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ion, this source has possible advantages over survey data from establishments, despite its smaller coverage, that will make it a very useful supplement to survey data for a long time to come. But in this connection, I was distressed to find in Levine's paper at an earlier session the statement, attributed to the Secretary of Labor, that priority in the program of job vacancy data is to be given to operating data, and that economic data would perhaps be available as a by-product. This is discouraging in view of the fact that the Employment Service has had operating data on job openings pending for more than twenty-five years, and almost the first analytical use of them, including the first breakdowns by occupation, came in connection with this conference. It was the universities, the nonprofit research organizations, and the statistical agencies of the federal government that generated the present interest in the collection of job vacancy statistics. They deserve better of Levine and Secretary Wirtz than to be offered by-products "if it could be worked out."

Let me again congratulate the authors of the papers for the imagination they have brought to their task and the wide variety of information that has resulted. Their work demonstrates that if we have important uses for job vacancy statistics, statistics can be collected appropriate to these uses.

NAT WEINBERG, UNITED AUTOMOBILE, AEROSPACE &
AGRICULTURAL IMPLEMENT WORKERS OF AMERICA

I hope it will not be considered ungracious to our host, the National Bureau of Economic Research, to say that this conference is being held both too late and too early. It is too late to influence the shape of the pilot surveys. It is too early to evaluate their results.

The National Industrial Conference Board Rochester survey reported on here is only the first of a number of pilot studies planned by the Board. The Labor Department at this time is able to give us only preliminary data, and that only for some areas, with the

quality checks still to be performed. Had this conference been held before the pilot surveys were made, it might have been possible to avoid the serious confusion of purposes which they reflect.

For example, the primary focus of the Labor Department survey is said to be operational. But it is geared in concept, timing, sampling, and so on to comparison with the unemployment figures; it provides inadequate detail for operating purposes; and there is reason to believe that the classification of job vacancies by occupation, which is a prime requisite for operating purposes, will be extremely questionable. Job orders, as the Slotkin paper states, are much more reliable with respect to occupational information.

The main purposes for which job vacancy surveys have been urged are (1) placement, (2) training, (3) to serve as an economic indicator, (4) to make labor market supply-demand comparisons either on an over-all basis or by occupation, by area, or by occupation and area.

For placement purposes, primary emphasis must be on the local area. Fine and accurate detail is needed on such matters as job content, education and experience requirements, wage rates, whether the job is permanent or temporary, whether it is seasonal or year-round, whether it is part-time or full-time, on working conditions (hazards, for example), on unionization.

For training purposes, current vacancies are only one indicator and not, by any means, the best or most important. Trends in employment by occupation would probably be considerably more valuable, as would projection by employers of their future needs—especially if those projections were based on analysis of job requirements flowing from their capital investment plans. Vacancies can actually be misleading as to training needs because of the “port of entry” factor mentioned in John Dunlop’s paper. If vacancy data are to serve the training purpose, they must also include detailed and accurate job content information.

For economic forecasting purposes, the primary need is for national data. This purpose is already served, and apparently very well in flagging downturns, by Employment Service data on unfilled job openings.

Insofar as supply-demand relationships are concerned, it is ex-

tremely dubious whether they can be revealed on a reliable basis by job vacancy surveys. And the purpose behind the clamor in some quarters for supply-demand comparisons is perhaps even more dubious. BLS estimates that if a global figure is wanted on job vacancies, a sample of 15,000 to 20,000 establishments would suffice. But the data obtained from such a sample would be absolutely useless for operational purposes. To get an over-all figure on demand for labor plus the occupational and local detail required for occupational purposes would require an enormously greater sample. As Wingard points out, "the variable being measured [vacancies] usually represents a very small segment of the total employment in any one occupation in the area, and generally occurs with widely scattered and highly fluctuating incidence among the different employing establishments."

The best way to get meaningful supply-demand data would be to require employers, as a matter of law, to report all their job vacancies to the Employment Service. This should be done in any case for other and more important reasons. But even the data so obtained would have to be subjected to considerable refinement before they could properly be compared with figures on unemployment.

