

This PDF is a selection from an out-of-print volume from the National Bureau of Economic Research

Volume Title: The Measurement and Interpretation of Job Vacancies

Volume Author/Editor:

Volume Publisher: Columbia University Press

Volume ISBN: 0-87014-471-5

Volume URL: <http://www.nber.org/books/unkn66-2>

Publication Date: 1966

Chapter Title: Job Vacancies and Structural Change in Japanese Labor Markets

Chapter Author: Gerald G. Somers, Masumi Tsuda

Chapter URL: <http://www.nber.org/chapters/c1603>

Chapter pages in book: (p. 195 - 236)

# *Job Vacancies and Structural Change in Japanese Labor Markets*

GERALD G. SOMERS  
UNIVERSITY OF WISCONSIN  
AND  
MASUMI TSUDA  
MUSASHI UNIVERSITY

## *I. INTRODUCTION*

### *Labor Market Changes Under Economic Growth*

If the study of job vacancies can be of use in understanding structural change in the labor market, the current period in Japan provides a golden opportunity for its application. Under the impact of rapid economic growth and technological change, long-standing labor market traditions now face serious challenge. At the same time, much of the traditional remains; and the result is a complex pattern of structural imbalances, the pending solution of some old problems, and the emergence of some new.

In the past decade Japan has led the world in the rate of growth of GNP: an average of about 9 per cent per year. The rapid advance has been accompanied by the widespread adoption of technological innovations. As a cumulative effect of this expansion, the country which had gained world repute for its overabundance of unem-

NOTE: This research was made possible by a grant from the Area and International Studies Committee and the Graduate School Research Committee of the University of Wisconsin. We are indebted to the many persons in government, universities, and industry who provided data and permitted lengthy discussions. Deserving special mention in this regard is Tetsuo Nagasawa, Section Chief of the Employment Security Bureau, Ministry of Labor.

ployed, underemployed and low-priced labor, now has a serious labor shortage for the first time in its peacetime history. Indeed, if the present rate of growth continues, it is predicted by officials of the Economic Planning Agency that the manpower deficit in 1967 will reach 3,400,000 in the secondary sector (primarily manufacturing) alone.<sup>1</sup> The major future bottleneck to Japanese economic growth is now seen to be the shortage and misallocation of labor rather than the historic concerns over land, natural resources, and capital equipment.<sup>2</sup>

The nature of the current Japanese labor shortage is highly peculiar when viewed by students of American labor markets. Whereas the principal American problem of unemployment is centered on the youth, and especially on the high-school "dropouts," it is this very group which is the most in demand and shortest in supply in Japanese industry. Only as the forces of demand intensify further, does the shortage begin to spread upward from the fifteen- and sixteen-year olds to senior high-school graduates, and then to those in their early twenties, late twenties, and early thirties. It is widely held, on the other hand, that middle-aged and older workers still suffer from underemployment and from a dearth of job opportunities. Even so, the national unemployment rate has recently fallen below 1 per cent of the labor force.

There are other notable structural peculiarities in the tightening labor market. The damaging effects of the shortage are being felt primarily by small and medium-sized enterprises. Large firms have been able to adjust by hiring more temporary workers and by utilizing subcontract workers supplied by smaller companies. The economic problems of the small firms have been compounded by an acceleration in the movement of their employees to more attractive positions in large-scale enterprise. Because of outward mobility and the shortage of replacements, wages of new employees in many small concerns have now reached the levels of the largest companies, thereby eliminating a differential of hallowed tradition in the Japa-

<sup>1</sup> Saburo Okita, "Manpower Policy in Japan," *International Labour Review*, July 1964, p. 58. Okita is Special Assistant to the Minister for Economic Planning.

<sup>2</sup> *Ibid.*, p. 53. On this point, see also Solomon B. Levine, "Labor in a Prosperous Japan," *Current History*, April 1964, p. 213.

nese wage structure. Rising wage costs have combined with limited productivity and credit restrictions under the government's tight-money policy to bring about a record high rate of bankruptcies in small business in 1964.

Other structural changes have more in common with labor market patterns in advanced Western economies. In addition to the generally increased mobility associated with rising employment levels, there has been a marked shift from agriculture, forestry, and mining to manufacturing, construction, and service industries. As in other industrialized nations, underdeveloped areas exist, suffering from the decline of a predominant industry, unproductive agriculture, or an insufficient economic base to absorb natural population growth. From these geographic sectors, too, streams of redundant labor move in search of employment to the expanding opportunities in the areas surrounding Tokyo, Yokohama, Nagoya, Osaka, and Kobe. But the migrant supply is said to be reaching its limits.

Wage changes resulting from these labor market forces go beyond the unprecedented rise in the earnings of new employees and the narrowed differentials between large and small enterprise. The wage rise has become generalized throughout the manufacturing sector. Real earnings of manufacturing workers were only one-third of the prewar level in 1947, but by 1952 they had surpassed that level; and the annual rate of increase was approximately 5 per cent in the following decade.<sup>3</sup> From 1961 to 1963 nominal wage rates increased by more than 10 per cent annually. However, because of a 7.6 per cent increase in consumer prices in 1963, the real increase was only 2.8 per cent, the lowest in recent years.<sup>4</sup>

Methods of wage determination are also undergoing change as a result of the unprecedented economic growth and technical advance. In a number of the largest companies the traditional Japanese emphasis on age and length of service is being modified by the use of other wage determinants, such as job evaluation and incentive payments. These departures permit relatively higher pay to the young

<sup>3</sup> Ministry of Labor and Ministry of Foreign Affairs, *Wage Problems in Japan*, Tokyo, 1962, pp. 4-5.

<sup>4</sup> Ministry of Labor, *White Paper on Labor, 1963*; and *Japan Labor Bulletin*, September 1964, p. 7.

workers whose recently acquired skill is needed in the age of new technology.

The traditions in the Japanese labor market pose problems for the collection and use of job vacancy data. These are discussed in further detail below. But the recent changes create problems and call for analyses to which accurate vacancy statistics could make a notable contribution.

#### *Potential Uses of Job Vacancy Data*

**THE ENCOURAGEMENT OF MOBILITY.** The most obvious and direct use of information on job openings is in the matching of labor supply and demand. Japan, like most industrialized nations, gathers extensive data on unemployment, and reaches at least some rough estimates of underemployment. At the local level, job offers registered by employers are used to place unemployed applicants in jobs for which they are qualified. The vacancy data can become useful on a national scale, when the particulars of regional openings are circulated throughout the country, and serve as a vehicle of purposeful geographic mobility. Unemployed workers displaced in declining industries and underemployed workers located in underdeveloped areas are the likeliest beneficiaries of such national clearing-house arrangements.

In the context of the Japanese labor markets, data on job vacancies might be used to encourage the mobility of another class of "underemployed" worker.<sup>5</sup> Because of the balkanization of labor markets and the preference of the large employers for new school graduates, mature employees of small enterprises have traditionally been restrained from moving to larger firms, even though they receive wages that are markedly lower. Low wages reflect low productivity in small establishments; and so, a reallocation of labor to large, efficient units might enhance national productivity as well as enhance employee welfare. The growing labor shortage creates additional needs for "rational" mobility and provides an impetus for such movement.

<sup>5</sup> See Mikio Sumiya, *Social Impact of Industrialization in Japan*, Japanese National Commission for UNESCO, Tokyo, 1963, pp. 253-255, for an interesting development of this concept of underemployment.

In order to serve a useful allocative function in the labor market, the job vacancy data must be timely and detailed. In addition to age, sex, and educational specifications, the statistical series should include industrial, geographic, and occupational requirements. The extent to which the Japanese data cover these needs is discussed below.

VOCATIONAL EDUCATION AND TRAINING. Japan's rapid industrial expansion and growing labor shortage have prompted renewed emphasis on the development of work skills. As is discussed below, the Vocational Training Law of 1958 established an extensive network of training centers to supplement and, in some cases, complement the formal on-the-job and other plant training traditionally stressed by private employers.

Like horizontal mobility, vertical mobility presupposes some knowledge of occupational vacancies. Training officials in all countries attempt to arrive at some judgment concerning probable job openings before deciding on the establishment of particular courses. Ideally, the data on which they base their decisions should include a forecast of future vacancies as well as current offerings. For this reason the vacancy information that serves to guide training programs is likely to be most useful if based on a special survey of employers. The regular job openings data collected by the Public Employment Security Officers are for immediate applicants. They may not serve as accurate predictors of the opportunities available to a newly enrolled trainee upon the conclusion of his course; and they are even less likely to forecast the long-run prospects of a particular occupation—the type of information that a worker might well wish to have before reshaping his work life.

In Japan, as in many other countries, it is important that job vacancy data used in guiding training programs be generalized throughout the nation, as well as particularized in narrow geographic areas. Given the fundamental changes occurring in the labor market—the shortages and underemployment, the declining and expanding sectors, the increase in mobility—it is clear that government sponsored retraining should be coordinated with other labor market and national economic policies. After national training plans and policies are established on the basis of national va-

cancy data, information on local openings is required for the determination of appropriate training programs in specific areas. Japan has the necessary administrative apparatus for the utilization of vacancy data in this manner and could readily translate such data into concrete training programs.

