Japanese Automotive Industry's Labor-Management Relations and International Competitiveness
-- From Production, Production Technology and R&D Perspectives --
Summary

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Background and Objectives of Research

This research is part of a five-nation joint study called “Globalisation and Employment Relations in Auto and Banking (GERAB)” that was conducted at the initiative of Russell Lansbury, professor at the University of Sydney, Australia. Researchers from Japan, Australia, the United States, Germany and South Korea participated in the international comparison study made between Fiscal 2003 and 2005. In Japan, we looked into the automotive industry, focusing on its three sectors -- production, development and production technology. Research targets are Companies J1 and J2 which are the automakers representing Japan.

Outline of Research

In the first year (fiscal 2003), we conducted interviews from head offices of labor unions. Mainly on company profiles and changes in personnel management and labor-management relations, we conducted a total of six interviews -- three interviews at each company.

In fiscal 2004, we conducted a supplementary interview at the head office of each labor union before a total of 11 interviews at the two automakers' labor union branches for production, development and production technology sectors to grasp roles, functions, management and labor-management relations at each sector.

In fiscal 2005, we implemented a follow-up survey through a total of nine interviews -- two at each sector of Company J1 and one at each sector of Company J2.

Outline of Report

The following summarizes survey findings in the description of 1. Wage Management (Chapter 2), 2. Development and Production Technology Sectors (Chapters 3 and 4) and 3. Production Sector (Chapter 5).

1. Wage and Personnel Management System Reforms

Over the past decade, Japan's wage and personnel management systems have gone through a storm of "performance-related" reforms. How have old systems changed through the reforms? We specify changes in these systems' cores -- ① employee grades, ② wages (basic wages) and ③ evaluation -- through the latest reforms.

(1) Employee Grades

A. Simplification through Reduction in Number of Grades

Company J1 revised "job ranks" into "role grades" and simplified the grade system by reducing the number of employee grades to a three-to-five range from a seven-to-eight range. In a similar simplification, Company J2 cut the number of employee grades to six from an effective 10.

B. Emerging Concept of "Role"

The standard for gradation of employees shifted to "roles" from "job performances."

C. Priority Given to Training of Employees at Middle or Lower Levels

Company J2 has specifically positioned three employee grades for middle and lower levels as the "development stage" in which "priority is given to capacity building."

Company J1, though falling short of making training as systematic as Company J2,

has no choice but to emphasize acquisition of "knowledge and skills" in "competency evaluation" for lower "role grades."

(2) Basic Wages

The simplified wage system determines a framework wage above a certain level for each role grade and sets a wage range including a ceiling. Within the wage range, a zone-by-zone wage hike system is adopted to allow performance evaluation ratings to have a greater impact on wages than the length of stay in a zone.

(3) Evaluation

In response to the above changes in employee grade and wage systems, evaluation systems have changed as described below:

- Setting the evaluation system based on "roles."
- One evaluation pillar is "performance evaluation" to check whether employees' performances meet their "roles." (The "performance evaluation" at Company J1 and the "role performance evaluation" for the "development stage" at Company J2)
- Another evaluation pillar is "competency evaluation" to utilize performances to check whether employees fill their "roles." (The "competency evaluation" at Company J1 and the "role-performing action evaluation" for the "development stage" at Company J2)

2. Operations, Management and Labor-Management Relations at Development and Production Technology Sectors

Recent globalization has led to a race to speed up and qualitatively improve the processes from development and designing to production technology and production.

Major findings regarding the development and production technology sectors are summarized below:

(1) Development Sector

A. Operations

The development sector's operations cover from conceptual development to steps just before factory test production at Company J2 and to factory test production at Company J1.

B. Organization

The sector is vertically divided by automotive function or part into "permanent"

sections consisting of subsections. Sections include those for "engine development," "auto body development," "transmission development" and "electrical component development." In addition, horizontal "project teams" exist for specific vehicles for development. Each permanent section includes a department director, section chiefs, leaders and employees in charge of specific duties. At each horizontal "project team," "function-by-function leaders" (or employees in charge of specific duties) are supervised by a "project leader." The "project leader" controls function-by-function progress and total costs. Duties for the sector manager of each permanent section include the following:

① The "project leader," while taking the initiative in selection of "project team" members, must consult with the "sector manager" on the selection. If they are divided over the selection, the "sector manager" may prevail against the "project leader."

