

Division of Research
Graduate School of Business Administration
The University of Michigan

August 1984

WHITE COLLAR HUMAN RESOURCE MANAGEMENT:
A COMPARISON OF THE U.S. AND JAPANESE
AUTOMOBILE INDUSTRIES

Working Paper No. 391

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Submitted to Columbia Journal of World Business, August 1984

At present, white collar employees comprise nearly one third of the total labor force in the American and Japanese automobile industries. Their ratio is expected to increase during this decade, stimulated by the shifting structure and content of jobs brought about by technological change. In this environment, an effective management of white collar human resources becomes one of the key conditions for long-term success in the world's auto markets. For example, within the engineering function which constitutes probably the most critical area of white collar employment in the auto industry, increased technological sophistication and the complexity of both the final product and the manufacturing process will require large numbers of qualified technical employees to maintain and improve the competitive position of each vehicle manufacturer as well as their suppliers.

Recruiting, developing, and motivating this group of employees is already one of the most critical tasks facing the auto industries in both countries today. However, most of the recent discussions concerning the current competitive position of the U.S. and Japanese automotive industries and their prospects for the future focused mainly on issues related to blue collar workers, their productivity, wages, and labor - management relations in general (2). In contrast, the issues concerning the roles of white collar employees, in particular managers, supervisors and technical professionals, have so far been analyzed only sporadically.

In this context, the objective of this article is to present a comparative review of current conditions of white collar employment in the U.S. and Japanese auto industries, with particular emphasis on corporate Human Resource Management policies. The article begins with an analysis of white collar labor force composition and demographic profiles, then it will discuss the role of the personnel function and specific Human Resource Management functions targeted at white collar employees. It concludes with a summary of current trends and their implications for future HRM policies.

WHITE COLLAR LABOR FORCE COMPOSITION

The proportion of white collar labor force (3) in the total labor force is similar for automotive firms in both countries, ranging from 26 to 33 percent (TABLE 1). In fact, variations within each country are sharper than the difference in the "average" for the U.S. and Japan. For example, in an American company A, the ratio of white collar employees relative to the total labor force is 26%, while in company B this proportion reaches 33%. In Japan, for company X the white collar share is 29%, for company Y 33%. Among parts suppliers in both countries the proportion of white-collar labor is slightly smaller, 24 to 29 percent depending on size. Some of the differences can be accounted for by differences in job classifications at the interface between white collar and blue collar jobs. However, especially in the case of the U.S. firms, differences in "lay-off" policies in a retrenchment period may also play a role, as pointed out below.

TABLE 1: WHITE COLLAR LABOR FORCE

(% of total labor force)	U.S.	JAPAN
WHITE COLLAR EMPLOYEES (WC)	26-33%	29-33%
MANAGERS & SUPERVISORS	10-11%	7-9%
TECHNICAL STAFF	6.5%	14%
FINANCIAL STAFF (% of WC)	8-10%	1.5-2%
LEVELS OF MANAGEMENT	12-14	7-9

In the U.S. firms, 68 to 72 percent of the white collar labor force are salaried exempt employees. Among these, about 32 to 37 percent are placed in supervisory and managerial positions, accounting for approximately 10% of the total labor force. However, only about one tenth of supervisors and managers are eligible for an incentive bonus, a distinction of considerable importance. In Japan, the ratios are again similar, although direct comparisons are difficult not only due to differences in job classification but also due to the exclusion of female workers from a number of personnel statistics. In company Z, supervisors and managers (including employees of equal status without managerial responsibilities) account for 8.2% of the total labor force. In company X, the number of managers equals just over 3%, or 13% of white collar employees. About 75% of these are ranked as section managers. The remaining 25% of managers occupy one of the three higher non-executive ranks.