ECONOMIC ANALYSIS AND PLANNING. Efficient allocation of labor and fruitful training programs may be the most practical and immediate advantages to be derived from competent data on job vacancies. But one of the most interesting by-products—and in the long run perhaps one of the most important—is the utilization of such data to gain a greater understanding of the phenomena of the labor market, the causes of unemployment and inflation.

In the United States, it is hoped that a national statistical series on job vacancies would provide some guidance in the controversy over the causes of excessively high rates of unemployment. The series would help to define the dimensions of the structural problem. In Japan, too, there has been some controversy between “structuralists” and the “aggregate demand” school of thought. In this case, the *bête noire*, to be dissected and analyzed, is inflation rather than unemployment. To what extent are the inflationary pressures of the last three years the result of labor immobility, and to what extent can they be explained in terms of excessive aggregate demand? Job vacancy data should make a useful contribution to the answer to this question.

In formulating long-range plans for the growth of the Japanese economy, such as the “Income-Doubling Plan” of 1960, the Economic Planning Agency attempts to make a forecast of manpower supply and demand. Many countries now have groups of economic experts similarly engaged in model building. As noted above, manpower bottlenecks are given a prominent role in Japanese economic forecasts. Statistical series on job vacancies should provide an important material base for manpower forecasts. Are they so used?

## II. PROBLEMS IN THE USE OF JOB VACANCY DATA

Data on job vacancies can be most effectively utilized in fulfilling the functions discussed above if they meet certain prerequisite con-

ditions: (1) An accurate, detailed and complete list of vacancies is forthcoming from employers; (2) the vacancies are clearly defined in terms of occupation, industry, area, duration of tenure, wages and other terms of employment, and the age and other characteristics of the prospective employee; (3) workers are sufficiently mobile (horizontally and vertically) to respond to job vacancies; (4) employer hiring procedures are related to the listed vacancies.

The extent to which these conditions can be met in Japan is best understood through an examination of traditions in the labor market and a review of recent modifications in some of these traditions.

### *Traditions in the Japanese Labor Market*

Since the basic patterns of labor markets in Japan have been discussed in detail elsewhere,<sup>6</sup> the principal features will be only briefly recounted here. They center around the dual structure of employment in large and small enterprises, the lifetime commitment (*Nenkoh Seido*) to permanent employees of large firms, and the resulting consequences for labor mobility, hiring practices, wages and benefits, training, and collective bargaining.

THE DUAL STRUCTURE OF EMPLOYMENT. A sharp contrast exists between large and small firms in conditions of employment, wages, bonuses, and "fringe benefits." The differences are made possible primarily because the large firms have adopted the latest productive techniques, whereas the small firms are technically backward and suffer the low levels of productivity characteristic of underdeveloped economies. The large firms enjoy other advantages denied to small firms, such as group affiliations, banking connections, and efficient distributor arrangements.

The advantages of the large firms are accentuated because they

<sup>6</sup> Among the English-language publications are Solomon B. Levine, *Industrial Relations in Postwar Japan*, Urbana, 1958; James Abbeglen, *The Japanese Factory*, Free Press, 1958; Mikio Sumiya, *Social Impact of Industrialization in Japan*. Professor Sumiya is among the group of economists and sociologists of the University of Tokyo, headed by Kazuo Okochi, who have recently conducted a systematic series of studies of Japanese labor markets and labor relations. The studies are reviewed and appraised by Masumi Tsuda, "The Basic Structure of Japanese Labor Relations: The Research Series of The University of Tokyo Labor Relations Research Group," 1963, mimeo. Individual publications in this series are cited separately below.



have established cost-saving relationships with smaller companies. In some cases the "master company" has funds directly invested in the affiliate, and controls its management. In other instances, a sub-contract relationship is established with an independent smaller establishment which may deliver almost all of its output to the master company. The affiliate may produce component parts for completion in the large firm, or manufacture finished products which are marketed in the master distribution system. In either case, the large enterprise has an important stake in the perpetuation of the low wages and limited welfare benefits of the small.<sup>7</sup>

As is seen in Table 1, the Japanese manufacturing industry is characterized by a large number of small establishments which continue to dominate in terms of employment and production. Approximately 30 per cent of all manufacturing workers are employed in plants with less than 30 employees, and the relatively large plants employing 500 or more workers account for approximately 20 per cent of the total.

TABLE 1  
*Number of Plants, Employees, and Sales, by Size of Plants,  
Manufacturing Industries, 1958*

Size of Plants (number of employees)	Number of Plants	Total Employees (thousands)	Sales (million yen)
1-3	242,647	172	231,351
4-29	177,830	1,765	1,707,756
30-299	32,748	2,205	3,393,121
300-499	1,015	376	891,180
500-999	680	465	1,180,885
1,000 and over	452	995	2,707,987
Total	455,372	5,978	10,112,280

SOURCE: Ministry of Trade and Industry, *Census of Manufacturers, Report by Industries*, 1961, pp. 126 and 366.

NENKOH SEIDO: THE LIFETIME COMMITMENT SYSTEM. Many of the most marked distinctions between large and small enterprise arise

<sup>7</sup> A recent discussion of these relationships is provided by Taikichi Itō, *The High Growth of the Japanese Economy and the Problems of Small Enterprises*, Keio University, Institute of Management and Labor Studies, Reprint Series, March 1964, pp. 5-9.

because of the differences in hiring patterns, training, promotion, tenure, and wage determination which have come to be placed under the general heading of *Nenkoh Seido*. Large firms hire junior or senior high-school graduates who become "permanent" employees, to be trained, promoted, and retained in employment until they retire. Not only the promotional progress of these employees, but their wages, bonuses, retirement, and other benefits have traditionally been almost exclusively determined by their age and length of service in one particular company.

The *Nenkoh* system began to replace an earlier era of rather fluid labor market attachments in the 1920's, and it became firmly entrenched in the depressed years of the 1930's. The origins of the lengthy paternal relationships and mutual loyalties which characterize *Nenkoh* are found in the traditions of family attachments in Japan and in the responsibilities assumed by employers who recruited young workers from farm houses in the economy's early stages of industrialization.<sup>8</sup> The persistence of the lifetime commitment can be explained by its advantages for employers and employees. Management obtains a devoted and permanently committed work force; and the employee finds complete employment security, a status to be highly valued in the conditions of labor surplus that have traditionally dominated the Japanese labor market.

The advantages of the system for employers, however, must be supplemented by other arrangements which permit flexibility in the expansion and contraction of the work force as economic conditions require. As a result of the need for flexibility, a distinct status structure of employment has emerged in many large companies. In addition to the hard core of "permanent" employees, temporary workers are added as required. Since temporary workers are hired on the clear understanding of a limited tenure (one to three months), they can be released on short notice. In periods of prolonged expansion their temporary appointments can be regu-

<sup>8</sup> These developments are discussed fully in Masumi Tsuda, "Basic Structure of Japanese Labor Relations," ch. I; and Mikio Sumiya, "Retrospect and Prospect of Labor Market Theory" (*Rodo Shijo No Kaiko To Tenbo*), in *Labor Market and Wages* (*Rodo Shijo To Chingin*), Social Policy Society, Tokyo, 1961, ch. I.

larly renewed, and it is not uncommon to find employees who have been in a "temporary" status for a number of years. Even then, the employer continues to benefit from this group of employees because their wages and welfare payments are considerably below those of the permanent work force.

As a further supplement to these temporary workers, two groups with even lower status and more casual attachments are frequently utilized by large companies: day laborers and "subcontract" workers. The latter may be provided by the affiliated small companies described above, and work temporarily in the master company or in their home establishments; or they may be provided by a company which has no connection with the large enterprise other than the supply of such workers. They are employed by the contractor rather than the establishment in which they work, as in the case of temporary help services in the United States, and lump-sum payments are made to the contractor who then pays his employees. These casual workers usually perform relatively unskilled maintenance work, but they are sometimes found in the same jobs as those who are more permanently employed by the master company. They receive substantially lower pay than the company's own employees, and further savings are realized through the omission of the complex system of welfare payments and benefits enjoyed by permanent employees.

The reliance placed on these different types of flexible labor supply varies in particular industries and companies. The rapidly expanding automobile industry is employing increasingly large numbers of temporary workers. The shipbuilding industry—in which Japan has now assumed the world's lead—utilizes large numbers of subcontract workers. Manufacturers of electrical products contract out much of their minor cutting and initial assembly work to small firms, and these may, in turn, use household workers.<sup>9</sup>

Thus, the lifetime commitment system, which has been widely

<sup>9</sup> An illuminating case study of employment in the automobile industry is found in Mikio Sumiya and Ichiro Inukai, *The Labor Market Under Economic Growth* (Keizai Seicho Ka No Rodo Shijo), I. *Survey Report on the Toyota Labor Market*, Japan Institute of Labor, 1963. The system of subcontract labor in shipbuilding is fully discussed in the same volume, II. *Report on Subcontract Workers* (Shagaiko) in the *Shipbuilding Industry*.

heralded as the cornerstone of Japanese labor relations, covers only the permanent employees of the larger firms. The point in company size at which it begins to take hold has not been clearly established. On the basis of a study of age-wage relationships, it appears that companies with fewer than 100 employees are unlikely to have the *Nenkoh* system. In addition to employees of small companies and the temporary and subcontract workers in large establishments, there are certain classes of workers who are completely outside of the *Nenkoh* system. These include carpenters and other construction workers, taxi drivers and truck drivers, and others who are likely to be paid through daily rates or piece rates. It has been variously estimated that 30 to 40 per cent of the nonagricultural employees in private enterprise benefit from the "lifetime commitment."<sup>10</sup>

CONSEQUENCES OF NENKOH AND THE DUAL STRUCTURE. The contrasts between large and small firms, and especially the status structure associated with the lifetime commitment in the former, have implications for the collection and usefulness of statistical data on job vacancies.