There is a serious question, however, whether over-all comparisons of vacancies and unemployment serve any legitimate purpose. The objective seems to be essentially propaganda—to obtain support for the structural explanation of current, intolerably high unemployment rates so that those who have opposed effective government full-employment policies through actions calculated to raise demand can buttress their argument that increased demand would cause inflation.

All of us are very well aware that much of what now appears to be structural unemployment would largely dissolve if demand were higher. How much structural unemployment did we have during World War II and in the period of the Korean fighting? If demand were higher, employers would lower their hiring standards (they would not insist, for example, on high school graduates for materials-handling jobs); they would restructure jobs to fit the available workers; they would engage in more intensive training activi-

ties; and they would tend to locate their new plants in labor surplus areas. If job opportunities were greater, workers would respond by moving to labor-short areas. (During the period of the auto industry's rapid growth, Detroit was largely populated by refugees from Appalachia.) In addition, adult workers would have stronger motivation to avail themselves of training opportunities, and young people would have more reason to continue their education. (For example, fewer young Negroes would drop out of high school.)

In any case, both the structural thesis and the use of job vacancy data for comparison with the unemployment figures assume that workers are obligated to adapt themselves to the available jobs. In a full-employment economy, the reverse tends to take place to a significant degree. In such an economy, labor is precious because it is scarce, and jobs in many cases are adapted to workers. Sweden, which has had full employment or a close approximation to it for more than thirty years, finds it possible to create jobs for severely handicapped persons whom we would be inclined to call "unemployables." Sweden does so because such jobs enable these individuals to contribute, even if less than 100 per cent, to their support, which has to be paid for in any case.

Global numbers on supply and demand, moreover, are not necessarily evidence of structural unemployment. It should be remembered that blue-collar employment fluctuates much more widely than white-collar employment as aggregate demand rises and falls. Therefore, if there is a relatively high ratio of blue-collar unemployed to blue-collar vacancies, as compared to the comparable ratios for white-collar and professional workers, the chances are that it is more a reflection of inadequate aggregate demand than of structural problems.

Martin Gainsbrugh has made clear that his interest in supply-demand data on a broad basis arises in a major part out of his desire to support his thesis of large-scale "optional unemployment." I wonder how far he would care to push this thesis. Obviously there are always options between employment and unemployment, as long as the Salvation Army keeps its soup kitchens open. Most young women could undoubtedly find full- or part-time employment as prostitutes. Many have, in fact, been driven to prostitution by low

wages offered by so-called legitimate employers. Are young women to be considered "optionally unemployed," therefore, because they refuse to prostitute themselves?

The basic point, however, is that attempts to serve all four purposes—placement, training, economic indicator, supply-demand comparisons—necessarily result in hybrid figures that serve none of these purposes effectively. This, I think, can be seen by examination of the individual papers prepared for this session. The Myers paper shows, first, that hybrid figures do result from vacancy surveys not carefully formulated to serve a specific purpose, and that the reliability of data obtained in vacancy surveys is highly questionable in comparison with those obtained as a by-product of Employment Service operations. The hybrid nature of the data flows in large part from Myers' emphasis on supply-demand comparisons and his anxiety to establish the "optional unemployment" thesis. His data depart widely from comparability with the unemployment data.

1. He includes jobs vacant less than one week, whereas the labor supply data count as employed—and not unemployed—any individual who worked at any time during the preceding week. Myers attempts to excuse this departure from comparability on grounds that it is difficult to get information about the date when a vacancy developed because employers do not have the information.

2. He includes employer attempts to hire in anticipation of turnover, whereas an employed worker looking for a future job is not counted as unemployed.

3. He admits that employers exaggerate the number of their vacancies in a tight labor market, yet he solemnly counts their reported vacancies. He includes jobs with later starts even though workers are counted as unemployed only if they are actually without work; an employed worker is not counted on the supply side even though he may be ready to start work at another job immediately.

