative distribution function.[28]

The maximum likelihood estimates of Eq. (2) with VOICEJOB as the VOICE variable are reported in Table 10. As shown in Column (i) of the table, the estimated coefficients on SFC are positive and statistically significant at the 5 percent level, suggesting that workers in firms with SFCs are more likely to have strong voice on deciding how to do job and organize the work than other workers. Likewise, as shown in Columns (ii) and (iii), the estimated coefficients on SGA and JLMC are also positive and statistically significant at the 5 percent level for SGA and at the 1 percent level for JLMC, indicating that workers in firms with SGAs and workers with full information sharing JLMCs are more apt to have strong voice on deciding how to do job and organize the work than other workers.

[28] It is possible that unobserved individual heterogeneity affects both VOICE in Eq. (2) and DISCONTENT in Eq. (1), making a simple probit estimation of Eq. (1) subject to endogeneity bias. To correct for such a bias, we re-estimated Eq. (1), using LIMDEP's "two-step estimation using binary choice models (LIMDEP Version 8 Econometric Modeling Guide Volume 1 E15-54 to E15-58)." Like in most cases of such IV (Instrumental Variable) estimations, our hands were somewhat tied due to the scarcity of reliable instruments. Nonetheless, we managed to obtain the IV estimates by collecting (and using as additional instrumental variables) supplementary data on firm characteristics: (i) firm size measured by employment, sales and asset; (ii) profitability such as ROA and ROE; and (iii) labor force composition such as average wage and age. Though the validity of these instruments can be debatable, reassuringly all previously significant coefficients on VOICE in Eq. (1) are found to be still negative and statistically significant even if we use predicted values for VOICE from the first-step estimation of Eq. (2) instead of actual values for VOICE.

To see the relative importance of each of the three EI programs, we also consider SFC, SGA and JLMC simultaneously. As shown in Column (iv) of Table 10, the estimated coefficients on SFC, SGA and JLMC are still all statistically significant at least at the 10 percent level, pointing to the robustness of the link of each EI program to voice.

Furthermore, as Column (v) of the table indicates, among workers in firms with SFCs, workers who almost always attend SFC meetings are more likely to have strong voice on deciding how to do job than other workers. Note that the positive relationship between SFC meeting attendance and voice is statistically significant at the 1 percent level, having controlled for a variety of variables, in particular LEADER (a dummy variable indicating whether a worker is a shopfloor union representative). Similarly, as shown in the last column, among workers in firms with SGAs, whether a worker has strong voice on deciding on his/her work is significantly influenced by his participation in SGAs (the link of SGA participation to VOICE is statistically significant at the 1 percent level).

While our primary interest is the estimated coefficients on EI, the signs of the estimated coefficients on our control variables are reassuringly as expected. Focusing on the statistically significant estimates, workers without supervisory responsibilities are less likely to have strong voice than workers with such responsibilities; male workers more likely to have strong voice than female workers; older workers more likely to have strong voice than younger workers; office staff members and sales persons are more likely to have strong voice than operators.[29]

Tables 11-13 present the maximum likelihood estimates of Eq. (2), focusing on voice on different areas of decision making (VOICETIME, VOICEGOAL, VOICESKILL as the VOICE

[29] As we did in our estimation of Eq. (1), we also added a location dummy (indicating whether an employee lives in Tokyo), and wage level dummy variables to the right-hand side. Again, while multicollinearity makes the overall estimates somewhat less precise, we found no discernable change in the estimated coefficients on EI.

variable). As shown in Table 11, the results using VOICETIME are very similar to those using VOICEJOB, supporting strongly our hypothesis that EI programs enhance voice on setting work schedules, including breaks, overtime and time off.

Though the results using VOICEGOAL and VOICESKILL are somehow less significant overall, as Tables 12 and 13 show, the estimated coefficients on SGA are still consistently significant at the 1 percent, suggesting that SGAs enhance voice on the other two areas as well (namely on setting goals for his/her work group or department; and deciding what training is needed for people in his/her work group or department).