A preference for the hiring of young workers is a natural counterpart of a system which places a high value on lengthy commitments and bases wages on duration of service. Because of the savings in wage costs, both large and small firms seek to employ new school graduates. But the graduates are inevitably attracted to the large firms where they can expect to obtain progressively higher wages and benefits in a lifetime of secure employment. Thus, while all firms avoid the employment of middle-aged and older workers whenever possible, the small establishments are more likely to be forced to accept them in a period of labor shortage.

The openings for junior high-school graduates must be listed with the Public Employment Security Offices (PESO), and placements are officially made through these auspices. Although most of the senior high-school graduates are also officially placed through PESO, employers are much more likely to go directly to the schools for

<sup>10</sup> Estimates of the coverage of the *Nenkoh* system are made by Tsuda, "Basic Structure of Japanese Labor Relations," Appendix, p. 8; and Levine, "Labor in a Prosperous Japan," p. 216.

these prospective employees. In practice they will also cultivate relations with officials of junior high schools in the hope that the students they require will be directed to their firms via PESO. Contacts for university graduates are made directly with the institutions, by-passing PESO.

The wages for new employees, usually new graduates, are roughly similar in large and small firms, but the differential widens progressively in firms of different size at higher levels of age and length of service. Permanent employees of large firms gain many additional benefits in bonuses, retirement allowances, insurance plans, housing, consumer purchases, and a variety of health and welfare facilities customarily denied to employees of small establishments.

Like their wage payments, the bonuses and other benefits of permanent employees in large firms increase with their length of service. Traditionally, length of service, age, and education have been the predominant wage determinants. Occupational wage rates, geared to specific skills and functions, have been relatively unimportant for all but the most skilled and technical-professional employees.

Because of their hiring system and grant of lifetime employment, the labor market for permanent employees has been a closed one in large establishments. Hired at the time of graduation, workers do not leave the establishment, either voluntarily or involuntarily, until death, disability, or retirement. Temporary and contract workers, on the other hand, experience high turnover rates. Turnover rates in small establishments are also relatively high, depending on the state of the labor market; but, traditionally, there is almost no movement from small to large establishments. When labor shortages occur, small firms are forced to lower their hiring standards and raise wages for new school graduates; and they customarily turn to the supply of labor from agriculture, forestry, mining, and other declining industries.

Rather than disrupt this labor market structure, collective bargaining has generally accommodated itself to it. Unions have focused their attention on the permanent employees in large estab-

ishments, and they have sought to strengthen the tenure-wage relationship rather than reduce absolute differentials within the firm or between firms.

The lifetime commitment system has induced employers to undertake extensive training of their employees, without fear of a loss of their investment through outward mobility. The tendency to hire new school graduates furthers the emphasis given to on-the-job training. Under these circumstances, public vocational training facilities have traditionally played a relatively minor role in skill development. On the other hand, compulsory general education—on which private employers can build—has a lengthy tradition in Japan; its literacy rate is among the highest in the world.

The preference for the hiring of new, unskilled high-school students leads employers away from a specification of occupational skills in their offers of employment. This tendency is furthered by the method of wage payment, in which length of service rather than occupational content is the predominant determinant. Extensive in-plant training facilities, based on an expectation of lifetime progression through the company's ranks, also militate against the specification of occupational and skill requirements for prospective employees.

#### *Recent Structural Changes*

Progressive labor shortages, stemming from the unprecedented economic growth of the last few years, have had a major impact on the dual structure of employment and on the *Nenkoh* system. Technological advances have contributed to these changes. Wage differentials between large and small firms have narrowed. Mobility has increased to some extent between firms of varying size; but the major increase in mobility has occurred *among* small firms and in the movement from rural areas and declining industrial sectors. The *Nenkoh* system has been affected primarily by the increase of temporary and contract workers, and by some shift in the weight now being given in wage determination to factors other than length of service. Retirement policies, hours of work, and training programs have also been influenced by the shortage. Like the tra-

ditions they modify, the recent structural adjustments also have implications for the collection and use of statistical series on job vacancies.

WAGES AND THE DUAL STRUCTURE. A notable change has recently occurred in the traditional wage differentials between large and small enterprise. As is seen in Table 2, the narrowing has occurred primarily in the younger age categories, and to a much smaller ex-

TABLE 2  
*Wages of Workers in Small Manufacturing Plants as  
Percentage of Those in Large Plants,<sup>a</sup> by  
Sex and Type of Work, Selected Years*

Age	Sex and Type of Work	1954	1958	1961	1962
40-49	Male staff worker	59.6	57.4	55.3	61.4
	Male laborer	55.5	54.9	57.2	59.9
30-39	Male staff worker	68.8	72.8	77.7	81.0
	Male laborer	65.8	66.0	71.0	71.6
20-24	Male staff worker	75.0	89.0	96.8	100.6
Under 18	Male laborer	78.1	90.9	109.5	106.1
More than 40	Female laborer	50.2	46.5	57.9	57.6
Under 18	Female laborer	74.9	80.7	100.1	90.5

SOURCE: Ministry of Labor, *Labor White Paper*, Tokyo, 1963, p. 168; and Taikichi Itô, *High Growth of Japanese Economy*, p. 33.

<sup>a</sup> The comparison is of enterprises employing 10-99 persons, with enterprises employing more than 1,000 persons.

tent among older workers. The differential between large and small firms has always been greater for older workers than for younger (because of the *Nenkoh* system in large firms), and these tendencies have been accelerated in recent years. In 1954, workers under 25 years of age in small companies (less than 100 employees) earned approximately three-fourths the wage of workers in the same age category in large firms (over 1,000 employees). By 1962, young male and female laborers in small companies had actually surpassed the wage level of similar workers in large firms. On the other hand, the differential for men in the 40-49 age bracket narrowed only slightly during this period, with small-firm wages remaining at a level of about 60 per cent of those in large companies in 1962.

Differentials in average monthly earnings by age, length of service,

and education at time of hiring are shown for male employees of large and small manufacturing firms in Table 3. Although earnings of young junior high-school graduates employed by small firms exceeded those in large firms in April 1963, the rise in wages with increased age and length of service was sharper in the large firms. In the large firms, earnings of the youngest workers were approximately one-sixth of those received by lower-school graduates who had reached the 40-49 age category. The comparable ratio in small firms was one-third. Earnings frequently decline for workers who are retained in a reduced employment status, after the customary retirement age of 55.

Senior high-school graduates customarily enter employment at higher wage levels than beginning junior school graduates, but they experience a somewhat similar pattern of wage increase with increasing age and length of service.

An examination of the wage differentials between large and small firms over a longer period discloses no secular trend toward narrowing for employees as a whole.<sup>11</sup> It is inferred that the results observed in Table 2 can be attributed primarily to the economic growth and developing labor shortages of the past few years. The tendencies toward narrowing may well be reversed during slack years in the labor market. Some economists and government officials have heralded the current high bankruptcy rate of small firms as portending the beginning of the end of the dual structure of industry in Japan. Most of the bankruptcies are caused by the pressure of wage costs and credit restrictions. If these developments are seen to be only cyclical phenomena, however, the predictions of imminent doom for the dual structure may be premature.

**MOBILITY AND THE DUAL STRUCTURE.** The increase in job opportunities has encouraged a significant increase in labor mobility among firms, areas, and industries.

Small firms have experienced much higher rates of labor turnover than large firms since 1957 (Table 4). In establishments with more than 500 employees, the rate increased moderately from 10.6 (per year, per 100 employees) in 1957 to 14.6 in 1962. For establish-

<sup>11</sup> Taikichi Itô, *High Growth of Japanese Economy*, p. 31, from data provided in the Monthly Labor Survey of the Ministry of Labor.