The extent of noncomparability with figures on unemployment can be illustrated by reference to the inclusion of jobs vacant less than one week. These, according to Myers, accounted for 9 per cent of his total vacancies, in a *tight* labor market where only 1.4 per cent were unemployed and where nearly half the vacancies, 46.3

per cent, were in the managerial, professional, and subprofessional jobs which typically take considerably more than a week to fill. Without going into the question of how much validity can be attached to Myers' 9 per cent figure, it is obvious that the proportion of total vacancies lasting for less than one week would be much higher in a loose labor market, in which a large proportion of the vacancies were in unskilled and semiskilled jobs, than under the conditions that Myers found in Rochester.

The Myers study also reveals clearly the very severe limitations of job vacancy surveys for operational purposes. He reports that 25 per cent of the vacancies outside the managerial and professional categories were improperly classified by occupation when he tried to apply the *Dictionary of Occupational Titles* to the job titles he had obtained from employers. This ties in with one of the major conclusions of the Slotkin paper. It appears from the context, moreover, that Myers' problem with occupational classification related not to classification by specific occupations but rather to classification by broad occupational group—unskilled, semiskilled, and so on.

There is reason to believe that many of the "vacancies" reported by Myers cannot realistically be considered to be actual vacancies. For one thing, employers were vague about their hiring channels. Myers reports that their statements on this score were frequently "impressionistic" and that they reported the channels they "would use." The fact that the highest proportions of vacancies of long duration—thirteen weeks or more—were found in the case of unskilled and semiskilled vacancies (34.3 per cent for the former, 33.5 per cent for the latter) points to such factors as low wages and bad working conditions as causes for the failure to fill the alleged vacancies. Unfortunately, Myers obtained no data on these matters. Similarly, vacancies requiring the least education (eight years or less) showed the highest median duration—10.1 weeks versus a median of 4.8 weeks for all vacancies. The fact that employers reported that 13 per cent of the vacancies lasting six months or more were *not* hard to fill suggests that they were not trying very hard to fill them. That some employers said "all those jobs requiring specific skills acquired through on-the-job training were hard

to fill" implies that they wanted other employers to do *their* on-the-job training for them—hardly a realistic or serious approach. Moreover, Myers notes that seven out of eighteen employers reporting hard-to-fill jobs had ceased recruiting for those jobs. It is certainly reasonable to raise a question as to whether these ever represented real vacancies.

The experience and schooling requirements for many of the alleged vacancies were obviously unrealistic—2.9 per cent of the unskilled and 43.1 per cent of the semiskilled vacancies were said to require one or more years of experience, and 20.0 per cent of the unskilled and 51.5 per cent of the semiskilled vacancies were said to require eleven to twelve years of schooling.

In addition, essential information is lacking on important qualitative aspects of the alleged vacancies. For example, Myers made no serious attempt to distinguish temporary from permanent jobs. His only breakdown is between jobs lasting less than one week and those lasting one week or more.

Myers' survey shows how misleading it can be to support the structural thesis by an over-all comparison of job vacancy and unemployment rates. The structural thesis is, of course, easy on the conscience because it attributes unemployment to the deficiencies of the unemployed in education, experience, refusal to move, or other failure to adapt themselves to labor market conditions. But how far can this thesis be carried? Myers reports that the unemployment rate in the area was 1.4 per cent, compared to a 2 per cent vacancy rate for the employers surveyed. But nearly half—46.3 per cent—of the vacancies were reported to be for professional, semi-professional, and managerial jobs. Are blue-collar workers supposed to adapt themselves overnight to the requirements of professional, technical, and managerial jobs?

The most important conclusion of the Slotkin paper, it seems to me, is that a great deal more information is available from job orders than could ever be obtained from a survey of employers. There is ample support in her paper for this conclusion. She reports, for example, that many firms would cooperate in a vacancy survey only if the forms were "concise and simple." But this means that the details needed for sound evaluation and analysis of the

data themselves, as well as for operational purposes, will not be available. The lack of employer records and systems for the recording of job vacancies, which was uncovered by the Chicago pilot survey, brings into serious question the value of data obtained through vacancy surveys.

