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CONTENTS

General Survey
- 1998 White Paper on Working Women

Working Conditions and the Labor Market
- Preliminary Report on Job Applicant Survey: Twelve Percent of Employed Want to Change Jobs

Labor-Management Relations
- Labor and Management Move into '99 Spring Wage Offensive

Public Policy
- Unemployment Benefits Rolls Top One Million for First Time

Special Topic
- The Toyota Production System in Indonesia

JIL News and Information

Statistical Aspects
- Recent Labor Economy Indices
- Trends in the Annual Growth Rate in Average Cash Earnings:1991-1998

General Survey

1998 White Paper on Working Women

The Ministry of Labour published its annual White Paper on Working Women on January 26, 1999. In addition to reporting on employment, the white paper also focuses on the life course and re-employment of women.

The female labor force participation rate stood at 50.4 percent in 1997, with women workers accounting for 40.7 percent of the total labor force. Both figures rose for the first time in six years. During the year, the number of women employees increased by 430,000, to 21.27 million; the number of part-timers grew by 540,000, to 7.46 million. Furthermore, the rate of working women in the 30 to 34 age bracket − where the dip in the long-standing M-shaped labor participation curve bottoms out − stood at 56.2 percent, up 1.4 percentage points from the year before.

On life course and re-employment, the white paper underlined changes in attitudes of Japanese women toward work. While many Japanese women consider it ideal to balance work and home, most find it difficult to achieve this and to continue working due to time constraints and their physical limitations. Few job opportunities are available for women wishing to return to work, and supports for working women, such as training to help women maintain and develop their job skills while away from the labor force are seen as insufficient. However, the white paper notes Japanese companies are beginning to review their personnel management practices and are expected to hire according to professional qualification regardless of gender and age. Therefore, the need to actively utilize women who have returned to the work place was underlined in the white paper. The re-employment of women is seen as one way of coping with a population having fewer children and as a means of invigorating the nation's economy.

For re-employment to succeed, it is vital that a system be put in place which provides adequate training opportunities. It will also be necessary to establish a fair work skills accreditation system. In addition, companies should receive information on job seekers who have professional knowledge and skills. The importance of scheduling work for those with childcare and other responsibilities was also stressed. At the same time, the white paper recommends that a variety of arrangements be considered as a means of re-employing women. Dispatched workers, contract-based workers, those working at home, and the running of one's own businesses were seen as providing examples of alternative work ways. Volunteers and

worker collectives were also mentioned as other approaches bringing flexibility to the way work is organized.

Working Conditions and the Labor Management

Preliminary Report on Job Applicant Survey: Twelve Percent of Employed Want to Change Jobs

In August and October 1998, the Management and Coordination Agency (MCA) surveyed job applicants in conjunction with its Labor Force Survey. The survey asked how their employment situation had changed in the past year, why they left work, whether they were finding a new job, and why they are unable to find work.

When the survey was conducted in October, the number of jobless had hit 2.9 million. About 1.83 million of that number had worked during the past year. Of that figure, 1.14 million were men and 680,000 were women; 880,000 were aged 15 to 34, 500,000 were 35 to 54, and 460,000 were 55 or older.

Why did they quit their previous work? About 17 percent of the men had been dismissed or retrenched (but did not include those who became unemployed when their firm went bankrupt and closed). About 19 percent of the women said family responsibilities (marriage, childbirth, other domestic care, nursing or other personal reasons such as illness). Another 18 percent mentioned dismissal and retrenchment. Twenty percent of the unemployed aged 15 to 34 said they left work because working conditions such as pay, working hours and holiday leave were not up to their expectations before being employed; 26 percent of the unemployed aged 35 to 54 said they had been dismissed or retrenched; 35 percent of the unemployed aged over 55 listed the mandatory retirement age or completion of an employment contract as the reason for their being unemployed; with 26 percent citing dismissal and retrenchment.

The survey also reported that 12 percent of those employees surveyed wanted to switch jobs. Twenty-two percent of temporary and part-time workers and 20 percent of other non-regular workers and dispatched workers wished to change jobs. Meanwhile, 11 percent of regular employees and managers wanted to switch jobs. As for the reasons to switch jobs, 22 percent of the regular employees cited "deteriorating working conditions," 30 percent of part-time and temporary workers cited the casual nature of their employment, and 26 percent of other non-regular workers and dispatched workers cited the same reasons for wanting another job.

Labor Management Relations

Labor and Management Move into '99 Spring Wage Offensive

Amidst the second consecutive year of negative economic growth with employment levels becoming more difficult to maintain, Rengo (the Japanese Trade Union Confederation) and Nikkeiren (the Japan Federation of Employers' Associations) decided upon their stance for this year's spring wage offensive

At an extraordinary general meeting on January 12, Nikkeiren accepted the guidelines presented in a report by its labor research committee. This report listed stable employment as the first priority, claiming that "the fear of unemployment will make spending sluggish and slow economic recovery." It called for both labor and management to maintain and stabilize levels of employment.

Nikkeiren's chairman, Jiro Nemoto, addressed the meeting that the nation's nominal wages are already some of the highest at the world's top level. He said it would be extremely difficult to raise wages further. He suggested that employment security should come first and that other working conditions should be dealt with flexibly in a way consistent with the conditions found in each company. He thus called for a move away from having a uniform response for all companies.