TABLE 3  
*Monthly Earnings<sup>a</sup> of Male Employees in Manufacturing, by Age,  
 Length of Service, Firm Size, and Education at Time of Hiring*  
 (thousand yen)

Age	Length of Service (years)	All Firms						Firms of 1,000 or More Employees						Firms of 30-99 Employees					
		Lower Secondary School		Upper Secondary School		Graduates		Lower Secondary School		Upper Secondary School		Graduates		Lower Secondary School		Upper Secondary School		Graduates	
		Gratuates	School	Gratuates	School	Gratuates	School	Gratuates	School	Gratuates	School	Gratuates	School	Gratuates	School	Gratuates	School	Gratuates	School
17 and under	1	11.7	--	--	--	10.4	--	--	13.0	--	--	--	--	13.6	--	--	16.4	--	--
17 and under	2	12.6	--	--	--	11.4	--	--	13.6	--	--	--	--	17.2	--	--	19.1	--	--
18-19	1-4	16.2	16.9	19.7	21.5	14.8	17.1	20.4	23.1	22.0	23.1	20.4	22.0	23.1	22.0	23.1	23.1	22.0	23.1
20-24	2	--	19.7	21.5	20.9	--	20.4	22.0	23.1	22.0	23.1	20.4	22.0	23.1	22.0	23.1	23.1	22.0	23.1
25-29	3-9	21.9	29.1	27.2	29.3	20.9	27.2	27.2	29.5	27.2	27.2	20.9	27.2	29.5	27.2	27.2	29.5	27.2	27.3
30-34	5-14	29.1	34.6	36.7	42.4	29.3	36.2	37.9	30.1	37.9	37.9	29.3	36.2	37.9	37.9	37.9	30.1	35.8	35.8
35-39	15-19	34.6	42.4	46.0	55.9	36.2	44.3	48.9	33.5	48.9	48.9	36.2	44.3	48.9	48.9	48.9	33.5	36.4	36.4
40-49	20+	42.4	55.9	56.6	51.7	44.3	57.2	57.2	38.7	57.2	57.2	44.3	57.2	57.2	57.2	57.2	38.7	38.7	38.7
50-59	30+	51.7	51.6	51.6	31.3	57.8	51.6	51.6	40.2	51.6	51.6	57.8	51.6	51.6	51.6	51.6	40.2	40.2	40.2
60+	30+	31.3	--	--	--	50.7	--	--	38.8	--	--	50.7	--	--	--	--	38.8	--	--

Source: Ministry of Labor, "Basic Survey of the Wage Structure," *Year Book of Labor Statistics, 1963*, Tokyo, October 1964.  
<sup>a</sup> Total monthly cash earnings prior to deductions, based on collective agreements, union contracts or company wage data (360 yen = \$1).

ments with 30-99 employees, the rate in 1957 was already at the relatively high level of 22.7, and it reached 26.3 in 1962. Rates of labor turnover in the medium-sized companies also increased. It should be noted that temporary employees are excluded from this tabulation.

The rate of accession (hiring) in the smallest companies has notably exceeded that in the largest companies, but there is no evi-

TABLE 4  
*Annual Rate of Accession and Separation, by  
Size of Establishment, 1957-62<sup>a</sup>*

	1957	1958	1959	1960	1961	1962
<b>Rate of Accession</b>						
Establishment with more than 500 employees	14.9	9.6	16.4	19.0	22.1	16.6
Establishment with 100-499 employees	21.6	17.6	22.9	24.7	31.0	24.6
Establishment with 30-99 employees	25.6	25.7	30.2	29.5	32.3	28.6
<b>Rate of Separation</b>						
Establishment with more than 500 employees	10.6	10.3	10.4	12.4	14.7	14.6
Establishment with 100-499 employees	16.2	16.1	16.6	17.9	24.2	21.8
Establishment with 30-99 employees	22.7	22.5	24.1	23.9	27.1	26.3

SOURCE: Ministry of Labor, *Labor Turnover Survey*, annually.

<sup>a</sup> Includes "regular" (nontemporary) workers only.

dence of a sharp increase in accessions to match the change in the separation rate. It can be assumed that smaller companies are being forced to trim their employment rosters. As is seen in Table 5, the very small establishments have experienced increasing difficulties in obtaining the highly prized school graduates, and it can be assumed that they have been forced to turn to other sources. For those establishments employing fewer than fourteen persons, the percentage of total graduates hired during the year dropped continuously from 39.4 per cent in 1956 to a low of 11.2 per cent in 1961. Establishments with fewer than 100 employees experienced similar difficulties beginning in 1959. The larger establishments

correspondingly expanded their share of the employment of new high-school graduates.

The sharp rise in employment opportunities in urban areas, and especially in manufacturing centers, has prompted an increased flow of workers from relatively small production units in agriculture and other primary industries. The long-run decline in the agricultural component of the labor force is similar to patterns established in

TABLE 5  
*Percentage of New School Graduates Employed in  
Enterprises of Varying Size  
(total junior high-school graduates = 100)*

Year (March)	Establishments Employing			
	More Than 500 Persons	100-499 Persons	15-99 Persons	Less Than 14 Persons
1956	26.7	12.1	21.8	39.4
1957	16.4	21.0	34.2	28.4
1958	13.4	19.3	35.4	31.9
1959	15.0	20.4	36.2	28.4
1960	23.3	27.5	32.0	17.2
1961	28.2	31.4	28.5	11.2

SOURCE: Ministry of Labor; and Taikichi Itô, *High Growth of Japanese Economy*, p. 32.

other industrializing nations. In 1872, 77.1 per cent of the labor force was in primary industry. By 1930 the proportion had dropped to less than 50 per cent, by 1955 to 41 per cent, and in 1962, to 30.1 per cent.<sup>12</sup> The steady decline of employment in the primary sector has been matched by corresponding increases in secondary and tertiary industries.

The accelerated movement from agricultural to nonagricultural employment has been confirmed by the Employment Status Survey conducted by the staff of the Prime Minister's office in 1959 and 1962. Of the total new male employees hired in nonagricultural establishments in 1959, 63,000 (8.5 per cent of the total) had been employed in agriculture in the previous year. By 1962, the number

<sup>12</sup> Ministry of Labor, *White Paper on Labor*, 1962; and *Japan Labor Bulletin*, September 1963.

who moved from agriculture had increased to 95,000 (10.2 per cent of the total).

As one measure of the rise in geographic mobility, there has been an increase in the number of workers who obtain jobs through PESO outside of the prefecture in which they lived. In 1963, the rate of emigration (ratio of migrants to total placement) reached 37 per cent of junior high-school graduates and 27 per cent of senior high-school graduates. The geographic movement of workers other than new school graduates is also increasing.<sup>13</sup>

These national data are supplemented by a number of recent case studies and university investigations which support the findings of an increased rate of mobility between firms, industries, and areas—and, by inference at least, an increase in the movement between small and large firms. One study of population changes in Kanagawa Prefecture (a highly industrial area adjoining Tokyo and Yokohama) indicates that the area's population increased 18 per cent for men and 16 per cent for women between 1955 and 1960, while the national population increased by 4 and 5 per cent during this period. The increase was primarily in the working age group, 15 to 29 years. Of the 109,000 increase in the labor force of the 15–19 year age group between 1955 and 1960, it is estimated that 31.8 per cent entered from outside the prefecture.<sup>14</sup>

In the study of the Toyota labor market (near Nagoya), it is found that the rapid expansion of employment in the automobile industry was fed first by a movement from agriculture and forestry; but, since 1961, these sources of supply have begun to dry up, and the influx has come increasingly from smaller manufacturing establishments. The major reasons given by new employees for their move centered around the low wages and poor conditions of work in their previous employment.<sup>15</sup> In another more extensive survey, it has also been found that there is an inverse relationship between an industry's

<sup>13</sup> Unpublished report prepared by the Ministry of Labor for the Organization for Economic Cooperation and Development (OECD), mimeo., p. 20.

<sup>14</sup> Kazuo Okochi, ed., *The Industrial Structure of the Keihin Industrial Area* (Keihin Kogyo Chital No Sangyo Kozo), Tokyo University Press, 1963, pp. 181–190.

<sup>15</sup> Sumiya and Inukai, *Toyota Labor Market*, pp. 75–81.

wage level and the rate of voluntary mobility out of that industry. The coefficient of this inverse correlation changes from year to year, depending on the tightening of the labor market.<sup>16</sup>

In the study of subcontract workers (*shagaikeh*) in the shipbuilding industry, a high rate of mobility has been noted, many having moved from a status of unemployment as well as low wages. About 40 per cent of the workers had their longest previous employment in shipbuilding and 25 per cent in other metal and machinery manufacture. Half of those studied had worked less than 5 years at their longest job.<sup>17</sup>

IMPACT ON THE NENKOH SYSTEM. As the labor shortage grows more acute, the *Nenkoh* system, although still predominant in most large firms, becomes increasingly diluted. Permanent workers continue to be recruited from among new high-school graduates, and they still remain in life-long employment in the same firm, enjoying a steady rise in wages and benefits as their length of service grows. However, they represent a smaller proportion of the firm's total employment. The increasing numbers of temporary and/or subcontract workers, hired to meet the shortage, evince patterns of compensation and mobility which are not in keeping with *Nenkoh*.