Finally, as an alternative way to assess the effectiveness of EI programs, we estimate the direct relationship between worker discontent and EI programs. That is,

(3) $\Pr(\text{DISCONTENT} = 1) = F(\delta EI, X\beta)$

That $\delta<0$ confirms the significant role that EI programs play in preventing workers from becoming discontented with their jobs and labor-management relations. Table 14 highlights the key results. Overall, as expected, EI programs are negatively and significantly related to worker discontent. In particular, JLMCs with full information sharing are found to play a particularly significant role in preventing workers from building up a sense of mistrust on management and a poor assessment of labor-management relationships, which appears to be quite plausible.

IV. Conclusions

Using a unique new survey of Japanese workers in the electrical, electronic and information industries, the JWRPS, we have discovered that presently there is an alarming degree of worker discontent in Japan. Specifically, almost one third of Japanese workers are dissatisfied with their current jobs and even more shockingly almost one in two Japanese

workers usually do not look forward to going to work. Nearly one third of Japanese workers do not at all feel loyal to their employers or feel loyal only a little. Almost one in five Japanese workers either do not at all trust information provided by their firm or trust such information only a little. Finally, fully 40 percent of Japanese workers rate labor management relations as only fair or as poor.

We have found systematic evidence that such worker discontent is significantly related to the lack of strong employee involvement and influence (or strong voice). As such, the evidence is consistent with our hypothesis that the lack of strong voice produces discontented workers. Furthermore, evidence has been found that strong employee voice is significantly linked to the presence of EI programs such as SFCs (Shop Floor Committees), SGAs (Small Group Activities) and full information sharing JLMCs (Joint Labor-Management Committees) as well as actual participation in such programs, suggesting that these celebrated Japanese work practices indeed enhance employee voice. It follows that weakening participatory employment practices as the popular rhetoric sometimes suggests may result in exacerbating the already alarming degree of discontent with work and labor management relations among Japanese workers, which may ultimately undermine the competitiveness of the Japanese economy.[30]

We end the paper with our most recent field research at a medium size semi-conductor firm with about 800 employees. This firm has succeeded in developing a strong partnership between operators and engineers and enhancing production efficiency and quality by restoring employee involving and empowerment of operators in various local decision making. As such , the case vividly demonstrates the crucial role that employee involvement and empowerment may

[30] For more direct econometric evidence on the positive link between Japanese EI programs and firm performance, see for example, Morishima (1991a; 1991b) and Kato and Morishima (2002).

play in reviving desolated workplace morale and restoring the global competitiveness of the Japanese semi-conductor industry.

At this firm, operators are now allowed to stop operations when a serious problem is detected. Operators and engineers then jointly engage in problem solving activities. Operators do not blindly follow what engineers instruct. For instance, operators question the value of any changes in quality control manuals proposed by engineers and do not accept until they are convinced of the value of such proposed changes. Furthermore, when engineers propose to conduct an experiment with actual production lines, operators have a right to veto such a proposal and indeed the veto right has been exercised on grounds of insufficient value added expected from the experiment. Even the proposed experiment is approved by operators and subsequently conducted, engineers and operators involved with the experiment meet to assess jointly the validity of the experiment.

Lastly, the firm holds the all-employee meeting every morning with top management present. The director of operation reports the previous day's production and explains the day's production plan, followed by a series of questions and answers (which are often substantive and engaging). This way all employees from CEO to regular operators possess the same information and develop a strong goal alignment among all employees, in particular between operators and engineers/supervisors. The daily all-employee meeting is considered a JLMC meeting with full and direct participation of all employees (and hence a full information sharing JLMC).

By fostering employee involvement and empowerment, the firm is successfully tapping into local information and know-how of operators, nurturing a strong partnership between engineers and operators, and reviving the innovative prowess. As a result, based on a number of standard efficiency and quality measures used by the industry, this firm is presently far

outperforming its competitors, and is becoming a popular benchmark site for many Japanese firms to visit.[31]

[31] As a result of the much publicized success of our case, its CEO and director of operation who initiated and implemented the strategy to enhance voice and tap into the power of the local collaboration between operators and engineers were recently invited to replicate and expand the strategy in a much larger firm in the industry. The firm has recently reported much improved efficiency and quality, offering yet another field evidence pointing to the importance of employee involvement and participation.