The Slotkin paper notes that vacancy surveys would "involve a great deal more staff time and effort than any of the current employment statistics programs now being handled by state employment security agencies." The resulting data, however, would be largely useless for operational purposes. For example, of sixty-five job titles for which vacancies were reported, there were two *Dictionary of Occupational Titles* possibilities for nine, and three or more possibilities for six, including one offering thirty-seven possibilities. In other words, the information obtained on almost a quarter of the total vacancies reported would be impossible to use for placement and training purposes.

The Wingard paper is mostly descriptive. It supports the conclusion that the data obtained in vacancy surveys would be of a hybrid variety. Although operational purposes allegedly were given "predominant consideration," Wingard concedes that, for operational purposes, the definition of vacancies should be "less restrictive."

Similarly, compromises were made to meet the employer requirement for "concise and simple" forms reported in the Slotkin paper. Wingard admits that the normal time required to fill a vacancy depends upon the nature of the job involved, with one month or more "usually required" for professional jobs. But one month is used as a measure of "hard-to-fill" vacancies because, says Wingard, there is no "simple" alternative available. The Employment Service could undoubtedly provide criteria based upon experience. But data that can be analyzed in terms of these criteria would require employers to state precisely how long each job is vacant and, as Myers, Slotkin, and Dunlop all point out, employers simply do not know. Myers points to the fuzzy answers he got on whether the job was vacant one week or more.

Wingard describes the quality checks that are to be made of the data obtained in the BES-BLS pilot surveys. The whole exer-

cise is called into question by his statement that one of the matters to be checked is "the willingness . . . of business establishments to report with or without the benefit of records." Where records are unavailable, it will be somewhat difficult, to say the least, to evaluate the quality of employer responses on the survey schedules.

The quality check, as such, apparently does not include a check on the accuracy of BES slotting of employer-reported job titles into *Dictionary of Occupational Titles* categories. Wingard says, however, that an evaluation of the precision of occupational slotting will be made in an effort to discover "possibilities for developing a sound system for reporting occupational detail." He suggests, as one possibility, the development of a "precoded list of occupations with accompanying brief descriptions that would be adapted to each industry but comparable among industries." In view of employer preferences for the "concise and simple" approach, there seems small likelihood that they would use such lists with the care required.

Wingard's recital of the difficulties in the way of accurate occupational slotting underlines the findings of Slotkin and Myers on this score, and is much more impressive than his suggested solution of the problem. The degree of precision in slotting in the BES-BLS surveys remains to be determined—if, indeed, it can be determined. For operational purposes, however, the accuracy of occupational slotting is crucial. There is reason to be concerned, therefore, over the separation in Wingard's paper between the quality check and the slotting problem. Presumably, negative findings in the quality check could lead to abandonment of the vacancy survey project, while, apparently, a finding that occupational slotting was unreliable would not. Given such a finding and the difficulty (or, more likely, the impossibility) of finding a sound solution to the problem, data obtained from the vacancy surveys would have no practical use except to those who chose, despite all the reasons to the contrary, to rely upon them for over-all supply-demand comparisons.

The BLS questionnaire gives a definition of "actively seeking to fill a vacancy." But the questionnaire does not require management to enumerate the channels which actually had been used during the

previous week to fill each of the reported vacancies. In the absence of such a question we do not have any assurance that only those jobs are reported for which management was actively recruiting during the week. Since BLS plans to use mail questionnaires, it is not even certain that the definition will be taken into consideration by respondents.

The Chavrid-Kuptzin paper presents some fragmentary, preliminary, and unevaluated data obtained in the BES-BLS surveys for a few areas. It does, however, give rise to some serious questions.

First, are the vacancies reported serious vacancies? Table 8 of the paper shows that semiskilled jobs are the hardest to fill, with 74.8 per cent vacant one month or more. These data cover only four areas, and may be biased by seasonal factors in the Providence costume jewelry industry—which is probably a low-wage industry. It would be interesting to see data on this point from the other three areas separately.