Although the ratio of white collar to blue collar employees is comparable in the auto industry of the two countries, differences appear when the employees' occupational classes (e.g. technical

or non-technical employees) are also considered. In Japan, the proportion of engineers and technical support personnel reaches on the average, nearly 14 percent of total employment (7.6% engineers, 6.2% technical support). In the U.S., the total engineering share is only 6.5% (4.1% engineers, 2.4% technical support) (4). The functional employment of engineers is on average about the same in Japan and the United States, and among vehicle manufacturers and parts suppliers. In all cases, slightly over 50% of the engineers are in product engineering and the rest are in manufacturing. In addition, a small number of engineers may be assigned to marketing or to corporate planning staffs.

However, notwithstanding the averages, large differences can be observed within the industry in each country. In Japan, most of the differences can be attributed to the company's age and size (the smaller and younger the company, the higher share of engineers). In the U.S., the size seems to be the major "minus" factor. In general, a higher ratio of engineering personnel may indicate a higher potential for new product development and improved process engineering. At the same time, the size of engineering overhead, if overblown, may negatively affect the competitive position of individual firms. One could even argue that under some circumstances a lean engineering staff would give an advantage to the U.S. firms if the "savings" in the engineering manpower were not absorbed by a relative expansion in administrative personnel.

The disparity in the use of administrative personnel is most pronounced in the finance and accounting functions. In American

company A, the number of salaried employees in these two functions can be counted in the thousands, reaching 8% of total salaried employment; in company B, the ratio is 10%. In contrast, in Japanese firm X, this ratio is less than 2% and the total number of financial staff is less than five hundred.

This is not to say that Japanese companies do not employ strict financial controls in their operations. However, the collection of financial data, as well as a substantial part of the financial analysis and planning is delegated to line managers, and dual control systems are infrequent. The smaller size of Japanese automotive firms also plays a role. The resulting cash savings per car, considering only the salaries for the "surplus" financial staff, are over \$120 in favor of the Japanese.

Another source of differences in administrative staffing between the two industries is the vertical organization of individual firms. Currently a lot of attention is given in the U.S. automotive firms to streamlining of the organizational hierarchy and reducing the layers of management. In most instances, such efforts usually result in a reduction of managerial layers in the factory, such as the elimination of general foremen or assistant plant managers. However, while such reductions are certainly useful in streamlining the organization, comparison with Japanese manufacturers reveal that a top-heavy structure hampers effective communication and decisions from the plant management upwards, rather than downwards.

For example, in company A, the Chief Executive Officer is

twelve to fourteen management layers away from a typical rank-and-file employee and six or seven layers away from a typical plant manager. In company B, the picture is similar. By contrast, plant managers in Japan are often appointed to the companies' Board of Directors and are at most only two reporting levels below the CEO (5). Thus, the distance between the CEO and the rank-and-file is reduced, depending on the firm, to seven to nine layers only.

The high status of Japanese plant managers is partly due to the fact that manufacturing sites in Japan are relatively larger (in number of employees), in comparison to the rest of the firm. Japanese vehicle manufacturers, while nominally much smaller in size than the U.S. firms, in fact represent mainly the assembly and engineering part of a much larger corporate group (6). In that sense, the propensity of Japanese firms to organize a family of independent firms - in a legal sense - rather than to build single-firm corporate empires, allow them to reduce the levels of managers and free resources away from administration and control towards product and manufacturing development.

It seems that the U.S. manufacturers may have considerable room for improvement in the efficiency of management at the higher corporate levels. Part of the "surplus" of administrative personnel results from "demand" for staff to assist numerous senior managers and executives to coordinate activities on divisional and corporate levels. A typical Japanese Head Office department "in charge of affiliated companies" has only 20-30 employees, in contrast with the several thousands who engage in

cross-divisional coordination in American firms.

In basic organizational units, such as divisions or plants, the main differences in structure among the U.S. and Japanese vehicle manufacturers is the span of control, rather than the degree of vertical differentiation. Generally, Japanese executives and managers are assisted by several deputies, who while nominally second in authority, are not in the direct line of supervision. Also, at the section level, the span of control of a typical Japanese manager is substantially wider. For example, in the engineering area, a Japanese engineering manager may supervise 10-15 employees as opposed to the 5-6 employees in American firms. As a result, an American Chief Engineer or Director may supervise three times less employees than his Japanese counterpart (7).