Whereas permanent employment in large manufacturing enterprise has remained relatively constant since 1955, fluctuations have been marked in the number of temporary workers, reflecting fluctuations in general economic activity. Although varying definitions of "temporary" in national statistical series make accurate estimates difficult, there is evidence of a substantial increase in temporary employment in the most rapidly expanding firms during the recent years of labor shortage. In the Toyota Automobile Company, total employment increased from a level of 5,084 in 1956 to 11,963 in 1961. Almost all of the increase occurred among male manual workers in the temporary category. Regular workers increased by only 200 during the five-year period; but temporary workers, who num-

<sup>16</sup> "Labor Mobility Under High Rates of Growth," in *Technical Revolution and Employment* (Gijutsu Kakushin To Koyo Mondai), Japan Institute of Labor, Tokyo, 1964, pp. 252-263.

<sup>17</sup> Sumiya and Inukai, *Subcontract Workers in Shipbuilding*, pp. 119-152.

bered only 230 in 1956, increased to 5,100 by the fall of 1961, accounting for 42 per cent of total employees and 52 per cent of manual workers. The ratio of temporary workers has fallen in more recent years, but only because of a high rate of quits despite company efforts to retain these workers.<sup>18</sup>

Although the magnitude of the increase in temporary workers at Toyota is exceptional, large increases are common in the expanding sectors of other manufacturing industries. In the transport machinery industry the ratio of temporary to total employment rose from 25 per cent in March 1960 to 31 per cent in March 1961; and in all manufacturing, the increase in this one-year period was from 17 per cent to 19 per cent.<sup>19</sup>

In industries which use large numbers of subcontract workers, the combined total of temporary employees and subcontract workers provided by other companies has also reached significant proportions. One recent study indicates that 30 per cent of the total employment in heavy industry and chemical manufacturing are now in the nonpermanent category. In shipbuilding, 10 per cent are temporary and an additional 20 per cent are subcontract workers.<sup>20</sup> In one large steel shipbuilding firm, studied by the authors in the fall of 1964, almost half of the manual workers in the shipbuilding sector were supplied by subcontract firms; and approximately 15 per cent of those in the steel manufacturing sector were found to be in this category. On the other hand, only 4 per cent in the two sectors are temporary employees of the master company.

In industries which employ large numbers of women, such as textiles and electrical manufacturing, the *Nenkoh* system has less significance even in normal times because the duration of employment is likely to be relatively short and wages relatively low. In the current period of labor shortage, flexibility is available without extensive resort to temporary or within-plant subcontract workers. In one large textile firm, which recruits workers from the country-

<sup>18</sup> Sumiya and Inukai, *Toyota Labor Market*, p. 31; and *Japan Labor Bulletin*, July 1964, p. 3.

<sup>19</sup> *Ibid.*, p. 32.

<sup>20</sup> Sumiya and Inukai, *Subcontract Workers in Shipbuilding*, pp. 2-3.

side surrounding its far-flung mills, no temporary or subcontract workers were found to be employed in the fall of 1964. In a medium-sized electrical products firm, studied at the same time, reliance was placed on subcontract firms in rural locations. The subcontracting firm in one area was found to have developed a complex system of putting-out the cutting and assembly work to women in 500 households, through twenty "chiefs" who were responsible for their production. It was predicted that this procedure, practiced to some extent by even the largest electrical firms, would spread in this period of labor shortage and rising wages, in spite of its preindustrial connotations.

As the labor shortage intensifies, management promotes temporary workers to permanent status in an effort to prevent their loss to other companies. It has been found that almost all of the largest establishments have recently made such promotions. Promoted employees have customarily had one to three years in temporary status.<sup>21</sup> In the transport machinery industry as a whole, one-third of the temporary workers have been promoted; and in Toyota Auto, where such promotions first began in 1959, the promotion rate is 10 per cent. In order to alleviate the dissatisfaction of the remaining temporary workers, some have been given a quasi-permanent status—an automatic renewal of their six-month contract, but with wages and benefits considerably below those of permanent employees.<sup>22</sup>

Thus, it is apparent that the *Nenkoh* system is beginning to give way in large-scale Japanese industry to a complex status hierarchy, under the impact of labor shortages, rising wage costs, and technological change. The key permanent workers, at the top, enjoy lifetime tenure and steadily rising benefits. They are, consequently, immobile. Next, permanent workers who enter from other companies, or via the temporary route, have a lifetime commitment, but they receive lower wages and benefits and their mobility is consequently higher. Then come quasi-permanent workers, temporary employees, casual labor, and subcontract workers. Their wages and benefits are progressively lower still, and their mobility—both voluntary and involuntary—is high because they have neither a

<sup>21</sup> Sumiya, *Social Impact of Industrialization in Japan*, pp. 256-257.

<sup>22</sup> Sumiya and Inukai, *Toyota Labor Market*, pp. 34-35.

lifetime commitment *from* the company nor a personal commitment to the company.<sup>23</sup>

IMPLICATIONS FOR WAGE DETERMINATION. These hierarchical changes arise in response to labor shortages and the need for flexibility in labor supply at a time of rapid economic expansion. It is clear, however, that the changes also stem from considerations of labor cost. The intense competition for new school graduates has pushed up the wages of permanent employees; and, even more important, the aging of the work force in many plants (with initial employment dating from the recovery in the postwar period) dictates an increase in average wages for key, permanent workers under the *Nenkoh* system. Therefore, lower-cost alternatives to *Nenkoh* are sought.

Technological change also requires a larger number of young, recently educated, technically proficient employees. This need calls for an increase in wages for young workers relative to old—the antithesis of *Nenkoh*. If, at the same time, wages can be more closely linked to occupational skill and productive contribution, unit labor costs can be lowered.

It is the hope of a number of major employers in Japan that these needs can be met by the introduction of job evaluation and incentive payments. A report prepared by the Wage Research Council of the Ministry of Labor recently concluded: "Length of service is no longer counted as a major factor in deciding wages or promotion."<sup>24</sup> Economic advisers to the government and government officials, themselves, have urged such a development.

The three major iron and steel firms have introduced job evaluation, and the three major electrical engineering firms, Hitachi, Mitsubishi Electric, and Toshiba, have recently followed suit. National Railway authorities are also considering such a move. However, in the three electrical companies, the proportion of an employee's wage determined by job evaluation is only about 20 per cent. The remainder of the wage is determined, as in the past, by reference to age, length of service, sex, and education. In the

<sup>23</sup> For a discussion of the status hierarchy and presentation of sources, see Tsuda, "Basic Structure of Japanese Labor Relations," pp. 53-62.

<sup>24</sup> Reported in *The Japan Times*, August 19, 1964, p. 4.



iron and steel firms, the proportion of the wage covered by job evaluation has recently been raised from 15 to 20 per cent.<sup>25</sup>

In the Nihon Kokan (steel) Company, the management reports a substantial increase in the weight given to occupational factors in wage determination. The proportion determined by an incentive system has also increased. Changes between 1961 and 1964 are as follows (in yen):

<i>Wage Component</i> :	<i>1961</i>		<i>1964</i>	
	<i>Amount Paid</i>	<i>Per Cent</i>	<i>Amount Paid</i>	<i>Per Cent</i>
Basic wage <sup>a</sup>	16,400	49	18,300	46
Occupational factors	300	1	7,300	19
Incentive	15,500	46	12,000	31
Other	1,500	4	1,800	4
Total	33,700	100	39,400	100

<sup>a</sup> Determined, as in past, by age, length of service, sex, and education.

CHANGES IN OTHER LABOR MARKET PRACTICES. Three additional changes resulting from the labor shortage are also worthy of note. First there is a definite trend toward a rise in the retirement age from the traditional 55 years to 60 and higher. Second, weekly hours of work have been reduced for many employees. And, third, the government has been forced to expand the system of public vocational training. Given the acute shortage, and the dilution of the *Nenkoh* system, the traditional in-plant training conducted by employers for their permanent employees has proved to be insufficient to meet their needs.

#### *Limitations in the Use of Vacancy Data*

The foregoing discussion points to some of the possible uses of job vacancy data in the changing Japanese labor market; it also indicates some problems in their collection and use. In a sense these are problems which confront analysts of job vacancies in all countries, but some special peculiarities are present in Japan. They can best be approached by reference to the requirements outlined at the beginning of this section:

<sup>25</sup> *Japan Labor Bulletin*, August 1964, p. 4.

1. It has been noted that the job vacancies of large firms may be homogeneous from the standpoint of production requirements, but they are highly specific with regard to the supply preferred by the employer. Because of the *Nenkoh* hiring system, an opening, or even a shortage, in a large firm may not constitute a meaningful job vacancy for any applicant other than a high-school graduate. Even though such an opening may be officially listed with the local employment office, the cordial and informal relations between the employer and school authorities can play a more crucial role in the filling of the vacancy.

2. The extensive in-plant training programs characteristic of large-scale Japanese industry provide a means for filling higher-level jobs. In these circumstances, a listing of occupational specifications by employers is frequently lacking, and an occupation would not be very meaningful if it were included.

3. Since permanent, temporary, and subcontract employees frequently perform the same type of work, a listed vacancy for that work may mean a life-long position for a permanent employee, a few months' work for a temporary employee, or a few days' work for a subcontract worker. Are they all vacancies of equal weight? The employer, rather than indicating clearly which of these alternatives he has in mind, frequently has them all in mind, with a willingness to fall back on the second or third category of worker if the first is not forthcoming.