Chavrid and Kuptzin note that Employment Service data on unfilled orders showed 25 per cent of the unskilled jobs and 40 per cent of the semiskilled jobs vacant fifteen days or more. But according to the paper, 22 per cent of the Employment Service unfilled orders are vacant because of wages and similar factors. It is instructive in this connection that the Slotkin paper notes:

Some respondents who gave "lack of qualified workers" as a reason stated they checked this reason because they found that the qualified workers were "unwilling to work." These respondents were in industries characterized by low wages and highly seasonal activities, yet none of these firms indicated that wages, working conditions, or other conditions of employment were reasons for the inability to fill jobs. Since all of the reasons except lack of qualified workers can be interpreted as criticisms of a firm's policy, it is not surprising that this was the overwhelming preference of respondents.

Second, it is interesting that Chavrid and Kuptzin's Table 9 shows that applicants outnumbered vacancies two to one even though the areas involved had only moderate unemployment at the time. The ratio of 0.9 applicants for each skilled job could quite likely be nothing more than a reflection of the low rate of registration of construction workers with the Employment Service.

Third, the paper draws the conclusion that there is structural imbalance because Table 6 shows that the distribution of the unemployed is weighted heavily at the lowest skill levels, while the reverse is true of the distribution of unfilled openings. But, as noted above, this could be merely a reflection of the fact that employment at lower skill levels, particularly blue-collar employment, fluctuates much more widely in response to demand than employment at higher skill levels. Only at the lowest skill levels are workers subject to layoff with practically every fluctuation in demand, no matter how minor. (Skilled workers are frequently retained because of possible difficulties in replacing them when demand rises.) It could well be that if demand were raised, the occupational distributions of the vacancies and of the unemployed would come much more closely into line with each other.

Enough has been said, I think, to make it clear that there are grave doubts about the propriety of the use of vacancy surveys for the purpose of evaluating supply-demand relationships in the labor market. But if comparisons of job vacancies with unemployment are to be made, those who make them ought to make sure that they are as symmetrical as possible. They should also make clear to the public that, despite the best efforts made, they will always be seriously lacking in symmetry. For example, for most workers, there is no real alternative to working or looking for work, whereas employers have many alternatives to the filling of vacancies. Attachment to the labor force is practically mandatory for men between 25 and 55. Even for many workers whose attachment might be considered marginal, the compulsions to work are strong. Many married women have little choice between working and not working, when account is taken of instalment commitments, the inadequacy of unemployment compensation and welfare payments, and the psychological need to work. The last is particularly strong in the case of women whose housework is reduced by home appliances and whose children are either away at school most of the day or have reached an age where they need little attention.

Employers, on the other hand, have a great many alternatives. Instead of filling vacancies, they can resort to overtime; they can increase output by investment in more productive equipment; they

may find it possible to leave some jobs vacant for extended periods without any impairment of output; they may subcontract work; or they may turn down marginal orders.

Obviously, there is no symmetry in urgency as between unemployment on the one hand and job vacancies on the other. Consider, for example, the relative urgencies faced by an unemployed Negro worker and the employer who prefers to leave a job vacant rather than to hire a Negro. There is no symmetry in quantification. An unemployed worker is very real and very tangible. The Thompson paper points out, on the other hand, that 10 per cent of the vacancies notified to Canada's National Employment Service are canceled because they are not real in the first place. In certain types of cases there is uncertainty over the number of vacancies (a situation which some countries meet for statistical purposes by counting such jobs as vacancies only after they have been filled). In a tight labor market, general or specific, employers will often inflate their needs, particularly in reporting to the Employment Service. Unemployed workers, on the other hand, cannot multiply themselves. There are also what might be called "half-real" vacancies—situations in which the employer will hire only if he finds a worker with the right qualifications willing to work for a low enough wage. In addition, there is a lack of symmetry in the withdrawal pattern. Worker withdrawals from the labor market are highest at the trough of the business cycle. Withdrawals of job vacancies, i.e., cessation of recruiting, tend to be greatest at the peak of the business cycle, when employers resort to overtime and other alternatives. Therefore, the reported ratio of vacancies to unemployed workers would tend to be distorted by cyclical fluctuations. It would be higher relatively at the trough of the cycle than it actually is in relation to the full-employment labor force.