It should be added that the composition of the white collar labor force is today in a state of flux due to personnel cutbacks or freezes implemented in both countries during the world recession of the past several years. In the U.S. company A, while the number of white collar employees as a group declined in the same proportion as the number of blue collar workers, white collar employees assigned to sales decreased most, followed by technical support personnel, clericals, managers and supervisors. However, the number of technical professionals remained stable. As a result, their share in the total white collar labor force increased by 10 percent. Similar changes were observed in company B, although in comparison to blue collar workers, the decline for the white collar group was over 50% less.

In Japan, the changing ratio of white collar labor is due to differences in the rates of labor force increase, as the increased competitive position of Japanese vehicle manufacturers protected their and their suppliers' employees from an employment decline. However, because of efforts to reduce the direct labor input through automation, the share of white collar employment since 1974 increased from 2 to 7 percent, depending on the firm. For example, in company Y direct labor decreased marginally, indirect labor increased by 2.9% annually, the number of administrators grew 4.1% annually, and the engineering professionals enjoyed the fastest growth: 4.7% per year.

GENDER, EDUCATION AND AGE PROFILES

In both Japan and the U.S. the proportion of females in white collar jobs varies with occupational classification. For example, in American company A, women workers comprise nearly 60% of office and clerical employees, but only 18% of technicians and professionals and 6.5% of managers. It should be pointed out that even though total employment in the U.S. automotive industry declined over the last several years, the proportion of women in technical and managerial jobs has increased. The same can be said about minority employment. In company A, 9.5% of managers and 10% of technicians and professionals are minority employees.

In Japanese firms, 24 to 25 percent of white collar employees are women, virtually all of them in non-managerial positions. Most of them are young office workers. For example, over 90% of women employed in company X are under than thirty. The vast majority of

them still expect to retire when they marry or soon thereafter, and are seldom assigned to jobs that may lead to future managerial positions. This lack of promotion opportunities in return reinforces their motivation to quit. Thus in both countries, white collar employees in managerial or technical jobs are still predominantly male.

The educational profile of white collar employees in major Japanese and U.S. automotive firms is also similar (TABLE 2). The proportion of employees with a college degree ranges from 33 to 38 percent. The number of employees with advanced degrees is still higher in the U.S. than in Japan, reflecting a traditionally higher reliance on formal training outside of the firm, as opposed to the on-the-job training practised in Japan. This is true especially for administrative personnel; only a handful of MBA's work in the Japanese automotive industry. Among Japanese engineers, the proportion of engineers with graduate degrees has been on the rise since the mid-1970's.

TABLE 2: EDUCATION, AGE, SENIORITY

	U.S.	JAPAN
PERCENTAGE OF W-C EMPLOYEES WITH COLLEGE DEGREES	33-38%	36-42%
PERCENTAGE OF W-C EMPLOYEES WITH ADVANCE DEGREES	6-10%	5-7%
PERCENTAGE OF ENGINEERS WITH GRADUATE DEGREES	21-25%	18-20%
AVERAGE AGE OF W-C EMPLOYEES	41	37
MANAGERS WITH MORE THAN 20 YEARS OF SENIORITY	60-70%	45-55%

Among managers, in American company B, about 50% have a college degree, and 20% an advanced degree. Among technical employees 35% have bachelors degrees and 12% an advanced degree. In Japanese company X, only 3% of managers have advanced degrees, but 80% are college graduates. Among technical staff, nearly 60% have bachelors degrees and 11% have advanced degrees. Of those hired in the last ten years 78% have at least a college degree. In aggregate, about 19% of Japanese college-educated engineers have graduate degrees, compared to 23% for the U.S. vehicle manufactures.