Countering Nemoto's remarks, Rengo Chairman Washio argued at a rally on January 14 that a zero wage hike, Nikkeiren's proposal, would negatively affect the economy, criticizing the Nikkeiren report as a call for a zero wage hike. In relation to employment, he insisted that a drop in wages would not guarantee job security, and encouraged Rengo-affiliated organizations to hold labor-management negotiations from a macroeconomic perspective with the aim of achieving both pay raises and job security. He advised unions simply not to fall back on easy in-house arrangements.

Rengo initially demanded a monthly salary of ¥323,300 for a 35-year-old standard worker with 17 years of service and a high-school education, an increase of ¥3,200 (over 1%) over the 1998 salary. Rengo insists that the road to economic recovery is through wage boosts, tax reductions and its other demands.

Major unions had presented their wage demands to management before February 19 and had immediately begun to negotiate with management. They planned to negotiate with management between March 17 and 26 and to settle by the end of March.

To implement Rengo's wage policy, industrial federations began to talk with management. Unions at the major automakers served as the pacesetters and submitted their demands to management on February 10. Seventeen firm-level unions under the umbrella of Denki Rengo (the Japanese Confederation of Electrical Electronic and Information Unions) then presented their demands by February 18.

Virtually every company is struggling in the second consecutive year of negative growth. Under this situation, focus is on whether labor will be able to counter management's position that there is no margin for wage hikes. Labor and management will likely be forced to face the toughest pay negotiations ever. March 17 was the date of reply set for management by Kinzoku Rokyo (IMF-JC). Individual unions have initially stuck with Rengo's demand for a wage hike over one percent excluding the regular two-percent annual pay increase. To put wage disparities between companies into perspective, an increasing number of industrial-level unions have adopted the system of linking wage demands for individual workers to an across-the-board figure rather than going for an overall increase in percentage terms. Jidosha Soren (Confederation of Japan Automobile Workers Unions) will for the first time ask that the average pay raise for a 35-year-old worker (with 17 years of service, a high school diploma and a skilled position) be increased from ¥306,300 to ¥309,800. In terms of the old average demand system, it will demand an overall increase of ¥9,000 (including the regular annual pay increase), down ¥4,000 from ¥13,000 the year before.

As for bonuses, the union at Toyota Motors, the nation's largest in the auto industry, demanded bonuses equivalent to six months of the basic wage, 0.1 month below the amount won the previous year. Meanwhile, the union at Honda, which is expected to post record profits, asked for bonuses equivalent to 6.3 months of the basic wage, 0.1 month higher than the amount agreed upon last year.

Labor unions at the major electric machinery makers asked for a wage hike of ¥3,000, excluding the regular annual pay increase, for employees 35 or older who had graduated from high school and had been on the job for 17 years. This year, Denki Rengo shifted to concluding an annual agreement under which summer and winter bonuses would be determined during the spring wage talks. Kanto-based companies such as Hitachi demanded bonuses which will be equivalent to 5.1 months of the basic wage, while Kansai-based companies such as Matsushita Electric requested bonuses equivalent to 5.0 months of the basic wage. However, several companies have developed a formula-driven approach which ties bonuses to corporate performance, instead of the system of negotiating the average bonuses as a multiple of the monthly base wage. For instance, four unions — including those at Fujitsu, Toshiba and NEC — did not demand summer and winter bonuses.

Another development during this year's spring wage offensive was the request by Zosenjuki Roren (Japan Confederation of Shipbuilding and Engineering Workers Unions) that the mandatory retirement age be extended, responding to raising the age when employees become eligible for their pension from 2001.

Public Policy

Unemployment Benefits Rolls Top One Million for First Time

The number eligible for unemployment benefits in 1998 averaged 1.2 million, topping the one-million mark for the first time since 1949, the first year for which the valid statistical data is available. The unemployment benefits enable jobless people who are actively seeking re-employment to receive 60 percent to 80 percent of the wages they earned before being unemployed up to 300 days. The number of days for which the benefits will be paid is determined by the number of years for which the individual was employed. The rise in the jobless rate since spring of 1998 has been accompanied by a rapid increase in the number of people receiving benefits. The number stood at 1.04 million in June 1998, and remained over the one million mark through December. The average number eligible for benefits in 1998 surpassed one million on an annual basis and was about 150,000 above the figure for 1997.

The number eligible for first-time unemployment benefits has also increased rapidly over the past two years. The number rose 10.3 percent in 1997 and 19.6 percent in 1998. These dramatic increases are evidence of the extent to which the employment situation has deteriorated.

The worsening employment situation has been characterized by the fact that restructuring has forced a disproportionately large number of middle-aged and elderly people to lose their jobs. Their relatively high wages before being out of work and their long period of employment has increased the per capita outlay required for unemployment benefits. In 1998, the per capita benefit was ¥150,000 a month. That represented an increase of about ¥40,000 over the amount paid 10 years earlier.

Unemployment benefits are covered by contributions paid by workers and employers (each paying an amount equivalent to 0.8 percent of the employee's wages) as well as by a subsidy from the National Treasury (representing about 14 percent). Those who paid unemployment insurance premiums began to decrease in the summer of 1998. Moreover, wages, particularly overtime pay, have also fallen in recent years. The Ministry of Labour, which operates the unemployment benefit scheme, predicts that premium revenues will fall

slightly in 1999 and beyond. The unemployment system ran a deficit of over ¥900 billion in 1998 alone. If this situation continues there will be major problems and steps will have to be taken to cope with it. Either the rate of insurance premiums must be increased or the rate of the subsidy from the National Treasury must be raised.