② The "project leader" is responsible for managing progress of the overall project. But the "sector manager" is authorized to flexibly distribute human resources for progress management.

③ The "sector manager" also makes design plans for ongoing projects and manages their progress.

④ The "sector manager" is involved in cost control.

⑤ The "sector manager" is also responsible for developing design engineers.

C. Jobs, Attributes and Careers of Development Engineers

The "scope" and "depth" of development engineers' careers are observed as follows. The scope is strictly limited. An auto body engineer may not handle anything other than the auto body. Only a few auto body engineers may be responsible for the every parts of auto body. As for the "depth," an engineer may be assigned to designing specific parts after some three years' service. Within four to five years' service, an engineer may experience "specifications," "costs" and "planning" which require experience most. An engineer may be involved in projects for various types of vehicles before becoming "a function-by-function leader" after some 10 years' service.

D. General Management

The "permanent sections" and "project teams" share responsibilities as follows:

① The "project teams" are responsible for medium to long-term schedules, supported by daily management by the "permanent sections."

② The "permanent sections" are more responsible for quality control beyond

boundaries between vehicle types.

③ Cost control or planning is explained below.

E. Cost Planning

Cost planning represents development-phase operations to achieve target costs for commercial production of vehicles for development.

In a remarkable change over recent years, cost projections have been given greater priority at an earlier stage. Before specific vehicle development projects are approved, each section's members ranging from the chief to employees in charge of specific duties are involved in estimating feasible costs strictly. Estimated costs for any approved project may be modified little during the development process.

Such cost planning has a great impact on labor at the production sector. Cost planning works to set standard operation hours for plants. At Company J1, the direct labor cost among key costs for planning is given company-wide approval in the "Approval II" phase of the development process.

F. Changes in Development Sector Operations

Automobile development periods have been shortened remarkably over recent years. This has been primarily attributable to development process changes. The latest development process is called "simultaneous engineering." Soon after conceptual planning begins, designing is commenced. This is promptly followed by designing of production equipment (at the production technology sector).

A technological factor enabling such simultaneous engineering has been digitization of operations as symbolized by the three-dimensional computer aided design system. Organizational factors include distribution of personnel and flexible management to allow the development sector's design process to coincide and cooperate with designing and fabrication of production equipment at the production technology sector. In terms of human skills, designers are supposed to have been trained to predict future conditions (including man-hours, quality and assemblability) after their operations. Meanwhile, shorter development periods have forced designers to narrow the scope of their operations and accumulate narrower-scope operations for various vehicles. The narrow-scope operations are likely to make specific competence on their careers. A reduction in development man-hours within the sector has made it inevitable that data-preparing and -processing operations be outsourced.

G. Labor-Management Relations

The biggest issue between labor and management at the development sector is the reduction of working hours (or labor load). The labor union regulates working hours through labor-management consultations from the viewpoint that working hours can represent working style problems.

At Company J2, Branch T has created a rule for management to inform the union of 30 hours or more of monthly overtime work and to consult with the union on 40 hours or more," in addition to the 36 overtime agreement which limits annual overtime work to 360 hours. At labor-management consultations at the branch level called "overall schedule bargaining," the two sides confirm progress in development projects and deal with the management side's relevant holiday work requests and the union's equipment-related demands to do a preemptive check on overtime work. In this way, the union has successfully allowed workers to take all paid holidays.

It is notable that company J2's Branch T labor-management consultations include block negotiations at the section level. At such negotiations, a section chief requests overtime work by explaining a written reason for an overtime work request for each worker whose monthly overtime work is expected to exceed 40 hours. Holiday work is to be subject to labor-management consultations irrespective of whether monthly overtime work exceeds the above check points. The union makes an overtime work plan for each worker. Sometimes, it may ask the management side to withdraw an overtime work request for a worker whose overtime work is closer to the limit under the 36 overtime work agreement.