References

Addison, John T. and Clive R. Belfield. 2000. "The Impact of Financial Participation and Employee Involvement on Financial Performance: A Re-estimation Using the 1998 WERS." *Scottish Journal of Political Economy*, Vol. 47, No. 5 (November), pp. 571-83.

Appelbaum, Eileen, Thomas Bailey, Peter Berg, and Arne L. Kalleberg. 2000. *Manufacturing advantage: Why high-performance work systems pay off*. Ithaca and London: Cornell University Press, ILR Press.

Bailey, Thomas, Peter Berg, and Carola Sandy. 2001. "The Effect of High-Performance Work Practices on Employee Earnings in the Steel, Apparel, and Medical Electronics and Imaging Industries." *Industrial and Labor Relations Review*, Vol. 54, No. 2 (March), pp. 525-43.

Bartel, Ann P. 2004. "Human Resource Management and Organizational Performance: Evidence from Retail Banking." *Industrial and Labor Relations Review*, Vol. 57, No. 2 (January), pp. 181-203.

Batt, Rosemary. 1999. "Work Organization, Technology, and Performance in Customer Service and Sales." *Industrial and Labor Relations Review*, Vol. 52, No. 4 (July), pp. 539-64.

Batt, Rosemary. 2004. "Who Benefits from Teams? Comparing Workers, Supervisors, and Managers." *Industrial Relations*, Vol. 43, No. 1 (Special Issue), pp. 183-212.

Bayo-Moriones, José Alberto, Pedro Javier Galilea-Salvatierra, and Javier Merino-Díaz de Cerio. 2003. "Participation, Cooperatives and Performance: An Analysis of Spanish Manufacturing Firms.," in Takao Kato and Jeffrey Pliskin, eds, *Determinants of the Incidence and the Effects of Participatory Organizations: Advances in the Economic Analysis of Participatory and Labor-Managed Firms*. Amsterdam: Elsevier/JAI, pp. 31-56.

Black, Sandra E. and Lisa M. Lynch. 2001. "How to Compete: The Impact of Workplace Practices and Information Technology on Productivity." *Review of Economics and Statistics*, Vol. 83, No. 3 (August), pp. 434-45.

Black, Sandra E., Lisa M. Lynch, and Anya Krivelyova. 2004. "How Workers Fare When Employers Innovate." *Industrial Relations*, Vol. 43, No. 1 (Special Issue), pp. 44-66.

Cappelli, Peter and David Neumark. 2001. "Do "High-Performance" Work Practices Improve Establishment-Level Outcomes?" *Industrial and Labor Relations Review*, Vol. 54, No. 4 (July), pp. 737-75.

Chuma, Hiroyuki. 1998. "Is Japan's Long-Term Employment System Changing?," in Toshiaki Tachibanaki and Isao Ohashi, eds, *Internal labour markets, incentives and employment*. New York, London: St. Martin's Press/Macmillan Press, pp. 225-68.

Chuma, Hiroyuki. 2002. "Employment Adjustments in Japanese Firms during the Current Crisis." *Industrial Relations*, Vol. 41, No. 4 (October), pp. 653-82.

Chuma, Hiroyuki. 2002. "UMC Japan no Tsuyosa wo Bunseki (Analysis of Strengths of UMC Japan)." *NIKKEI MICRODEVICES*, Vol., No. pp.64-71.

Chuma, Hiroyuki. 2003. "Determinants of the Shadow Value of Simultaneous Information Sharing in the Japanese Machine-Tool Manufacturing Industry," in Seiritsu Ogura, Toshiaki Tachibanaki and David Wise, eds, *NBER Conference Report Labor Markets and Firm Benefit Policies in Japan and the United States*. Chicago: University of Chicago Press, pp. 81-102.

Cole, Robert. 1979. *Work, Mobility and Participation*. Berkeley: University of California Press.