Special Topic

The Toyota Production System in Indonesia

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This paper aims to examine to what extent the Toyota Production System (TPS) has been rooted in Indonesia, by applying the work organization approach and utilizing the data supplied by Toyota-Astra Motor (TAM), a joint venture operating in Indonesia for about 30 years(1). The paper first explains briefly the analytical framework used, and then describes how flexible and leveled production runs. It goes on to discuss the work organization in a Trim Line and some characteristics of Human Resources Management (HRM) policies. Through the analysis the paper shows how well the TPS functions at TAM.

1. The Work Organization Approach

The work organization approach focuses on the production management system, work organization and HRM.

Central to the analysis is the work organization, which is compounded of a cluster of inter-related jobs and of a group of workers who are allocated into the job cluster. In line with the STS (Socio Technical Systems) approach(2), there is choice in organizing tasks into a job and organizing jobs into a job cluster. There is also choice in forming job ladders. The term “work organization” here does not cover a plant or a firm as a whole, but only covers the shop-floor(3).

The work organization requires environmental disturbances to be controlled in order to successfully execute conversion process from inputs to outputs (Thompson 1967). Production management system is one of the systems that protect the work organization from various environmental disturbances. “Production management” in a narrow sense refers to the

functions involved in planning, organizing and controlling production to reduce costs. It includes process control, quality control, work study, carriage control, inventory control (Tasugi and Mori 1956).

The design of production management system affects the way in which tasks and jobs are designed and thereby the work organization design. For example, when cost reduction tasks and quality control tasks are partially entrusted to the shop-floor under a production management system, jobs are enriched and workers are encouraged to develop the capabilities of executing the control tasks. The work organization also affects the way how production management system is designed.

The success with which the work organization functions well will also be influenced by another control system, that is, HRM, especially the way the remuneration system and training are structured. As an important component of the work organization, workers should be given appropriate monetary incentives and appropriate training.

When the work organization is properly aligned with the production management system and the HRM system, the production system as a whole functions well. The three components of the production system are influenced by various external factor markets and by the state of labor management relations.

The above defined framework is useful when doing research on the transfer of technology. When Japanese firms establish a plant abroad, their production management systems can be transplanted relatively easily along with the requisite equipment. Their design is determined primarily by a body of universal scientific and technological knowledge and are not bound to a particular location. However, the other two elements are much more difficult to transplant. Work organization models and the HRM models are generally the product of unique historical settings and usually need to be adjusted to factor markets conditions and the industrial relations system prevalent to each country. The two components of the production system, therefore, must often be newly constructed or changed, so that the consistency among the three components can be attained(4). The creation of these systems is the process of technology transfer.

2. Flexible Leveled Production

TAM assembles various types of single model or various models in a mixed way on the same assembly line. Suppose that four types of “Kijang” (TAM's best selling commercial car in Indonesia)–the Grand Luxury, the Deluxe, the Standard and the Diesel–are produced with the ratio of the first three types standing at 2/7 and the ratio of the last type standing at 1/7. At

TAM these four types are all assembled in a mixed way on the same assembly line, with the production sequence being kept constant. TAM uses the same system to produce three passenger car models–the Corolla, the Starlet, and the Corona.

In either case, the mixed production line produces each type or model regularly to a set production sequence. Every seven units of the Kijang coming off the line includes two Grand Luxury vehicles, two Deluxe vehicles, two Standard vehicles, and one Diesel vehicle. The mixed production system with a constant production sequence is called “Leveled Production” in TPS terminology (TMC 1995, 13).

Different models require different parts and there are different methods of assembly with different jigs and tools. This situation can exist even in the production of different types of the same model. Frequently changing models and types coming through on the assembly line requires time to allow for the change of parts, jigs and tools. Hence, a poorly considered mix of vehicles may result in various types of inefficiencies. Since assembly time varies from one type of vehicle to another even when the model is the same, it is very difficult to assemble different models and types on the same assembly line with the conveyor speed remaining constant. The leveled production system solves these problems.

Takt time and cycle time are critical to leveled production. Takt time refers to conveyor speed. A finished vehicle is completed every takt time. Cycle time refers to the time necessary for a worker to finish one cycle of his job with one automobile. The length of cycle time depends on how many tasks are included in a worker's job. On the assembly line every worker completes his job in the same cycle time. Otherwise, production would not proceed steadily.

Before flexible production is set up, the takt time and the cycle time must be determined according to the monthly production volume. Table 1 provides information on production targets for three vehicles which are to be assembled over a month with 20 working days and eight-hour shifts. In the discussion below, night shifts are excluded from consideration.

Table 1. Monthly Production Volume

Model	Monthly production volume	Ratio of manufacturing time
Corona	100 units	12
Corolla	500 units	11
Starlet	100 units	9

Note: The Corona takes the longest time to assemble, the Corolla the second longest, and the Starlet takes the shortest. The figures presented here for the production volume, takt time, and cycle time are not actual figures, but have been devised to facilitate the explanation.

Takt time is calculated by dividing the total number of effective operating minutes by the planned production volume. Total effective operating minutes per day might be calculated as follows: 480 minutes (8 hours) minus 25 minutes of relief time plus 60 minutes of overtime equals 515 minutes. Total monthly production volume of 700 units divided by 20 working days equals to 35 units per day. The takt time is about 15 minutes (=515 minutes ÷ 35 units).

The cycle time for each model is worked out by using the above determined takt time. Suppose that the takt time is applied to the production of the Corolla. In other words, each job with a Corolla is designed so that the cycle time is equal to the takt time. The conveyor speed allows each station on the assembly line 15 minutes, during which a worker completes his work for one unit of the Corolla. The ratios of manufacturing time in Table 1 show that every worker requires more time to complete one cycle of his job with the Corona, and less time with the Starlet. The cycle time for the Corona becomes 16.36 minutes (=15 minutes x 12/11), while that for the Starlet is 12.27 minutes (=15 minutes x 9/11). With a 15 minute takt time, production of the Corona would cause many line stops due to a lack of time to complete the job. While with the Starlet, every worker would have some waiting time.