(2) Production Technology Sector

A. Operations

The production technology sector fabricates, installs and operates production equipment. A key point is that development and production technology sector operations have been synchronized to enable the concurrent engineering relationship between the production technology sector and vehicle development projects at the development sector.

B. Organization

Just like the development sector, the production technology sector features matrix relations between "permanent organizations" and "project teams." "Permanent organizations" include pressed part equipment, body assembling equipment, painting equipment, power train equipment, electronic part equipment and other sections divided by automotive component. In addition, permanent organizations exist for

quality control, cost management, schedule management, personnel and administration.

Project teams for development of vehicles are formed in a manner to horizontally combine people in permanent sections. A team comprises seven to 15 members, including maintenance engineers for a planned production plant and production technology engineers involved in a relevant vehicle development project at the development sector.

"Permanent organizations" undertake fabrication of production equipment. It is an organizational characteristic that the production technology sector comprises engineers and line workers. Engineers design production equipment and line workers take charge of fabrication. An analysis (to be described later) of any specific production equipment is performed by a team of engineers and line workers.

C. Operations of Production Technology Sector Workers

Operations are divided into four categories.

① Conception and design operations: Production technology sector members are stationed at the development sector in line with the proceeding of concurrent engineering to concept production equipment based on vehicle design information. Later, they design production equipment and molds. In the absence of drawings, they are required to have sufficient capacity to predict future developments.

② Equipment fabrication: Over the past five years, outsourcing of equipment fabrication operations has made great progress. Outsourced operations' share of equipment fabrication operations have rose from 20% to 50% at Company J1 and from 50% to 80% at Company J2.

③ Analysis (verification): While the equipment fabrication operations have been reduced, the weight of verification to check the contact between production equipment and products has increased. Verification is to look into details of problems with its cause and effect brought by production equipment to products in the test production stage and to record them as know-how data to be shared. Verification is connected to knowledge circuits to the quality guarantee group and the equipment design stage.

④ Launching: Launching of operations includes addition of new equipment and jigs to existing production lines and alteration of operation software. These operations must be performed during the three major annual vacation periods, weekends and late night when production lines are not in operation. Launching operations are required for overseas plants as well. They are irregular and accompanied by frequent moves. Under tight time schedules, the mental burden on workers is heavy.

D. Careers of Production Technology Sector Workers

University graduate engineers usually build their career working within one section such as "auto body equipment," "pressed part equipment" and others. At the "auto body equipment" section, for example, a university graduate engineer may take charge of small parts, accumulate experiences with various categories of vehicles and expand their operational territory to cover the entire "floor line", before becoming the chief for the whole of "auto body" equipment. Later, the engineer may become a project "chief" or take charge of "research and development."

Line workers initially undertake "fabrication" of production equipment and promptly accumulate experiences through equipment "installment and launching" projects. Thereafter, they move to next stage, “analysis”. Any line worker may take some 10 years to become able to undertake "analysis" operations. Those who have become "analysis experts" may change their job styles to “engineers” through designing education at Company J1. This system exists at Company J2 as well. Other line workers may become "installment and launching" team leaders or equipment "fabrication" leaders.

Future career problems are expected to include ① management of careers for line workers accompanying progress in outsourcing of equipment "fabrication" operations, and ② effects that standardization of production equipment and unification of operation methods to secure global flexibility of production systems would exert on operations and distribution of production technology sector workers.

E. Management and Cost Planning

A major cost planning target at the production technology sector is the "equipment cost." The "pressed part equipment" section conducts cost planning for molds alone. The "auto body equipment" section manages each of "design," "materials" and "fabrication" costs in a bid to limit them within target ranges.