4. In a period of labor shortage, the movement of labor out of one firm constitutes a major means for filling a job vacancy in another. But the result is the creation of a new vacancy in the firm of departure. In Japan such movement would frequently be out of small, low-wage firms to large, high-wage enterprises. Is the new vacancy in the small firm to be equally weighted with the filled vacancy in the large firm in the national vacancy data?

The whole question of wage rates is important in determining vacancies. Obviously a vacancy may persist at a low wage, and yet it could be readily filled at a higher rate. In Japan there is a sharp contrast between large and small firms on this score, and the meaning of "vacancy" must be carefully evaluated under these circumstances.

In presenting the vacancy data which follow, some efforts have

been made to overcome these problems and to render the statistical series more useful. But, as in most countries, serious limitations of the data remain.

### III. MEASURES OF JOB VACANCIES AND LABOR SHORTAGES

The regular working statistics of the Public Employment Security Offices offer the principal source of information on job vacancies in Japan. When combined with data on applicants and placements, the job openings listed by employers can provide measures of labor shortage. Special tabulations are also available for determination of the demand and supply of new high-school graduates. These statistics are supplemented by a special questionnaire survey designed to determine the demand for skilled workers. Some indirect measures of job vacancies can also be derived from other statistical series.

#### *Job Openings, Applicants, and Placements of PESO*

As in other countries, employers list their openings with their local public employment office, indicating the characteristics of the employee required and the terms and conditions of the work being offered. Unemployed workers who collect unemployment compensation, as well as those who wish to change jobs, are registered at PESO; and an effort is made to place the applicants through reference to the file of job openings or vacancies. These data are then compiled for the country as a whole, from information supplied by the local PESO, and are issued in a monthly bulletin of the Employment Security Bureau of the Ministry of Labor. The more complex cross-classifications and ratios are available in an annual publication.

As is seen in Table 6, there has been little change in the annual number of applicants for employment registered at PESO from 1955 to 1963. On the other hand, the number of vacancies listed by employers has increased each year (with the exception of 1958) during the period, and the annual increase has been especially marked since 1960. Placements by PESO have consistently fallen far

short of the number of applicants and vacancies, and there have been only minor increases in the annual number placed during the period.

The major limitations of these data lie in the limited use of PESO by employers for the recruitment of workers other than new school graduates. The placement ratio has been estimated at approximately 25 per cent of all placements in recent years, and there appears to be no marked tendency to increase PESO's role.

In spite of limitations in the coverage of the data, useful inferences can be drawn from time series, and indications of the trend of labor shortages can be obtained from relationships among vacancies, applicants, and placements. It is seen in Table 6 that the ratio of vacancies to applicants has risen significantly since 1955. In the last two years, more openings than applicants have been listed. The ratio of placements to vacancies (called the "fill-up

TABLE 6  
*Job Applicants, Vacancies, and Placements, 1955-63*  
(thousands)

	Job Appli- cants (1)	Job Vac- ancies (2)	Place- ments (3)	Job Vacancy Rate (col.2 ÷col.1) (4)	"Fill-Up" Rate (col.3÷col.2) (5)	Placement Rate (col.3÷col.1) (6)
1955	1,283	353	158	0.28	44.8	12.3
1956	1,199	458	188	0.38	41.1	15.7
1957	1,180	572	207	0.48	36.2	17.5
1958	1,407	547	212	0.39	38.7	15.0
1959	1,341	680	229	0.51	33.6	17.1
1960	1,191	881	229	0.74	26.0	19.2
1961	1,139	1,093	219	0.96	20.1	19.3
1962	1,211	1,224	213	1.01	17.4	17.6
1962 <sup>a</sup>	1,418	2,015	230	1.42	11.4	16.2
1963	1,501	2,360	227	1.57	9.6	15.1
ANNUAL INCREASE						
1956	-84	105	30	0.10	-3.7	3.4
1957	-19	114	19	0.10	-4.9	1.8
1958	227	-25	5	-0.09	2.5	-2.5
1959	-66	133	17	0.12	-5.1	2.1
1960	-150	201	0	0.23	-7.6	2.1
1961	-52	212	-10	0.22	-5.9	0.1
1962	-72	131	-6	0.05	-2.7	-1.7
1963	83	345	-3	0.15	-1.8	-1.1

SOURCE: Ministry of Labor, Public Employment Security Offices, 1964.

<sup>a</sup> The collecting method was revised in April 1962.

rate" by the Ministry of Labor) has fallen sharply in recent years, from 45 per cent in 1955 to less than 10 per cent in 1963. During the same period, little trend was apparent in the ratio of placements to applicants.

The national data provided by PESO are available in cross-classifications by industry, age of workers, and area. These classifications make possible a more pointed analysis of vacancies and shortages. In Table 7, annual increases in vacancies since 1959 are indicated for major industrial classifications, supplemented by quarterly data for 1963. Annual increases have occurred in each of the industrial classifications, with a few minor exceptions. The largest increases are apparent in manufacturing and in transportation and utilities.

VACANCIES BY AGE. Inferences for the structural problem of vacancies and labor supply can be drawn from PESO data on openings, applicants, and placements, classified by age. New school graduates, excluded from these tabulations, are discussed below. Even with this exclusion, there is a notable difference in the number of vacancies for young workers as compared with those over 35 (Table 8). Although there has been an increase in the number of vacancies in all age categories between 1961 and 1963, the absolute rise has been especially marked for those between 20 and 24 years of age. There has also been a large increase in the number of applicants in this age group.

In Table 9, it is seen that the activities of PESO have been concentrated primarily among workers in the younger age categories. Because new school graduates are excluded, the proportion of vacancies for younger workers shows no increase from 1960 to 1963. With this exclusion, PESO appears to be increasing its role in obtaining applications, vacancies, references, and placements for older workers relative to younger workers.

The ratio of vacancies to applicants rose in all categories from 1960 to 1963, but the ratio was progressively lower in the older age categories in each of the years (Table 10). Interesting patterns are also established in the ratio of placements to applicants during this period. The ratio declined for workers in the younger age categories, but remained relatively constant from 1960 to 1963 for those



TABLE 8  
*Job Applicants and Job Openings, by Age (Excluding  
 New School Graduates), 1961-63*  
 (thousands)

Age	Applicants			Vacancies		
	1961	1962	1963	1961	1962	1963
Under 20	151	130	122	115	104	129
20-24	271	295	317	224	217	299
25-29	182	203	211	157	135	190
30-34	105	119	129	106	114	140
35-39	75	88	97	60	55	78
40-49	82	111	123	31	39	62
50-54	35	40	} 130	7	9	} 18
Over 54	61	72		4	5	

SOURCE: Ministry of Labor, PESO.

TABLE 9  
*The Age Composition of Job Applications, Job  
 Openings, and Placements (Excluding  
 New School Graduates), 1960-63*  
 (per cent)

Age Composition	1960	1961	1962	1963
Applications				
Less than 34 years	75.3	73.8	70.7	69.0
35 years and more	24.7	26.2	29.3	31.0
Job vacancies <sup>a</sup>				
Less than 34 years	81.2	79.2	79.5	80.3
35 years and more	10.4	13.4	15.2	16.5
References				
Less than 34 years	85.5	83.1	78.8	76.0
35 years and more	14.5	16.9	21.2	24.0
Placements				
Less than 34 years	84.0	81.7	77.5	74.0
35 years and more	16.0	18.3	22.5	26.0

SOURCE: Ministry of Labor, PESO.

<sup>a</sup> Excludes those which do not specify age.

TABLE 10  
*Ratios of Applications, Vacancies, and Placements, by Age*  
*(Excluding New School Graduates), 1960-63*

Age Groups	Ratio of Vacancies to Applicants				Ratio of Placements to Applicants			
	1960	1961	1962	1963	1960	1961	1962	1963
Total	0.67	0.77	0.67	0.83	17.6	17.1	14.1	13.0
Under 20	0.71	0.77	0.83	1.11	26.9	26.9	23.7	22.8
20-24	0.67	0.83	0.71	0.91	18.4	18.0	14.8	13.0
25-29	0.71	0.83	0.67	0.91	15.4	14.9	12.0	11.2
30-34	0.83	1.00	1.00	1.11	17.6	17.4	13.7	12.6
35-39	0.56	0.83	0.62	0.83	16.6	16.1	14.7	14.1
40-49	0.27	0.38	0.36	0.50	13.0	13.8	13.4	13.2
Over 49	0.07	0.12	0.13	0.14	5.9	6.6	5.9	6.4

SOURCE: Ministry of Labor, PESO.

over 35. The placement ratio was substantially lower for older workers throughout the period.