The average age of white collar employees is higher in the U.S. than in Japan: 41 in contrast to 33-34 (36-37 for male employees only). The same is true of parts suppliers in the two countries. Not surprisingly, given the well-known low inter-firm mobility among large Japanese firms, the average tenure is high for all Japanese vehicle manufacturers. However, even longer tenure is characteristic of white collar employees in the U.S. auto industry. In company A, only 5% of managers have less than 10 years of seniority, while 70% have been with the firm 20 years or longer. Only 15% are less than 40 years of age. Among engineers, 20% are less than 30, which is about equal to the proportion of those over 50 years old. In Japanese company Y, 39% of the engineering staff was hired during the last ten years. Although the youngest manager is 35 years old, about 23% of managers are less than 40 years old.

Among the top officers, in American firms over 80% have more than 20 years seniority with the firm, not much less than for Japanese

vehicle manufacturers. It is interesting to note that among Japanese part suppliers, the proportion of higher-level managers with seniority of less than 10 years is higher for the first-tier suppliers than among the second-tier firms: 47 versus 32 percent (8). This can be explained by the fact that executive positions in first-tier suppliers are often staffed by retired officers from affiliated manufacturers. From the viewpoint of retiring managers the second-tier suppliers offer generally much less attractive post-retirement career opportunities.

HUMAN RESOURCE MANAGEMENT FUNCTIONS

In American auto industry firms, approximately 6-7 percent of white collar employees are assigned to the Personnel/Industrial Relations area. In general, the number of Personnel/IR staff has increased in the past decade partly in order to handle tasks associated with new federal and state regulations as well as to manage the expanded benefits. While the two functions are commonly split at the corporate staff level, they are often integrated on the division and plant levels. The link between the Personnel/IR functions and the CEO varies by company, but it is usually less direct than in Japan.

White collar personnel control is mostly decentralized. For example, in company B, the Head Office personnel staff of 170 people is responsible primarily for executive personnel control and general personnel policy planning; personnel control of managers just below the executive level is the responsibility of the functional staff; the remaining managers or supervisors and

other white collar employees are handled by division and plant personnel staffs. A typical divisional personnel office has approximately 25-35 employees, including a sizeable group administering benefits; personnel staff in plants vary in size from five to forty depending on the size of the plant workforce.

Japanese personnel staffs are relatively larger than in American firms. For example, in company X, 9.5% of all white collar employees are assigned to the personnel division or to personnel staff at the plant level. Nearly two thirds of these work directly in one of the central personnel areas, the rest are guards, dormitory employees and medical staff. The central personnel office has a staff of only one hundred employees. It is responsible for personnel policies for both white collar and blue collar employees, although contract negotiations with the union are conducted through a specialized section. In a typical large manufacturing facility in Japan (with approximately 4-5,000 workers), the personnel department is staffed on average with 60 personnel specialists. In addition, 15 dormitory employees, 15 employees maintaining recreation facilities and 10 on the plant medical staff report to the head of the plant personnel.

The operational control of personnel is largely decentralized, as in the U.S. firms. However, the Japanese central personnel offices are more involved with the placement, appraisal and promotions of all employees in managerial ranks. In the U.S. only the so-called "high-potential" managers are monitored by the central personnel staff. The Japanese personnel staff is also more involved in strategic planning activities. The amount of its

strategic input closely matches that of other administrative functions, such as corporate planning or finance. Consequently, in comparison to the Americans, the Japanese personnel managers seem to enjoy higher prestige inside their organizations.

One of the main tasks of the corporate personnel function in both countries is the hiring and training of white collar employees. For a supply of employees with college education, companies in both countries rely on recruitment on college campuses. Exceptions exist (more frequently in the U.S. than in Japan), but the vast majority of college-educated employees are hired straight from school or a few years after graduation (9). In the U.S., many white collar employees are hired from graduate schools, a trend which, as pointed out earlier, is also increasing in Japan, at least for engineering personnel.