In order to solve the problems stemming from building multiple models on the same assembly line, the sequence of production must be considered as well. In this illustration, the production sequence should be determined as CCCCCCSN (where C stands for Corolla, S for Starlet, and N for Corona). After finishing five Corolla units, workers assemble one Starlet. It takes the worker 12.27 minutes to complete his work, leaving him with 2.73 minutes of idle time (=15-12.27). When the worker starts to assemble a Corona after finishing the Starlet, he has 17.73 minutes (=2.73+15) to complete his job on the Corona. Since the cycle time for the Corona is 16.36 minutes, the 17.73 minutes is enough time for the worker to complete his job. Only 1.37 minutes of waiting time is yielded during one round of the production sequence (producing seven vehicles), providing there are no line stops.

Since takt time is calculated from planned production volume and total effective operating hours, in case of a large change in production volume takt time is also changed. A striking feature of the TPS is the ability to change takt time in order to adjust to market

fluctuations.

Let us examine the example of passenger cars again. Were monthly production volume of the Corona reduced from 100 units to 80 units, the Corolla, from 500 units to 300 units, and the Starlet, from 100 units to 80 units, takt time would be 22.4 minutes (515 minutes/ [460 units/20 days]). The cycle time of the Corolla is, then, equalized to the new takt time. The cycle time for the Corona becomes 24.4 minutes. For the Starlet it becomes 18.3 minutes.

The length of the cycle time depends on how many tasks are included in a job. When cycle time is lengthened, more tasks are added to each job. As more tasks are added to jobs, the number of workers required to staff the assembly line decreases, since the total number of tasks on the assembly line is constant. How does TAM reduce excess workers? The first course of action is to dismiss contract workers who are hired on a temporary basis. After that, some workers are removed from assembly operations and reassigned to other assembly lines or placed on task force teams in order to facilitate continuous improvement activities. If these measures are inadequate, some regular workers will be temporarily laid off or dismissed. When there is a large increase in production volume, the reverse occurs. Takt time and cycle time are shortened (i.e. the assembly line speed is increased). Every worker's job is reorganized, reducing the number of tasks and new contract or permanent workers are hired.

The ability to flexibly adjust takt time enables TAM to produce according to fluctuations in the market without excessive inventory in any form and to fully utilize its human resources. Change in takt time is not easy to execute, since it is accompanied by change in cycle time and reorganization of each worker's job. Moreover, it takes workers a while to adjust to the changed cycle time and reorganized jobs.

Both flexible production at TMC (as described in TMC 1995, 22; in Monden 1985, 210-212, 218-220; in Monden 1991, 142) and flexible leveled production at TAM are built on the same basic principles.

3. Work Organization

3.1 A Trim Line

By using the Kijang Trim Line as an example, the following discussion considers the work organization that enables the flexible leveled production system to work at TAM. A Trim Line is an assembly line where various parts are assembled into a car body. A glance at the assembly line gives one the impression that workers are engaged in monotonous, hard jobs without much time for rest. The Kijang Trim Line assembles 22 types of Kijang and is run by a supervisor, four foremen, 12 group leaders, and 80 operators.

3.2 Daily Work of the Operators

Operators in the Trim Line at TAM are required to perform repetitive work within the takt time strictly following the work sheets and standard operation procedure. They are expected to follow directions exactly as prescribed in a pre-determined way. When a problem happens, they are to call their group leaders immediately. While the group leader attends to the problem, the worker may engage in other tasks or may watch the group leader fix the problem. These findings do not suggest that operators in the Trim Line at TAM work voluntarily and creatively. However, the workers handle many different types of the Kijang vehicle as they come down the line, and the variety requires them to be very careful in order to ensure high quality work when performing their jobs.

Furthermore, the operators are trained as multifunctional operators through rotation. The term “multifunctional” in the Trim Line means that an operator is able to perform more than one assembly job. For example, a worker can assemble window regulators into doors and also install side glass into doors. About 20 percent of the 32 operators in the Trim Line can perform two jobs; 15 percent, three jobs; and about 10 percent, four jobs. These figures might underestimate the percentage of multifunctional operators, because the Trim Line was just reorganized and the verifying test was not completed yet when this research was conducted. Figures for the Chassis Line suggest that the number of multifunctional operators is much greater.

Multifunctional operators are one requirement for the flexible leveled production and the TPS at TAM. Takt time at TAM varies according to production levels. A change in the takt time results in each job being reorganized. Reorganization is not just for some jobs; it occurs for all jobs. With multifunctional operators changes in takt are much easier to implement, since the reorganization can be done without being obstructed by the limits of operators' job capability, or with less training.

3.3 Group Leaders[5]

The Trim Line has 12 group leaders, with each supervising seven to eight operators. Group leaders perform multiple roles on the shop floor: they prepare for production, relieve operators, solve problems on the spot, and engage in quality control and labor management functions. Relief, problem-solving and quality control roles are described below.

When an operator needs relief from his operation, a group leader takes his job. Another group leader or a foreman then fills in for the group leader. Hence, group leaders must be able to perform all the jobs under their supervision. When an operator discovers a problem during

the assembly process, he is supposed to pull a “line stop cord” to call his group leader. The group leader responds immediately to fix the problem without stopping the line. If the leader cannot fix the problem within the cycle time, he stops the line. Problems can arise when an operator assembles the wrong parts, forgets to install parts, uses the wrong bolts or other fasteners, or the quality of parts is unacceptable. Also when an operator has difficulty finishing his job within the cycle time, a line stop occurs.