Dore, Ronald. 1973. *British Factory-Japanese Factory*. Berkeley: University of California Press.
Eriksson, Tor. 2003. "The Effects of New Work Practices - Evidence from Employer-Employee Data.," in Takao Kato and Jeffrey Pliskin, eds, *Determinants of the Incidence and the Effects of Participatory Organizations: Advances in the Economic Analysis of Participatory and Labor-Managed Firms*. Amsterdam: Elsevier/JAI, pp. 3-30.
Forth, John and Neil Millward. 2004. "High-Involvement Management and Pay in Britain." *Industrial Relations*, Vol. 43, No. 1 (Special Issue), pp. 98-119.
Freeman, Richard B. and Joel Rogers. 1999. *What workers want*. Ithaca and London: Cornell University Press, ILR Press.
Freeman, Richard B., Morris Kleiner, and Cheri Ostroff. 2000. "The Anatomy of Employee Involvement and its Effects on Firms and Workers." Working Paper No. 8050. Cambridge, MA: National Bureau of Economic Research.
Godard, John. 2001. "High Performance and the Transformation of Work? The Implications of Alternative Work Practices for the Experience and Outcomes of Work." *Industrial and Labor Relations Review*, Vol. 54, No. 4 (July), pp. 776-805.
Hamilton, Barton H., Jack A. Nickerson, and Hideo Owan. 2003. "Team Incentives and Worker Heterogeneity: An Empirical Analysis of the Impact of Teams on Productivity and Participation." *Journal of Political Economy*, Vol. 111, No. 3 (June), pp. 465-98.
Handel, Michael J. and Maury Gittleman. 2004. "Is There a Wage Payoff to Innovative Work Practices?" *Industrial Relations*, Vol. 43, No. 1 (Special Issue), pp. 67-97.
Handel, Michael J. and David I. Levine. 2004. "Editors' Introduction: The Effects of New Work Practices on Workers." *Industrial Relations*, Vol. 43, No. 1 (Special Issue), pp. 1-43.
Helper, Susan. 1998. "Complementarity and Cost Reduction: Evidence from the Auto Supply Industry." Working Paper No. 6033 (revised). Cambridge, MA: National Bureau of Economic Research.
Hoshi, Takeo and Anil K. Kashyap. 2004. "Japan's Financial Crisis and Economic Stagnation." *Journal of Economic Perspectives*, Vol. 18, No. 1 (Winter), pp. 3-26.
Ichniowski, Casey , Kathryn Shaw, and Giovanna Prennushi. 1997. "The Effects of Human Resource Management Practices on Productivity: A Study of Steel Finishing Lines." *American Economic Review*, Vol. 87, No. 3 (June), pp. 291-313.
Ichniowski, Casey and Kathryn Shaw. 1995. "Old Dogs and New Tricks: Determinants of the Adoption of Productivity-Enhancing Work Practices." *Brookings Papers on Economic Activity*, pp. 1-55.
Isa, Katsuhide and Tsuyoshi Tsuru. 2002. "Cell Production and Workplace Innovations in Japan: Toward a New Model for Japanese Manufacturing?" *Industrial Relations*, Vol. 41, No. 4 (October), pp. 548-78.
Janod, Veronique and Anne Saint-Martin. 2004. "Measuring the Impact of Work Reorganization on Firm Performance: Evidence from French Manufacturing, 1995-1999." *Labour Economics*, Vol. 11, No. 6 (Special Issue), pp. 785-98.
Jones, Derek C. and Takao Kato. 1993. "The Scope, Nature, and Effects of Employee Stock Ownership Plans in Japan." *Industrial and Labor Relations Review*, Vol. 46, No. 2 (January), pp. 352-67.
Jones, Derek C. and Takao Kato. 1995. "The Productivity Effects of Employee Stock-Ownership Plans and Bonuses: Evidence from Japanese Panel Data." *American Economic Review*, Vol. 85, No. 3 (June), pp. 391-414.

Jones, Derek C., Takao Kato, and Adam Weinberg. 2003. "Changing Employment Practices and the Quality of Jobs in Central New York: Evidence from Case studies of Medium-Sized Manufacturing Establishments in Central New York," in Eileen Appelbaum, Annette Bernhardt and Richard Murnane, eds, *Low-Wage America: How Employers are Reshaping Opportunity in the Workplace*. New York: Russell Sage Foundation, pp. 479-526.