College recruitment planning is in both countries coordinated by the central personnel staff. However, in Japan, all college-educated employees are usually recruited through the Head Office and then assigned to divisions and plants; in the U.S., both direct and indirect placement is used. Also, in American firms, there is no difference in the recruiting process for engineers and other college-educated employees. Although direct walk-ins do occur, most prospective employees sign up for an interview on their college campuses. After three or four rounds of interviews, final offers are made. In Japan, administrative personnel is selected on the basis of applications solicited through mass mailings and promotion efforts on campuses, whereas engineers are selected using the university faculty or staff as an

intermediary. In some instances, when demand exceeds supply, graduates may be oriented in their selection of companies. Such a mechanism assures most firms of a "fair share" and at the same time limits upward pressure on starting salaries.

So far, there has been no general shortage of engineers in Japan, due mainly to past government efforts to expand the capacity of engineering departments. However, as the technological foundation of the automotive industry continues to change rapidly, many companies in the auto industry are facing the task of adapting to these changes by recruiting engineers with a particular technical knowledge. Those with electronic or information processing background are especially in high demand. For the future, in view of the fact that Japanese companies will be required to rely more than in the past on their own "in-house" R&D, demand for top-quality technical professionals is likely to increase. In order to respond to such a demand, a reform of the current university education system may be essential.

In the U.S., the need for reform may be more immediate as enrollment in engineering schools lags behind Japan and many other developed countries. Two factors are of concern here. Firstly, teaching jobs in engineering colleges are unattractive relative to opportunities in the industry. Secondly, career opportunities in engineering fields seem limited in comparison to law, finance or management consulting. For example, among firms in the automotive sector, the percentage of engineers on the companies' Board of Directors is over 50 percent in Japan, but only 20 percent in the U.S.

To rectify this emerging imbalance, a joint effort of the U.S. corporate community and the public sector may be required, as such educational issues are beyond the control of any single company. However, in order to promote such an effort, a better planning for developing engineering and technical manpower is desirable. Such a planning for the future is only beginning to be implemented in U.S. firms, as it is in Japan.

White collar employees in both countries can take advantage of large training programs sponsored by their employers. The U.S. firms rely to a greater extent on courses and training offered by outside institutions, mostly nearby universities and colleges. With a few exceptions, such as Senior Manager Development Programs at leading business schools, program, course or seminar selection is typically left to the employee's initiative. For college courses, there are only very broad limits in terms of tuition refund policies. In Japan, in contrast, the emphasis is on internal training programs. Developmental planning is more structured and course or program selection results from discussions between the employee and his/her manager and monitored by the personnel staff. On-the-job training in Japanese firms is limited to lower-level white collar employees.

High potential employees in both countries are often rotated through special developmental assignments. International assignments, cross-functional and cross-divisional moves are especially desirable. However, for the white collar employees as a group, those in Japan have more opportunities to move for training purposes, although there is not much difference in

overall job mobility. For example, in American company B and Japanese company X, a significant difference in the overall volume of job mobility within the two firms was observed only for managers with a technical background. For managers in non-technical jobs, no significant difference in frequency of job changes was detected (10).

In both countries, the cross-functional job mobility of non-technical managers is higher than the mobility of engineers. In other words, engineers have a less general career experience than non-engineers. The comparisons also indicate that differences in cross-functional mobility patterns are larger between occupational classes (e.g. engineers vs. non-engineers) than between countries. Therefore, it seems that the popular perception that contrasts the Japanese "generalist" manager with the American "specialist" manager may at best be an oversimplification (11).

Where American and Japanese managers differ most is in the amount of interdivisional mobility. Japanese managers, non-engineers even more than those with technical background, rotate through many parts of the organization (though often within the same function). This contributes to their effective socialization into the firm, improves communication and control, and reduces the cost of control and supervision. As a result, the job rotation system of Japanese automotive firms has a direct positive impact on their ability to facilitate flexibility, innovation and organizational change.

Also in the performance appraisal process, some differences between the two countries can be observed. In American automotive firms, appraisal of white collar employees is generally linked to an employee's potential. Management appraisals are coordinated by the central staff, but only higher-level managers and executives are reviewed by the Executive Office. Others are reviewed in divisions and plants. The process is annual, and requires five months from the drafting of guidelines until the final review. The appraisal at all levels is designed to be performance oriented. Recently, in several firms, an evaluation of management style was also added into the appraisal, in order to stimulate participative management. Succession planning is an integrated part of the appraisal process, and promotions are seldom granted unless an appropriate position in the upper rank is available.