F. Labor-Management Relations

At the production technology sector as well as the development sector, the largest issue between labor and management is the reduction of working hours (or labor load). At Company J2's Branch E, as at the development sector, fine-tuned consultations take place on "operation procedures" and "dispersion of operations" for each worker through "development and production bargaining" and "block negotiations." Company J1's Branch Z makes similar efforts through "monthly consultations" and

"department/section meetings." Particularly, the branch has expanded the "department/section meetings" in a bid to provide the union headquarters with workplace information for achieving better results of "monthly labor-management consultations."

At the production technology sector, work loads are irregular and diversified in terms of time and location. In order to address this unique problem, labor and management are required to diffuse common rules and have careful and frequent talks on each worker, workplace conditions and working styles.

As indicated prominently at Company J2, the management side's understanding is worthy of attention. "Information sharing" through careful labor-management consultations are deep-rooted along with a management approach giving priority to maintenance and improvement of "work morale."

3. Production Sector Operations -- Comparison of Three Japanese and U.S. Plants

Following are essentials of findings through our observation of a Company J1 plant (Plant J1), a Company J2 plant (Plant J2) (Plant J stands for Plants J1 and J2) and a General Motors Corp. plant (Plant A):

(1) Organizational Features

A. Plant Organization

While Plant J1 and Plant A have conventional organizations, Plant J2 has a module organization consisted of production, quality, maintenance and production technology at the workplace level.

B. Unionization

① Unionized Ranks

Subsection chief and lower-ranked workers are unionized at Plant J. Only ordinary workers are unionized at Plant A.

② Unionization Coverage

Unionization covers all sectors at Plant J. At Plant A, however, unionization is limited to the production sector. Workers at development, production technology and managerial sectors are not unionized at all.

③ Full-time Union Officers

Although the three plants' sizes are similar, Plant A has far more full-time union officers than the other two. There are four to five full-time union officers at Plant J. But Plant A has as many as 73 full-time union officers, who are mostly paid by the

company instead of their union.

C. Hierarchy

There are no hierarchical layers among workers at Plant A. But team leaders exist. The hourly pay is a uniform $26.16 for all workers. An hourly premium of $0.5 is set for team leaders. At Plant J, unionized workers are divided into five to six grades. As employees are strictly evaluated, individual wage levels differ from one person to another.

D. Implications for Labor-Management Relations

The intensification of competition between companies causes a race to improve quality and reduce costs, forcing workers to implement not only standard (regular) operations defined by line speed but also "non-regular operations" including maintenance and elevation of quality, measures regarding capacity utilization ratios of machines, and improvements.

(2) Labor-Management Relations Regarding Production Plans, Work Systems and Personnel Changes

A. Labor-Management Consultations on Work Systems Accompanying Production Plans

Plant A has no labor-management consultation system. If two conditions -- a one-hour over time in a day and a ban on work on two or more consecutive Saturdays -- are met in accordance with a nationwide agreement, no consultation is required. On the other hand, Plant J is defined by the existence of elaborate multilayered labor-management consultations. Plant J1 has "monthly production consultations," "special labor-management consultations" and "workplace labor-management meetings" for exchange of opinions. Plant J2 has "production and sales negotiations," "confirmation meetings," "negotiations with department directors and section chiefs" and "secretariat negotiations."

B. Meaning of Difference in Labor-Management Consultations

While a nationwide labor agreement is forcefully applied to Plant A, the labor and management sides at Plant J try to maintain an appropriate balance between management requirements and "reasonable working styles" of the labor side. This means that Plant A union members focus on regulations (minimization) of labor (working hour and work load) while Plant J workers have "no choice but to make comments on management it should be."

(3) Policy Management and Labor-Management Relations

A. Management Organization

Management targets are the same at Plants A and J. But their management organizations are extremely different. Plant A has a labor-management joint committee named "Quality Council" for management, against a conventional management organization at Plant J. (Plant J1 implements an "Action Plan" management benchmark through its conventional management organization. Plant J2 implements a management benchmark through independent workplace "modules.")

Plant A, where half of supervisors are sent from temporary staff service companies, must depend on frontline workers for implementation of policy management. However, workers given a uniform pay cannot develop careers. Therefore, "team leaders" have been introduced. In addition, the union has been allowed to appoint problem solvers, safety advisers, quality communication advisers and many other union officers. They implement policies at the workplace through the decision-making "labor-management joint committee." While no labor-management conflicts emerge at Plant J, the committee itself is a stage for conflicts at Plant A.