Two points are important. First, problems do not always mean line stops. Group leaders try hard to avoid line stops. Targets are set for line stop time. For example, they may be 20 minutes per day per supervisor, seven minutes per day per foreman and two minutes per day per group leader. Group leaders are thus encouraged to fix problems within the cycle time as often as possible. Second, group leaders have to be able to perform every job in their area. Otherwise, they could not fix problems effectively. While group leaders fix many problems by themselves, there are some problems that cause line stops and the group leaders need assistance in order to correct them. When such problems arise, group leaders report to their foreman and ask for further instructions.

Every hour the group leader goes to the final inspection line to check whether defects have occurred in their area. The inspectors display tables showing the types and number of defects produced in each group leader's area. When the same defect is rediscovered on the final inspection line in two or three units in a row, the information about the defect is immediately conveyed to the group leader. The group leader can then go to the operator responsible for the defect and search for the cause. Characteristic of these quality control activities is the quickness with which group leaders are notified and the focus on handling problems and defects that have already occurred.

While these activities constitute a portion of the quality control process, other activities are also used in order to “build in quality in the production process”. To assure that high quality is produced, the occurrence of defects must be prevented. Group leaders are responsible for keeping records of line stops and defects. They usually draw graphs pictorially illustrating the performance of their area. The records and graphs are utilized in other quality related activities, which activities are discussed below.

3.4 Quality Control Activities

After each production shift, a quality meeting is held daily for 30 minutes to deal with problems that were encountered that day. A group leader and his operators attend the meeting, supervised by a foreman. Several features of these meetings are important. First, the meeting gives operators an opportunity everyday to think about the nature of their

problems and to consider possible solutions. Second, the meeting considers concrete issues that relate directly to problems of production. Third, some operators are more actively involved in solving problems than others. Multifunctional operators may be more active because they know many jobs and they tend to have more experience with solving problems.

Operators spend almost all of their time on repetitive, physically hard assembly work, and the 30 minutes they spend on problem solving may not appear to be enough time to make significant contributions to the smooth and efficient running of the assembly line. However, the workers do come up with devices that error-proof their processes so that problems do not reoccur. Furthermore, these meetings are closely tied into an idea suggestion plan.

Two kinds of preventive measures are proposed at the daily quality meeting. One is to revise the way of performing jobs, the location of parts and the jigs and tools used, and to add other instruments. The other does not need such revision. In the latter case, operators who are found to have caused problems are given advice on how to more strictly follow the standard work sheet and standard operation procedure. The former type of measure is usually thought out and submitted as a written suggestion.

An operator who comes up with a concrete idea shares it with his foreman and asks for his opinion and advice. After approval by the foremen, the operator fills out a suggestion form. When filling out the form, one is expected to explain the problem, analyze its cost, depict its current condition, suggest an improvement, explain new method and/or new process, and evaluate the result of improvement suggestion using data and cost analysis.

The work of suggesting an idea does not seem easy. It requires a different set of skills from the physical skills that are normally associated with production work. Workers must have intellectual capability to solve problems effectively and to submit suggestions that improve the process. In 1997, an operator or a group leader submitted about eight suggestions per month on average.

Some problems recur again and again even though ideas to solve them have been suggested and implemented. Other problems take a long time to solve. When these types of problems arise, quality circles (QCs) attempt to bring resolution to these difficult issues. A QC at TAM is usually organized with seven to ten members and is headed by a group leader. There are about 320 QCs throughout the plants at TAM in 1997 and almost all of the workers participate in QCs. QCs are expected to have a meeting for one and a half hour every Tuesday after the end of the shift. In reality, how often QCs hold meetings is left to the members. Some QCs hold a meeting every week while others meet less often up to once a month.

A QC consists of a circle leader, a theme leader, a facilitator and members. An engineer is not formally involved in a QC formally and in fact, a QC seldom asks for an engineer's support. The QC leader is a group leader and the facilitator is a foreman. A theme leader is an operator whose job is subject to the improvements being considered. The theme leader actually leads the QC, because he knows the situation best. Other multifunctional operators including a group leader may be active since they too will be familiar with the problem.

Between 1996 and 1997 five QCs in the Trim Line actively tackled difficult problems and produced remarkable results. They reduced the defect rate from 0.02 to 0.006 percent in one instance; and from 0.3 to 0.09 percent, from 0.23 to 0.05 percent, from 0.042 to 0.005 percent in three others; the fifth QC obtained a reduction in the number of broken parts per week from 77 to 2.

3.5 Change in Takt Time

Takt time is usually changed several times a year at TAM, following a large change in the volume of production and when a new model is introduced.

Among the takt time change procedure, job reorganization is the most difficult and requires most of energy necessary for the procedure. Job reorganization proceeds as follows. First, a group leader arranges all the job tasks under his supervision. The time necessary to complete each task is pre-determined with standard time data. The group leader, together with his foreman, combines the tasks into jobs with ensuring a smooth production flow. He also determines the sequence of assembling parts, so that cycle time of each job will be equal to the takt time. Because TAM assembles various types or models in the Trim Line, the group leader has to reorganize jobs many times to accommodate the different types of vehicles assembled. With some types of vehicles, the cycle time of each job may exceed the takt time. With other types, the cycle time may fall below the takt time.