Kato, Takao. 2001. "The End of Lifetime Employment in Japan? Evidence from National Surveys and Field Research." *Journal of the Japanese and International Economies*, Vol. 15, No. 4 (December), pp. 489-514.

Kato, Takao. 2003a. "The Recent Transformation of Participatory Employment Practices," in Seiritsu Ogura, Toshiaki Tachibanaki and David Wise, eds, *NBER Conference Report Labor Markets and Firm Benefit Policies in Japan and the United States*. Chicago: University of Chicago Press, pp. 39-80.

Kato, Takao. 2003b. "The Nature, Scope And Effects Of Joint Labor-Management Committees In Japan." Working Paper 103-09, Department of Economics, Colgate University.

Kato, Takao and Motohiro Morishima. 2002. "The Productivity Effects of Participatory Employment Practices: Evidence from New Japanese Panel Data." *Industrial Relations*, Vol. 41, No. 4 (October), pp. 487-520.

Koike, Kazuo. 1977. *Shokuba No Rodokumiai To Sanka (Unions at Workplace and Participation)*. Tokyo: Toyo Keizai (Oriental Economist).

Koike, Kazuo. 1991. *Shigoto No Keizaigaku (Economics of Work)*. Tokyo: Toyo Keizai.

Kuruvilla, Sarosh and Christopher L. Erickson. 2002. "Change and Transformation in Asian Industrial Relations." *Industrial Relations*, Vol. 41, No. 2 (April), pp. 171-227.

Leoni, Riccardo , Annalisa Cristini, Sandrine Labory, and Alessandro Gaj. 2001. "New Work Practices in Italy - Adoption and Performance Effects." Paper presented at the International Conference on Organizational Design, Management Styles and Firm Performance, University of Bergamo, Bergamo, Italy.

Levine, David I. 1995. *Reinventing the workplace: How business and employees can both win*. Washington, D.C.: Brookings Institution.

Levine, David I. and Laura D'Andrea Tyson. 1990. "Participation, Productivity and the Firm's Environment," in Alan S. Blinder, ed *Paying For Productivity*. Washington, D.C.: Brookings Institution, pp. 183-236.

Lincoln, James R. and Arne L. Kalleberg. 1996. "Commitment, Quits, and Work Organization in Japanese and U.S. Plants." *Industrial and Labor Relations Review*, Vol. 50, No. 1 (October), pp. 39-59.

Morishima, Motohiro. 1991a. "Information Sharing and Firm Performance in Japan." *Industrial Relations*, Vol. 30, No. 1 (Winter), pp. 37-61.

Morishima, Motohiro. 1991b. "Information Sharing and Collective Bargaining in Japan: Effects on Wage Negotiation." *Industrial and Labor Relations Review*, Vol. 44, No. 3 (April), pp. 469-85.

Ohashi, Isao. 1989. "On the Determinants of Bonuses and Basic Wages in Large Japanese Firms." *Journal of the Japanese and International Economies*, Vol. 3, No. 4 (December), pp. 451-79.

Ohashi, Isao and Toshiaki Tachibanaki, eds. 1998. *Internal labour markets, incentives and employment*. New York, London: St. Martin's Press/Macmillan Press.

Ohkusa, Yasushi and Fumio Ohtake. 1997. "The Productivity Effects of Information Sharing, Profit Sharing, and ESOPs." *Journal of the Japanese and International Economies*, Vol. 11, No. 3 (September), pp. 385-402.
Patrick, Hugh. 1998. "The Causes of Japan's Financial Crisis." Working Paper No. 146, Center on Japanese Economy and Business, Columbia University.
Pil, Frits K. and John Paul MacDuffie. 1996. "The Adoption of High-Involvement Work Practices." *Industrial Relations*, Vol. 35, No. 3 (July), pp. 423-55.
Zwick, Thomas. 2004. "Employee Participation and Productivity." *Labour Economics*, Vol. 11, No. 6 (Special Issue), pp. 715-40.