B. Quality Control and Labor-Management Relations

Plant A traditionally had a verification station only at the final process of the production line. But it has introduced a verification station in the middle of the line, requiring problems to be specified on "blue cards" for resolution. But this station has failed to work stably due to insufficient skills of "supervisors" and "team leaders," and the absence of a system for workers to develop skills.

Plant J1 has established a "checkman" step in the middle of the production line. In the step, managerial officers take stopgap measures to solve problems. Difficult problems are brought to a daily review meeting, in which relevant sections may be requested to address such problems. Details of the daily review meeting are reported at a higher-ranked "promotion meeting." Each worker has some two check points during regular operations to strictly control production processes.

Plant J2 has a checkpoint in each module. Stopgap measures to solve problems are taken by "process staff" within each module. Slightly difficult problems are specified on "inspection cards" or "written countermeasures" and brought to a daily "quality-maturing meeting," in which "quality staff" from each module take part and come up with measures to address these problems.

C. Efficiency Control and Labor-Management Relations

Efficiency depends on capacity utilization ratios of machines and levels of staff skills.

① Capacity Utilization Ratios

At Plant J, capacity utilization ratios are a key control point for the production workplace. At Plant A, however, the production technology sector, rather than production workplace, is responsible for controlling such ratios. The maintenance sector is put under the production technology sector. Production workers are clearly discriminated from production technology engineers. No organizational culture exists for cooperation between workers and production technology engineers. Production workers' skill formation covers capacity utilization control at Plant J and does not at Plant A. The difference is naturally reflected in the skills of workplace supervisors.

② Manpower Planning for Mass Production

At Plant A, industrial engineers had set standard operations and manpower planning for mass production based on their desk plans until the 1970s. Workers' participation in this process made progress in the 1990s. The Production Development Team now includes a few workers. Both Japanese and U.S. automotive plants are commonly trying to utilize production workplace know-how by participation of production staff members. At Plant A, however, the management side's attempt to limit workers' participation in this process has caused labor-management conflicts. No such conflict is seen in Japan.

③ Work Improvement (Man-hour Reduction) during Mass Production

Plant A has divided man-hour reduction measures into three categories -- 1) job combination to eliminate unnecessary work for man-hour reduction, 2) Realignment of parts locations and installment of auxiliary systems to reduce man-hours, and 3) investment in equipment to reduce man-hours. Industrial engineers have traditionally been responsible for job combinations. A key point is that job combinations could cause labor-management conflicts. Based on the production standards in the nationwide labor-management agreement, union members' complaints against "increases in work load" are subjected to the grievance procedure. As job combination achievements of area and higher-ranked managers are linked to their remunerations, labor-management disputes usually intensify toward every year-end. At Plant J, the room for pure man-hour reduction has narrowed substantially. Workplace supervisors are responsible for promoting man-hour reduction which has never led to any serious labor-management conflict. Smooth promotion of man-hour reduction has been rather remarkable at Plant J. But work improvement has not necessarily been always smooth in Japan. In difficult times in the 1990s, Plant J2 workers failed to understand the significance of "work improvement" due to a drop in capacity utilization amid a vehicle

sales slump. Their "morale" declined then.

(4) Organizational Infrastructure for Competitiveness at Production Sector

Difficulties and conflicts at Plant A contrast with Plant J operations that have been smooth while being difficult sometimes. This large difference is generally attributable to the presence or absence of the "relationship of trust between labor and management", -although it is a commonplace expression. In some sense, the difference may be attributed to differences in career, remuneration and skill formation systems and eventually to the difference in "corporate governance." Decisively, smooth workplace operations depend on whether labor and management can develop a trust-based “community.” Workplace "communications" and labor-management "communications" may sound like an empty word for outsiders, but in the context of how to solve snags of the "community" for its maintenance, the "communications" accurately represent the source of Japan's competitiveness.