VACANCIES BY AREA. Similar data are available for geographic districts in Japan. Relatively low ratios of applicants to vacancies are registered in the expanding industrial areas, such as those surrounding Tokyo (Kanto), Osaka, Nagoya, and others in central Japan (Hokuriku, Tokai, Kinki). (See Table 11.) On the other hand,

TABLE 11  
*Ratio of Vacancies to Applicants,*  
*by Districts, 1961-63*

District	1961	1962	1963
Total	1.3	1.5	1.2
Hokkaido	1.4	1.2	1.4
Tohoku	1.4	2.5	1.8
Kanto (incl. Tokyo)	1.1	1.3	1.0
Hokuriku	0.6	0.7	1.2
Tokai			
Kinki	1.2	1.6	0.8
Chugoku	1.7	1.8	1.7
Shikoku	1.6	2.2	2.1
Kyushu	3.2	4.3	4.0

SOURCE: Ministry of Labor, PESO.

high and rising ratios of applicants to vacancies are found in relatively underdeveloped areas in Southern Japan (central and south-



ern Kyushu). The island of Kyushu has also suffered from a decline in coal-mining employment in recent years.

### *The Demand and Supply of New School Graduates*

Because of the *Nenkoh* system of hiring, special interest is focused on the demand for new high-school graduates, and separate tabulations are prepared for these applicants and vacancies by the Ministry of Labor. The listings of vacancies for junior high-school graduates must go through PESO, and most of the senior graduates are also listed at the Public Employment Exchange. As is seen in Table 12, the number of applicants has not increased in recent

TABLE 12  
*Labor Market for New School Graduates, 1956-64*  
(thousands)

Year (March)	Junior High-School Graduates			Senior High-School Graduates		
	Job Applicants	Job Vacancies	Job Vacancy Rate <sup>a</sup>	Job Applicants	Job Vacancies	Job Vacancy Rate <sup>a</sup>
1956	513	511	1.0	457	360	0.8
1957	572	680	1.2	458	491	1.1
1958	545	677	1.2	514	547	1.1
1959	554	668	1.2	574	641	1.1
1960	507	949	1.9	614	897	1.5
1961	389	1,060	2.7	632	1,290	2.0
1962	479	1,400	2.9	638	1,745	2.7
1963	532	1,402	2.6	584	1,583	2.7
1964	478	1,714	3.6	499	1,991	4.0

SOURCE: Ministry of Labor, PESO.

<sup>a</sup> Vacancies divided by applicants.

years, whereas the number of vacancies has risen sharply. The vacancies for senior high-school graduates have increased even more markedly than those for juniors in the past year; and the job vacancy rate (vacancies divided by applicants) has reached 4.0, compared with 3.6 for junior graduates.

Data on vacancies and placements for junior high-school graduates are also available by industry classifications and size of establishment. Since these young workers are actively sought by large and small firms alike, the so-called "fill-up rate" (placements divided

by vacancies) provides a measure of the relative pulling power of firms of varying size. A low rate is an indication of labor shortages which arise from difficulties in filling vacancies with the preferred type of employee.

As is seen in Table 13, the placement ratio declined progressively, the smaller the size of establishment. It is also a significant indication of growing over-all labor shortage that the placement ratio

TABLE 13  
*Fill-Up Rate<sup>a</sup> of Junior High-School Graduates, by  
Size of Establishment, 1960-64  
(per cent)*

Industry	Year (March)	Total	Size of Establishment			
			500 Persons and Over	100- 499	30- 99	Less Than 30 Persons
Total	1960	43.0	75.2	51.9	35.4	28.5
	1963	32.9	57.7	38.7	26.0	21.6
	1964	25.3	43.8	26.3	17.9	17.9
Manufacturing	1960	44.7	76.2	52.0	34.9	25.1
	1963	32.9	58.5	38.9	24.6	16.4
	1964	24.6	44.5	26.0	16.3	12.6
Commerce <sup>b</sup>	1960	30.6	48.7	49.8	33.2	27.8
	1963	26.6	48.3	37.6	29.8	23.4
	1964	22.0	32.1	28.0	22.7	19.9

SOURCE: Ministry of Labor, PESO.

<sup>a</sup> Ratio of placements to vacancies.

<sup>b</sup> Includes trade, finance, insurance, and real estate.

declines in each size category from 1960 to 1964. The yearly decline in the ratio is greater in manufacturing than in "commerce." The manufacturing ratios are higher than those in "commerce" for the largest establishments in each year, but lower for the relatively small establishments.

Thus, small manufacturing firms are experiencing the greatest difficulties in filling their vacancies for junior high-school graduates. It is presumed that many then turn to older workers, to whom they will usually have to pay higher wages.

No national data on vacancies for new university graduates are

available, but conversations with employers and government officials indicate that current shortages of these applicants are not nearly as marked as those for new high-school and junior high graduates.

#### *Demand-Supply Survey of Skilled Labor*

In addition to the data on vacancies, applicants, and placements gathered in the daily working operations of the Public Employment Security Offices, the Ministry of Labor has conducted a special questionnaire survey of a sample of employers each year since 1961. The survey is designed to determine the shortages of skilled workers in specific occupations and industries.

Since PESO data on vacancies are primarily for new school graduates, and since occupational specification is seldom provided by employers for these openings, detailed occupational tabulations of vacancies are not available from PESO. The Skilled Workers Survey is expected to fill this gap. The sample of employers is selected by random methods from the card files of PESO, and interviews are conducted by PESO representatives. Categories of skill are defined in terms of years of experience and training. Employers are asked to indicate the number of employees currently in each skill category and the number of shortages in each category. A shortage is defined as one which currently exists or is expected to arise within the next six months. It includes openings which may be filled either by new hiring or transfers within the company.

In February 1964, 9,103 establishments were included in the survey, stratified by size. The number of shortages of skilled workers (six years' experience, or three years of systematic training, or an equivalent combination) and the ratio of shortages to the current number of skilled workers are indicated for 1964 and preceding years in Table 14.

Although there has been an increase in the number of vacancies for the country as a whole, and for construction and manufacturing separately, there are only minor changes in the shortage ratios during the period. Manufacturing and construction have the largest number of skilled vacancies in 1964 among the broad industrial classifications, although the shortage rate in repair services is also

TABLE 14  
Shortage Rate of Skilled Workers

Industry Classification	Shortages (thousands)				Shortage Rate <sup>a</sup> (per cent)			
	1961	1962	1963	1964	1961	1962	1963	1964
Total	1,164	1,257	1,108	1,638	20.1	20.5	18.1	22.4
Construction	156	137	125	196	34.9	34.9	30.3	34.1
Manufacturing	906	1,015	897	1,267	21.4	21.3	18.8	23.0

SOURCE: Ministry of Labor, Skilled Workers Survey, February 1961-64.

$$^a \text{ Shortage rate} = \frac{\text{Number of shortages}}{\text{Number of skilled workers}} \times 100.$$

high (31 per cent). Mining and public utilities have the lowest shortage rates, 7.3 per cent and 3.1 per cent, respectively.

Data are also provided on skilled vacancies and shortage rates by occupations. In 1964, the highest rates (listed in order of absolute number of vacancies) were found among machinists (24.7 per cent), sewing-machine operators (37.8), machine assemblers (22.4), radio and TV repairmen (30.3), metal painters (25.9), metal finishers (25.2), carpenters (47.5), metal press workers (30.8), and foundrymen (21.9).

The breakdown of skilled vacancies by size of establishment provides further evidence of structural problems. The data for 1964 were as follows:

<i>Establishments With:</i>	<i>Number of Vacancies</i>	<i>Shortage Rate</i>
500 employees and more	244,202	11.9
200-499 employees	245,202	18.2
100-299 employees	210,750	23.1
15-99 employees	937,380	31.2
Total	1,637,534	22.4

It is seen that the smaller establishments suffer greater shortages of skilled workers, just as they experience greater difficulties in attracting school graduates and other employees.

The major limitation of the Skilled Workers Survey, as ascer-

tained in discussions with employers and Ministry of Labor officials, is the employers' difficulty in determining clear-cut occupational needs. As noted above, occupational categories, especially in new hiring, are not generally specified in Japanese industry; and employers, finding the concept an alien one, frequently reply to the questionnaire in terms of guesses and estimates rather than definite needs. There is also a tendency to exaggerate current needs and expected shortages in a period of general tightening of the labor market. Moreover, the inclusion of vacancies to be filled by transfers as well as new hiring lends a note of equivocation in labor market analyses.

*Indirect Measures: Accessions, Mobility, Wages*

The direct measures of job vacancies and shortages can be supplemented by series which generally move in the same direction.

Extensive data on accessions and separations are reported in labor turnover series, gathered in a monthly labor survey and an annual labor turnover survey.<sup>26</sup> The data are classified by methods of accession (hiring methods), reasons for separation, age and sex of worker, size of establishment, and industrial classification. Although space does not permit the inclusion of these tabulations here, it can be reported that time series and cross-classifications of these data generally support the findings of the direct measures of job vacancies and labor shortages. For example, the number of separations has greatly expanded with the increased labor shortages of the past decade; and the increase has been especially notable in the younger age groups, for whom alternative employment opportunities have been especially plentiful. Voluntary quits increased from a rate of 69.2 per cent in 1953 to 80 per cent in 1962.

Data on channels of accession reveal that placements through PESO have fluctuated between 24.4 per cent and 31.6 per cent of total placements during the period 1952 to 1962, whereas referrals by school authorities have increased steadily from 12.5 per cent to 20.9 per cent of the total. Here again, the growing demand for new school graduates is apparent.