In Japanese firms, the appraisal system differs on several basic characteristics. Firstly, the cohort of peers with similar education, seniority, and status forms the base for performance comparisons. Secondly, the evaluation process is centralized and the performance of all managerial-class employees is reviewed in the central personnel office. Thirdly, an employee's performance is reviewed more often, generally at least 2-3 times a year, in conjunction with bonus payments in summer and winter, and with salary and status reviews in spring or in autumn. Finally, while self-report and interview with an employee are key components of the evaluation system, the decision as to whether to inform him of the appraisal results is usually left to the discretion of his

or her immediate superior.

In this respect, it is interesting to note the impact of the centralization of the evaluation process on the distribution of managers within a firm. In the Japanese firms, managers ranked low tend to be concentrated in divisions and departments peripheral to the main-line business. In contrast, in the U.S. firms the proportion of managers with low rankings is higher in large core divisions, relative to the company as a whole. This, however, inhibits the companies' ability to leverage the size of a business unit with delegation of authority and increased autonomy for middle managers.

COMPENSATION SYSTEM

Direct comparisons of compensation of white collar employees in American and Japanese automotive firms are complicated by a number of factors, such as the cash value of benefits, or bonus eligibility. However, at least partial comparisons are feasible, if the focus of inquiry is limited to cash compensation payable to a majority of white collar employees. In Japan, that would include the bonus that is payable to all employees basically in proportion to their salaries (12). In the U.S., the bonus is excluded from the base compensation, as over 80% of white collar employees are not eligible for supplementary compensation plans. Three questions are of interest here. First, the patterns of cash compensation in firms within each country, the absolute levels of compensation, and differences in compensation levels between white collar and blue collar employees.

At the entry level, the starting salaries in the U.S. are generally substantially higher than those in Japan. For example, for college-educated engineers, starting salaries in large American automotive companies range between \$ 22-27,000, for parts suppliers between \$ 20-28,000. In Japan, starting salaries for engineers range from \$ 9,500 to \$ 10,500. Each year thereafter, an employee is awarded a pay raise equal to an average increase for his age group plus or minus his merit rating. The base wage for senior employees may reach 250-300% of the starting salaries, but the seniority wage curve begins to taper off in the second decade of employment and becomes virtually flat for employees with twenty or more years of tenure. Additional increases are awarded on merit only. The pay differentials based on performance are relatively small, but, in the absence of attractive job opportunities outside of the firm, sufficient to foster intensive competition. Seniority is a necessary, but not a sufficient condition of success.

In both countries, white collar entry salaries are 15 to 25 percent above the entry wages for blue collar personnel. However, as a consequence of the seniority wage system established in Japanese firms, annual wage increases granted to blue collar workers follow the pattern set up for white collar employees (in fact the basic wage structure is the same for both groups). In the U.S., blue collar wages do not change after the first 18 months of employment (except by across-the-board contractual increase, or by reassignment to a skill-trade job). A more detailed schema of the two systems can be illustrated in the

example of a cohort of white collar employees with 20 years' seniority in American firm B, and in Japanese firm X (FIGURE 1).

In the U.S. case, the reward system is structured along salary grades and ranks. Just over 50% of the cohort is in rank A (plant superintendants, marketing managers, supervisors in product engineering) with an estimated cohort average salary of \$ 43,000, 30% are in rank B (estimated average salary \$ 54,000), 15% in rank C (estimated average salary \$ 76,000), and 3% in rank D, which also includes all executive positions (estimated cohort average \$ 111,000). The average cohort salary is about \$ 54,000, nearly 30% above the Japanese cohort average of \$ 42,500.