Reorganizing all jobs so that cycle time is equal to takt time (or takt time plus seconds or takt time minus seconds) is not easy. In practice some of the reorganized jobs take more time than pre-determined cycle time during the trial stage. When the reorganization of some jobs is discovered to be technically impossible, improvements become necessary. Improvements are devised on the layout of equipment, parts rack, jigs and tools as well as the way the work is performed.

A group leader performs the reorganized jobs to see whether the cycle time is equal to takt time (takt time plus or minus seconds) . If the test succeeds, he draws up standard work

sheets and submits them to his foreman. The foreman examines them and makes some modifications on them. When the foreman approves the standard work sheets, the takt time change procedure finishes.

After the takt time change is fully implemented, a further search for better quality and higher productivity begins. Let us examine this process using the launch of the new Kijang, at the beginning of 1997, as an example.

During the initial stage of process design, the production engineering division calculated takt time to be 2.9 minutes. However, this target proved to be difficult to attain. Thus, production started at a takt time of 3.2 minutes. After launching the production of the new Kijang, takt time shortened from the initial 3.2 minutes to the planned 2.9 minutes. Takt time was further reduced to 2.55 minutes. How was this accomplished?

Takt time was shortened as a result of the continuous improvement activities that were conducted by operators, group leaders and foremen at the daily quality meeting, through idea suggestions and QCs. The way jobs were performed was checked every day and some tasks in some jobs were moved to other jobs. Some jobs were modified when excessive walking was discovered and subsequently removed. Other jobs were changed when parts racks were relocated closer to assembly line or special drawers for jigs and tools were devised. These small step-by-step improvements took place while the operators were getting used to their new jobs. The result was a 20.3 percent reduction in takt time compared with the actual start up takt time and a final outcome, and 12.1 percent below the targeted takt time calculated by the production engineering division.

3.6 Career

There are two kinds of supervisors and foremen. University graduates and academy graduates are promoted to be supervisors after joining TAM and finishing one year of training. High school and junior high school graduates are promoted to be supervisors and foremen from within. According to a deputy general manager, however, almost all of the supervisors and foremen had high school degrees. Group leaders are also promoted from within the organization. In the Trim Line, on average, a group leader who finished high school (junior high school) worked as an operator at TAM for 11 (14) years and has an experience in the Trim Line of 8 (11) years before promotion.

The more impressive fact is the variety in their careers. Among the group leaders with a high school degree, one was promoted to be a group leader in four years, while it took 20 years for another to be promoted. The fact suggests that promotion to group leader is not based

simply on the length of service. It does not mean that the experience is not necessary. Experience is surely the most important requirement for promotion to group leader. The point is that promotion seems to be based on evaluation on job capability and that the competition is fierce.

3.7 Flexible Leveled Production and Work Organization

Flexible leveled production with assuring high quality is supported by a group of operators and group leaders. While operators repeatedly assemble parts into a car body closely following the work sheets and standard operation procedure and keeping takt time during daily production, they also engage in production control tasks at the daily quality meeting, through the idea suggestion plan and QCs. Group leaders, promoted from among operators, are responsible for daily trouble shooting, and also play an important role when the takt time is changed and jobs are reorganized. Operators and group leaders, together with foremen, implement many kinds of improvements to ensure a smooth launch of the production with new takt time.

4. HRM and Work Organization

4.1 Remuneration

The base wages are not directly connected to jobs. This allows for frequent job rotation and flexible reorganization of jobs, and thereby increases the flexibility of the work organization. The basic wages are determined according to wage grades and steps within a grade in which workers are ranked. Upgrading is closely related with promotion in position, but the both are not identical. Even if a worker gets no promotion through his career, he is upgraded at least by one grade and his basic wages are to be raised little by little every year according to the length of service. The “seniority-based wages” may reflect overall improvements in each worker's skill over time. The wage system is similar to that used by Toyota in Japan.

The age-wage profile is much steeper and the wage differentials among the wage grades are much larger at TAM than at Toyota in Japan. This provides Indonesian workers with strong incentives for upgrading and promotion. Both of them depend on the performance evaluation a worker receives. It is through the performance evaluation process that workers are motivated to improve their job capability. This system motivates workers to participate in job rotation, the suggestion plan, QCs, and even off the job training. This strong incentive is a product of TAM, and perhaps reflects the peculiarities of Indonesia's labor market.

4.2 Training

Operators learn skills from their daily operations through rotation, by participating in

the suggestion plan and by attending QCs. Training programs for group leaders and foremen are numerous and very substantial. All of the classes for them have been imported from Toyota in Japan, with some modifications. Some of the programs give group leaders and foremen opportunities to systematize knowledge and experience and to brush up their skills.

It should be noted that the instructors for these classes are TAM personnel and that they instruct the classes in Indonesian language. Taught by internal instructors, these classes provide the basis for group leaders and foremen to get a much better understanding of the TPS and production control techniques.

Notes:

1. Data used in this paper is compiled from Nakamura and Wicaksono (1999). For information about the book, please contact to the Center for Japanese Studies, University of Indonesia. The e-mail address is: nippon@idola.net.id.
2. For details on the STS approach, refer to Emery and Trist (1960), Trist, Higgin, Murray and Pollock (1963), Cummings and Srivastva (1977).
3. It is assumed that the work organizations at the shop-floor are organized in an almost similar way throughout a plant or a firm.
4. Using an analytical framework similar to the work organization approach developed here, though the framework is not explicitly developed, Oh (1999) analyzes the characteristics and limitations of the Japanese production model in two Korean automobile firms.
5. Foremen's daily work is not analyzed here. For the details, refer to Nakamura and Wicaksono (1999).