The achievement of maximum symmetry would require, among other things:

1. That the count of vacancies exclude jobs vacant for less than a week since a worker is considered employed if he works even one hour in a week.
2. That only present vacancies be counted, since a worker is not considered unemployed unless he is ready to work immediately.

3. That employers be required to specify the channels through which they are seeking workers. (A comparable question—relating to the means by which he is seeking employment—will shortly be added to the questions in the household survey of unemployment; requiring employers to list their channels would serve the additional useful purpose of making possible a better evaluation of the reality of the vacancies they report; if, for example, they are using gate hiring for every vacancy from sweeper through scientist, the vacancies reported would appear to be of dubious reality.)

4. That specific reasons be obtained as to why “hard to fill” jobs remain unfilled; this means that data would have to be obtained and an analysis would have to be made of such matters as the wage rates offered, working conditions, commuting problems, hours of work, the reputation of the firm among workers in the area, unionization, the reactions of workers actually referred to the jobs in question, the firm’s turnover rates, excessive education or experience requirements; these factors are analogous to the data obtained concerning the education, age, sex, color, and so on of unemployed workers.

5. That the vacancies be broken down into permanent versus temporary, full-time versus part-time, and seasonal versus year-round; this is analogous to the data presently obtained on students in the labor force and on part-time versus full-time workers.

But I seriously question whether, even if all these data were obtained with respect to vacancies, an over-all comparison of unemployment and vacancies would be meaningful. I suggest that the resources contemplated to be used in connection with vacancy surveys could be put to much more valuable uses. For example, if we are seeking improvement of our economic indicators, we might follow Germany in distinguishing between new vacancies and those which involve replacements. This breakdown might well be obtained in connection with job orders filed with the Employment Service, and it might be found feasible to construct an index of new vacancies which would probably serve as a valuable and sensitive economic indicator. We might also find it useful to follow Sweden by developing from Employment Service data an index of vacancies filled per 100 notified.

An index of the average time required to fill job orders filed with the Employment Service might also prove to be a useful indicator. Such an index might be developed with the use of standardized weights for occupational categories. In addition, separate indexes might be developed by industry and by occupation. Area indexes might be useful in evaluating and forecasting local labor market conditions.

In any case, before any significant amount of resources is devoted to job vacancy surveys, I believe we have to go far beyond what has been proposed in checking the validity of the data obtained in the pilot surveys. One suggestion that I would make in this connection is that careful comparison be made between the job orders filed with the Employment Service and the vacancies reported by the same employers and any statements they may make about the channels used for filling those vacancies.

In short, I can see little value to statistical surveys of job vacancies and believe vacancy data derived from Employment Service operations—particularly if the Service were strengthened, as it should be—can meet far better the legitimate needs for vacancy data.

HAROLD GOLDSTEIN, BUREAU OF LABOR STATISTICS

I would like to comment on the potential uses of job vacancy statistics as they have been brought out at this conference, and particularly to comment on their use in planning programs of training—a subject in which there is intense interest.

The discussion of the analytical uses of the data suggests to me that these offer great potentialities. We have discussed analyses of demand and supply relationships, the study of structural problems in the labor market, and examination of the situations in which one or another type of economic policy—either those designed to increase demand or those designed to adjust supply to demand—would be most useful. For these types of analyses, as has been brought out in the papers and discussions at this conference, we need a complex of data, of which job vacancies is only one type. We need data both on stocks and on flows in the labor market, including employment,

unemployment, and labor turnover, as well as related data on wages and price levels.

We all recognize the dangers inherent in misuse of national compilations; but it seems to me that much of the discussion has involved analyses which would require such compilations—not simple analyses which would be subject to misinterpretation, but sophisticated treatments, as well as analyses on local-area levels or within wider geographic areas within which there is labor mobility. As we consider the fears about ways in which national compilations could possibly be misused, particularly because they conceal local differences, I cannot help thinking that the same objections could be raised against national compilations of *any* statistical data, including employment and unemployment statistics. To be sure, the fact that employment is rising nationally conceals the decline taking place in some cities; this is why we have both national and local statistics.