However, in contrast to the relatively broad inter-rank salary differentials in the U.S. firm, the highest paid Japanese employees receive only \$2,500 above the their cohort average (TABLE 3), and less than 10% of employees receive less than \$ 40,000. In other words, the average compensation for Japanese employees is equal to the compensation for the bottom 50% of the

TABLE 3: COMPENSATION RATIOS

	U.S.	JAPAN
TOP WHITE COLLAR/ AVERAGE WHITE COLLAR*	200/100	106/100
AVERAGE WHITE COLLAR/ AVERAGE BLUE COLLAR*	220/100	140/100
TOP WHITE COLLAR/ TOP BLUE COLLAR*	500/100	150/100
CHIEF EXECUTIVE OFFICER/ TOP BLUE COLLAR	1500/100	700/100

*employees with 20 years of experience

U.S. employees with the same seniority. At the same time, it is notable that salary compression is less of an issue in Japan than in the U.S. It may be that the negative motivational impact of salary compression at the lower levels of American organizational hierarchies is accentuated by wide inter-rank differentials. In Japan, both intra-rank and inter-rank differentials are compressed, thus lowering employees' expectations.

Finally, an "average" U.S. white collar employee with 20 years of seniority receives about nearly 120% more in annual cash compensation than a blue collar co-worker of similar age; for top performers among the white collar group, the difference increases up to 500%. In Japan, the difference is less than 40% considering the average compensation levels for the two groups, and only marginally higher for the elite. Thus, the income differential between the two groups of employees is, on average, nearly three times as large in the U.S. firm, nearly eight times as large in the case of the elite. This is a conservative estimate, not including the bonus payable to the high-ranking American employees.

Similar trends become apparent when the salaries of key executives of the vehicle manufacturers in the two countries are considered. The average salary of a Japanese Chief Executive Officer, including bonus, is generally not more than 6 - 8 times higher than the income of the highest paid blue collar employee. For the U.S., even if bonus and stock options are excluded, such a ratio is in the 12 -18 range, again more than double the income differentials observed in Japan. However, in profitable

years, when American executives collect bonuses and stock options, this difference may triple, as it happened in 1983.

Two explanations can be suggested for this phenomenon. On the one hand, the lower income differentiation in Japan can be attributed to the deliberate policy of maintaining the cohesiveness of the organization by reducing salary differences across different strata of employees. On the other hand, it can be argued that such a policy can be effective only when the dominance of Internal Labor Markets in the economy restricts the mobility of movement across different companies or industries especially for high-ranking managers and executives.

Again, with respect to non-cash benefits, direct comparisons are difficult due to differences in accounting procedures (e.g. retirement payments) (13). However, it can be estimated from the available data that in both countries retirement, health care, insurance and other welfare benefits average between an additional 20 to 30 percent of white collar compensation, not counting social security taxes payable by the employers. Japanese manufacturers enjoy a clear advantage in the area of medical benefits. By combining national health insurance and company-operated medical clinics and hospitals their medical costs are running at 20% below that of U.S. companies. On the other hand, a number of benefits common in Japan are not costed out in wage/benefit statistics, the most important being housing mortgage subsidies, recreation complexes, etc.

The differences in compensation rates in the two countries have

serious consequences for the competitiveness of the American automobile industry. An analysis conducted by Flynn (14), based on data presented in this article and on an earlier work of Abernathy, Harbour and Henn (15), led to the conclusion that at current exchange rates the white collar compensation costs contribute about 48% of the total labor cost difference. Even if the American firms matched Japanese productivity and eliminated the blue collar wage differential, the total labor cost differential would still remain close to the \$1000 mark per car.

FUTURE TRENDS AND POLICY IMPLICATIONS

Although future growth may vary by company, the maturation of the auto markets will limit opportunities for growth for the industry as a whole and, by extension, opportunity for employee advancement may be restricted as well. If unchecked, this may result in a decline in motivation among white collar employees, and a loss of the talent necessary for these enterprises to other, still-growing industries. The motivational "technology" may become an important strategic resource. Under the circumstances outlined above, the centrality of the Human Resource function to competitive strategy will increase dramatically.