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JIL News and Information

Labor Policy and Industrial Relations in the 21st Century

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Approaching the end of the 20th century, many have begun to speculate about how industrial relations will develop in the next century.

In 1998 Japan's recession grew worse, with a succession of bankruptcies, retrenchments and a rising unemployment rate. The Ministry of Labour is desperately trying to create jobs and minimize unemployment. At the same time, it is being pressed to cope with various urgent policy issues while having to integrate with a variety of other ministries and agencies. In this difficult period, a long-term perspective is required when considering labor policies for the new century.

Many countries are now overhauling their labor policies and industrial relations. The EU nations are facing difficult issues posed by more flexible socioeconomic systems and need to adjust social labor policy. The former socialist countries are striving to restructure their socioeconomic systems amidst economic crisis. Developing nations in Asia and elsewhere are now beginning to promote social and labor policies while facing a serious economic downturn. In all of these countries, labor-management relations and labor policies are now under review.

The international economic system is now being restructured to respond to innovations in

the financial system and in advanced technologies. In the wake of these innovations, a number of Western nations have taken the lead in preparing for a drastic overhaul. Many of the conventional assumptions underpinning industrial relations, centered on collective bargaining, are now being challenged. This has been brought on by two related sets of change. One set concerns realignments, flexible corporate forms resulting from business groupings and the flexibility they have introduced into the decision-making of management, including the formation of personnel policies and the management of manpower. The second set includes rapid changes in employment forms per se stemming from rapid changes in the labor market and in the labor mobility which make meaningless the distinction between employed workers and non-employed workers, and rapid changes in the way labor is done stemming from changes in the nature of the workplace as with work done under satellite systems and tele-working.

In order to understand better these changes, and to contribute to debates on labor policy issues, a number of scholars have begun to consider the new century. "Industrial relations for the 21st century" has thus become an academic research theme in many countries. In September 1998 the World Congress of the International Industrial Relations Association (IIRA) met in Bologna, Italy and took up "Looking Into the Next Century: Social Dialogue and Democratic Development. The Rediscovery of Pluralist Industrial Relations" as a theme. In panel discussions, ministers of labour from several countries discussed globalization and regionalism in labor markets. Some predicted there would be new confrontations between labor and managements, while others pointed to the emergence of multiple relations through a social dialogue between interested parties which would transcend traditional industrial relations centering on the tripartite interactions of government, labor and management.

The next IIRA's World Congress will meet in Tokyo in 2000. The overall theme will be “Global Integration and Challenge for Industrial Relations and Human Resources Management in the 21st Century.” People involved in labor and management affairs will gather in Tokyo from around the world to consider themes such as “Exploring Trends in Employment Relations and New Approaches to Work in the 21st Century,” “the Search for Flexibility, Fairness and Prosperity: Alternative Employment Policies in the 21st Century” and “Asia in the 21st Century: Challenges and Opportunities in Work and Labor.”

At the IIRA World Congress, English, Spanish and Japanese (as the host country's language) will be used as official languages. The Japan Industrial Relations Research Association (JIRRA), Japan's branch of the IIRA, in cooperation with the Japan Institute of Labour (JIL), will host the 12th World Congress in Tokyo, with many scholars as well as practical leaders of government, labor and management from Japan actively participating.

The Secretariat for the Congress will be housed at JIL and looks forward to having scholars and others concerned with labor relations around the world take part in the congress.

<IIRA 12th World Congress Information>

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Workshop on International Migration and Labor Markets in Asia

The Japan Institute of Labour (JIL), under the aegis of the Ministry of Labour, the OECD and the ILO, sponsored the fifth two-day workshop to discuss and exchange views and information on current international migration issues. The workshop was held at the JIL's LINC Hall on January 28-29.

The workshop has been held annually since 1995, and was attended by experts and policymakers from eight Asian countries and one region (China; Hong Kong, China; Indonesia; Malaysia; the Philippines; South Korea; Singapore; Thailand; and Japan) as well as delegates and experts from the OECD and the ILO.

The participants were particularly interested in how the recent Asian currency crisis has affected the economy, labor markets and international migration. Professor Akira Kohsaka of Osaka University focused on financial problems in his presentation on “the Asian Economic Crisis and the Globalization of Financial Markets.” Professor Linda Low of the National University of Singapore looked at the effects on the labor market in her report on “Structural Adjustment in Asia in the Post-Asian Financial Crisis Period.” Following the keynote speeches, participants discussed the impact of economic development on the labor market, foreign workers and employment, the illegal entry of foreign workers, social integration, new statistics on international migration, and future policies for the domestic labor market and migrant workers. Below is an outline of the general discussions.

1.0 Recent Economic Trends and the Labor Market

The Asian economic crisis greatly affected Indonesia, Thailand, Malaysia and South Korea, but had only a small impact in Hong Kong, Singapore and the Philippines. The effects were smallest in China.

Indonesian participants said that 2 million people were living in poverty, and that their country was experiencing great political unrest. Chinese participants stated their country has been affected by sluggish exports to Asia and a further deterioration in the employment situation as a result of further reforms to state-run enterprises. Japanese participants reported on the failure of major banks in 1998 and on the recent severity of the employment situation.

2.0 Employment of Foreign Workers and Domestic Employment Measures

Singaporean representatives said they had not observed any changes in the number of foreign workers owing to the economic crisis. From Hong Kong the view was that there are many private job-mediation agencies and employers have continued to pay appropriate mediation fees. Participants from the Philippines noted that the remittance of the earnings of overseas workers to their home countries helps to minimize the effects of the economic crisis.