<sup>26</sup> These and other labor surveys are described in detail in the annual *Year Book of Labor Statistics*, published by the Ministry of Labor.

Data on potential mobility can also be obtained from the triennial Employment Status Survey, directed to a sample of workers. These reports present considerable detail on employees' change of status from one year to the next, and also provide information on respondents' desires to change jobs, obtain work, or obtain additional work.

In the best traditions of economic theory, labor shortages should be reflected in a rising price of labor. As has been indicated earlier, the general wage level—in both nominal and real terms—has risen sharply during the past few years of tightening labor markets. The wages have increased most dramatically for young workers and employees of small firms, groups for whom the shortage has been most severe. Here, too, this indirect measure serves as a useful supplement to series centered directly on job vacancies; occasionally, wage data may provide insights into labor market changes that are not fully illuminated by demand and supply analyses.

#### IV. THE USE OF JOB VACANCY DATA

Having outlined the possible uses of data on job vacancies in the changing Japanese labor market, and having discussed the possible difficulties confronting the user of the statistical series, it remains to appraise the uses to which the data have been applied and the plans for further utilization.

##### *The Encouragement of Mobility*

It is to be expected that the most direct use of job vacancy data in Japan is in the matching of labor supply and demand in the local labor market through the auspices of PESO. This universal function, which appears to be performed at least as efficiently in Japan as elsewhere, does not require the establishment of national statistical series. A sterner test is in the use of national data on job vacancies for the allocation of labor across regional lines.

In order to encourage geographic mobility, the Ministry of Labor has pursued a policy of extending the employment service functions beyond the confines of local PESO jurisdictions. Thus, the Ikebukuro PESO, one of the largest in the Tokyo area and in the coun-

try as a whole, regularly sends a file of local job openings to PESO officials in thirty other prefectures throughout Japan; and officials of eighteen district PESO's surrounding Ikebukuro meet each week to discuss the matching of openings and applicants in their areas. Especially close contacts are maintained with areas in Japan which have traditionally been labor supply sources for the Ikebukuro industrial area. The distant PESO's send applicants' files directly to the Ikebukuro office. These are brought to the attention of local employers. If the applicant's "paper" qualifications are found suitable, the employer will request that tests be given the worker by the PESO in his home area. If these results are satisfactory, the employer will customarily pay travel expenses to Tokyo. Under legislation passed in 1959 to aid depressed mining areas and other labor-surplus areas, the government provides travel allowances for displaced miners and other unemployed workers after they have been given assurance of a job in a new area. In some cases, rental housing is also provided in the new location.

The national data on vacancies and applicants by district (see above) are utilized in allocating workers from underdeveloped to expanding areas. However, it cannot be said that the volume of interregional placements through PESO has constituted a large proportion of the total geographic mobility to date. In 1962, 28,255 workers were placed in areas away from their homes, and in 1963 this number increased to 49,423. Most of these workers were displaced coal miners. Of course, PESO places only a fraction of newly hired workers even in local areas.

The Ministry of Labor hopes to improve this record and greatly increase the use made of interregional job vacancy data through the operation of the Labor Market Center established this year. The Center will utilize electronic computers and a national telecommunication network connecting the central office in Tokyo and all local offices. All data on vacancies and applicants will be submitted to the Center for computer processing and storage, and will be used in prompt matching of supply and demand throughout the country.<sup>27</sup>

<sup>27</sup> The Center is described in *The Labor Market and Its Activities*, Ministry of Labor, Bureau of Employment Security, Tokyo, 1964.

The utilization of job vacancy data through the Center will be especially stressed in carrying out the comprehensive national development plan formulated in 1962. It is the purpose of the plan to achieve a balanced development of regions through the efficient allocation of labor and other resources. It is anticipated that the geographic mobility of labor will be substantially increased and rendered more efficient through operation of the plan.

#### *Guidance to Vocational Education and Training*

Because of the absence of detailed occupational data in the national vacancy statistics prepared by PESO, these series have only limited usefulness in the selection of courses in vocational education and training under a comprehensive national plan. In spite of its limitations, the Skilled Workers Survey is much more useful for this purpose.

Under the Vocational Training Law enacted in 1958, and a reorganization of the training program in 1960, a network of 280 "Vocational Training Centers" and 52 "General Vocational Training Centers" was established throughout the country. Although primarily under exclusive government control, some of the courses are run in conjunction with private industry, in keeping with the advanced development of in-plant training discussed above.<sup>28</sup>

Guidance in the selection of courses to be included in training programs is given by the Central Vocational Training Council, consisting of twenty members appointed by the Ministry of Labor. The members of the Council are drawn from the ranks of workers, employers, and informed public members. Similar bodies, on a smaller scale, have been established in each prefecture. These Councils utilize the data on job vacancies and shortages provided by the Skilled Workers Survey, as well as other relevant national and local data, in advising the selection or withdrawal of specific courses.

#### *Use in Labor Market Theory and Planning*

The series on job vacancies and labor shortages have been widely used by government officials, scholars, and journalists in analyzing the structural changes occurring in the Japanese economy and labor

<sup>28</sup> See *The Present Situation of Vocational Training in Japan*, Vocational Training Bureau, Ministry of Labor, 1963.



market. As has been noted above, the data on vacancies, applicants, and placements, when utilized in time series and in relationship to each other, can be a valuable tool in appraising differentials in demand-supply relationships by industries, size of establishments, areas, age, and education of employees. Many of the most serious structural problems in the Japanese labor market center around these very sectoral relationships and differentials.

Even though the PESO data are not complete, and reliable occupational data (other than the Skilled Workers Survey) are lacking, time series trends in the applicant and placement ratios relative to vacancies provide significant insights into the forces at work in the labor market. The series have been used to forecast changes in the dual structure of industry and in appraising the economic difficulties of small firms. They have proved valuable in analysis of the traditional *Nenkoh* system and provide useful clues as to the probable evolution of this institution. They offer a suitable backdrop for understanding changes in wage levels and differentials and changing patterns of labor mobility. When local labor market vacancy series are related to the national series (as in the study of the Toyota labor market) a basis is available for intelligent area analysis and policy.

The vacancy series are also significant for analysis of national unemployment, underemployment, and inflation. Because of the low levels of full-time unemployment, greater interest centers on the extent of underemployment in Japan. The decline in self-employment and unpaid family work (see Table 15), as well as the substantial movement away from agricultural areas and small business establishments, implies that underemployment has also declined in recent years. The ratios of job vacancies to applicants, described in the previous section, can be a more useful tool in analyzing these changes than the utilization of unemployment series, or employment series taken alone. The inflationary consequences of labor underutilization and misallocation can also be illuminated by analysis of the job vacancy ratios.

The data on job vacancies have not yet been widely used in formulating national plans, such as the "Income-Doubling Plan" of 1960 and its later revisions. Here the planners continue to place

TABLE 15  
*Labor Force and Employment, 1955-63*  
*(ten thousands)*

Year	Labor Force	Employed Persons				Unemployed
		Total	Self-Employed Workers	Unpaid Family Workers	Paid Employees	
1955	4,194	4,119	1,040	1,385	1,690	76
1956	4,268	4,197	1,048	1,324	1,823	71
1957	4,363	4,303	1,058	1,285	1,957	59
1958	4,387	4,324	1,031	1,241	2,050	63
1959	4,433	4,368	1,024	1,183	2,158	65
1960	4,511	4,461	1,033	1,151	2,273	50
1961	4,562	4,518	1,011	1,121	2,379	44
1962	4,614	4,574	981	1,094	2,496	40
1963	4,652	4,613	981	1,050	2,578	40
ANNUAL INCREASE						
1956	74	78	8	-61	133	-5
1957	95	106	10	-39	134	-12
1958	24	21	-27	-44	93	4
1959	46	44	-7	-58	108	2
1960	78	93	9	-32	115	-15
1961	51	57	-22	-30	106	-6
1962	52	56	-30	-27	117	-4
1963	38	39	0	-44	82	0

SOURCE: Prime Minister's Office, Labor Force Survey, monthly.

primary emphasis on future labor requirements as a function of predicted levels of GNP and productivity. But in translating the plan into specific forecasts and policies for areas, industries, and other microeconomic units, the data on job vacancies and labor shortages offer indispensable supplementary information. Given refinements of the data, which would further the confidence of the Economic Planning Agency in them, it can be anticipated that the series on job vacancies would play a central role in national economic forecasting as well as in the formulation of specific labor market policies.

#### V. CONCLUSIONS

An exciting challenge for job vacancy research is found in the current Japanese labor market. Long-standing traditions are faced with significant structural change under the impact of labor shortages

and technological advance. At the same time, the nature of Japanese labor market traditions and the current changes present some difficulties for the effective collection and utilization of statistical series on job vacancies.

In spite of some limitations in the data and in the environment in which they are to be applied, it is found that the existing series make a useful contribution to the formulation of labor market policies and to an understanding of the structural problems of the Japanese labor market. With further refinements in the data and improvements in the instruments for their utilization, it is anticipated that the role of national statistics on job vacancies can be further enhanced in the future.