In order to reduce the white collar overhead cost to a level that would make the U.S. industry competitive with Japan, significant changes in the Human Resource systems currently in place in the industry will be necessary. In particular, the internal organization at the executive level has to be streamlined well

beyond present efforts (such as the current GM reorganization), both to reduce cost and to improve communication. The U.S. firms are simply too big, too fat and too slow to respond effectively to the deepening internationalization of the industry, to the vast changes in manufacturer-supplier relations, and to the ever increasing need for productivity improvements on and off the production line.

In addition, the auto industries in both countries will have to adjust their Human Resource Management systems to the profound organizational changes stemming from the accelerated introduction of new technology. For example, the computerization of design (CAD/CAM) in the product engineering area, the automation and robotization of manufacturing processes in the process engineering area, office automation in administration, will necessitate changes in the employment structure of white collar employees as well as require a massive retraining, if the present employees are to qualify for new jobs.

To face this challenge, the auto manufacturers in both countries have to continue refocusing their Human Resource Management strategies concerning white collar employees to respond to the changes in the environment. The target of these strategies is clear and well understood: to enhance flexible and timely adaptation to technological change, encourage innovation, and most generally, mobilize the creative potential of all. The ability to implement these objectives will determine the winners.

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3. Within the scope of this article, white collar employees are defined as managers, supervisors, administrators, technical professionals and support personnel, sales employees and clerical workers.
4. In absolute numbers, however, over 50 percent more engineering and technical personnel are employed by the U.S.-based vehicle manufacturers, whose total employment is some 700,000, compared to 215 for the nine auto producers in Japan. For details see L.T. Harbeck, "Technical Manpower Characteristics of the U.S. and Japanese Automotive Industry," Research Report, Ann Arbor, Mich.: Joint U.S.-Japan Automotive Study, 1983.
5. In Nissan, four out of eight key manufacturing sites are headed by Corporate Directors. In Honda, four key sites are headed by members of the Board of Directors, including one Managing Director.
6. Both Toyota and Nissan control over twenty affiliated firms that engage in a number of business activities from components manufacturing and subassembly to insurance and transportation services. For details see Industrial Groupings in Japan, Tokyo: Dodwell Marketing, 1983.
7. L.T. Harbeck, op.cit.
8. F.Kodama, T.Yakushiji & M.Hanaeda, "Structural Characteristics of the Japanese Automotive Supplier Industry," Joint U.S.-Japan Automotive Study, Working Paper No. 13, Ann Arbor, Mich.: 1983.
9. Until very recently, many college-educated employees of General Motors were graduates of the GM-sponsored "General Motors Institute." Direct institutional sponsorship was, however, recently discontinued.
10. V. Pucik, J. Imai-Marquez & M.L. Wolford, "Management Career Patterns in the U.S. and Japanese Auto Industry," in R. Cole, (ed.), The U.S. and Japanese Auto Industries: Point and Counterpoint, forthcoming.
11. Such contrasts were made for example by W.G. Ouchi (Theory Z. Reading, Mass.: Addison-Wesley, 1981); N. Suzuki (Management and Industrial Structure in Japan). New York: Pergamon Press,

1981; and E.F. Vogel, (Japan as Number One. Cambridge, Mass.: Harvard University Press, 1981).

12. For discussion of the Japanese bonus and benefit systems see M.S. Flynn, "Compensation Levels and Systems: Implications for organizational Competitiveness in the U.S. and Japanese Automotive Industries", Joint U.S.-Japan Automotive Study, Working Paper Series No. 20, The University of Michigan, 1984.

13. See M.S. Flynn, "Estimating Comparative Compensation Costs and Their Contribution to the Manufacturing Cost Difference," Joint U.S.-Japan Automotive Study, Working Paper Series No. 21, The University of Michigan, 1984, (Part III).

14. M.S. Flynn, op.cit.

15. W.J. Abernathy, K.B. Clark & A.M. Henn, "Productivity and Comparative Cost Advantages: Some Estimates for Major Automotive Producers," Harvard Business School Working Paper, 1981.

Salary Grade Distributions

Figure 1