3.0 Illegal Migration

Malaysia has implemented policies to strengthen border guards and to legalize migrant workers who stay illegally. Thailand has taken measures to send home foreign workers who stay unlawfully and to register illegal migrants. China has put into place stricter controls over unlawful exit from the country.

At the closing of the workshop, the chairpersons' summary underlined the importance of regional policymakers and experts exchanging information on migration trends and policies as well as their sharing of expertise and experiences. They pointed to the necessity of holding such workshops in the years ahead as each country moves to establish a framework for dealing with migrants.

Focus on Japan's Labor Policies (3)

Outline of Policy Measures for Industrial Health and Safety

Japan finds itself in a dramatically transformed environment. The globalization and informationalization of the nation's economic activity, the growing weight of the service sector in the economy and recent technological innovations are evidence of the changes. Under these circumstances, it is vital to ensure that workers who are the mainstay of the nation's economy feel secure and healthy as important facets of an enriched, healthy, safe and vigorous society.

On part of the ninth round of preventive measures for industrial injuries that were formulated in fiscal 1998, the Ministry of Labour is currently promoting several important

policy initiatives.

(1) Suppressing Deaths

The number of deaths annually resulting from industrial injuries has remained at about 2,000 since 1981. To achieve a sharp decline in this number, the Ministry of Labour will promote measures to prevent industrial accidents in sectors in which deaths occur frequently.

(2) Securing Health and Safety in Smaller-Scale Enterprises

Health and safety management in smaller-scale enterprises is not as vigorous as it could be. Such firms have a higher incidence of industrial accidents than do large enterprises. To improve on this situation, the ministry will ensure that steps are taken to prevent industrial accidents and that adequate support is given to smaller-scale enterprises. They will be encouraged to tackle the matter in groups and to work independently to prevent industrial accidents.

(3) Securing Health and Safety Along with Further Graying of Society

In a society with fewer children and more elderly people, the proportion of the elderly in the workforce will rise. To cope with this, the ministry will carry out health and safety measures with the assumption that the younger and older employees will be working together doing many of the same jobs.

(4) Introducing New Health and Safety Management Methods

In recent years, health and safety management know-how is not adequately learned by new workers due to the retirement of veteran workers responsible for health and safety management. In an effort to solve this problem, the ministry will adopt a health and safety management method from a new perspective, such as a health and safety management method that is less affected by individual abilities.

(5) Responding to the Recent Increase in Physical and Mental Demands at Work

Amid a changing industrial society, fears have been expressed about further increases in the physical and mental demands placed on employees as a result of changes in the nature of work. To cope with this, the ministry will strive to improve the prevention of occupational diseases and will promote various strategies designed to enhance the health of the workforce.

(6) The Enhancement of an Awareness of Health and Safety Issues

The ministry will renew its efforts to enhance employee awareness of health and safety. It will stress the importance of preventing industrial accidents among workers and the general public.

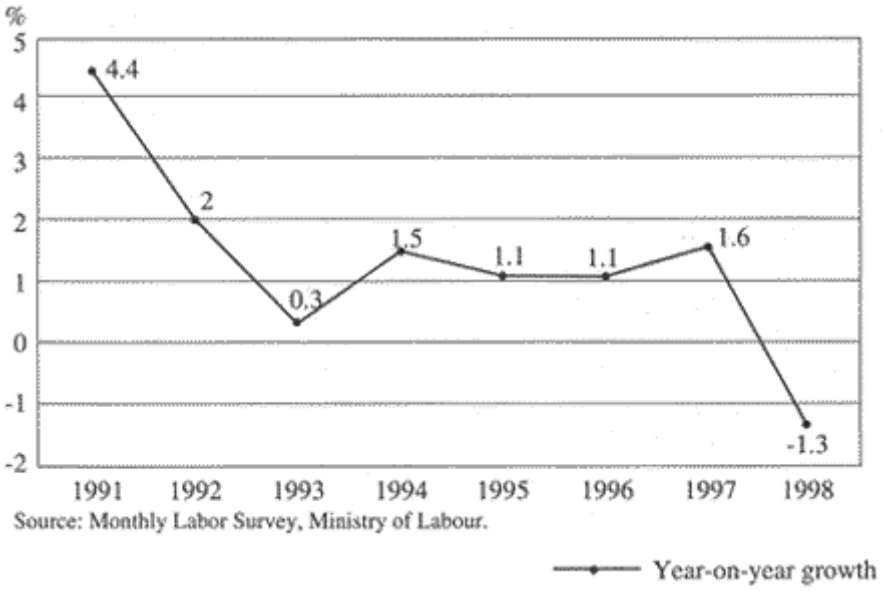
Statistical Aspects

Recent Labor Economy Indices

	January 1999	December 1998	Change from previous year
Labor force	6,677 (10 thousand)	6,717 (10 thousand)	16 (10 thousand)
Employed	6,380	6,443	75
Employees	5,345	5,374	40
Unemployed	298	273	60
Unemployment rate	4.5%	4.1%	0.9
Active opening rate	0.47	0.47	0.14
Total hours worked	266.5 (hours)	270.7 (hours)	0.1
Total wages of regular employees	(¥ thousand) 141.6	(¥ thousand) 156.1	0.4

Note: *denotes annual percent change.
Source: Management and Coordination Agency. Ministry of Labour.

Trends in the Annual Growth Rate in Average Cash Earnings:1991-1998



Source: Monthly Labor Survey, Ministry of Labour.