I cannot speak as an expert on the use of job vacancy information for placement purposes. The public employment services, as Levine has pointed out, have been collecting vacancy data in some states for a period of years, and in at least one of these states by occupation. I hope we can get a report on how these data have been used and how successful these uses have been—for example, the extent to which the placement record of states which did collect job vacancy data was better than the record of states which did not.

It seems to me that in connection with placement and employment service operations, we can distinguish two types of use for job vacancy information. One would be in the identification of individual vacancies into which applicants can be placed; a second would be in developing information by which the employment service can study its operating problems—information on such questions as what proportion of total job vacancies in an area are given to the employment service to fill, whether the job orders filed in the various local offices represent a cross section of all job vacancies occurring in each area, whether the local office is missing large numbers of placements in certain industries or occupations or in larger or smaller firms in the area, and similar problems. For these analyses of operating problems they would need job vacancy infor-

mation which represents an estimate of the total vacancies in the area by occupation or industry. In other words, to meet certain major operating needs, they would require *statistics* on job vacancies based on adequate samples and estimating procedures. We should not lose sight of this fact in drawing a distinction between job vacancy data for "operational" purposes and data for "statistical" purposes; the point is that we need *statistical* data for many *operational* purposes.

There is great need now for data on which to base programs of training. One of the principal kinds of information needed is estimates of the numbers of workers that have to be trained for each occupation, in the nation as a whole and in individual states and metropolitan areas. This information has always been needed by school systems, colleges, professional societies, and those responsible for apprenticeship and other training programs. Its need is even more acute now when the government is supporting greatly expanded activity in higher education, vocational education, training, and retraining.

For any training program of more than a few weeks' duration, we need to know, not the number of openings available at present, but rather the number that will be available months or years in the future.

What do statistics on job vacancies tell us about this subject? To begin with, it is clear that only a fraction of the vacancies reported at any one time represents an unfilled demand; the remainder represent turnover—jobs unfilled at the moment, but which will probably be filled shortly from among the unemployed, and represent no shortage of workers. Clearly, only the former type of vacancies—those representing unfilled demand—should be considered in relation to training. According to the few area surveys the Department of Labor has made, they are well under half the total, if we can be guided by the fact that the number of vacancies which have been unfilled for a month or more runs between one-third and one-half the total in each area.

But what can the number of current shortage vacancies tell us about the number of workers we need to train for the future? It is possible that manpower needs in an occupation in which there is

a shortage of labor today may be reduced in the next few years by technological change. It is also likely that in an occupation for which there are no shortages at the moment, we may need to have a steady flow of trainees to replace those dying or retiring, and to permit employment growth. Shortage vacancies are too ephemeral and unreliable a guide to serve as the sole means of approximating the number of workers we need to train; such data, however, can usefully supplement other information.

In order to estimate the number of workers that should be trained, we need, first, to make projections of trends in manpower requirements by occupation. These projections should go at least as far into the future as the lead time for training in the occupation, ranging from six months in some occupations to five years in others. The projections should take into account changes in patterns of demand and in technology. They may require developing comprehensive models of the structure of the economy, income flows, and consumption patterns for future years as a basis for industry projections. Second, we need to estimate the numbers that will have to be trained for each occupation to replace those dying, retiring, or leaving the occupation for other reasons. These kinds of estimates have been made at a national level for a number of industries and occupations, and the Department of Labor is planning to extend its work in this area to provide the information essential to plan training and education programs at the state and local level.

Information on job vacancies *can* make a contribution to projections of training needs in one respect. Our methods of analysis and projection are based on the projection of past trends in demand. They make the assumption, for lack of better information, that the past and present demand is measured by employment. Insofar as the true demand may be greater than the number employed because of shortages in supply, it would be more precise to add the number of shortage vacancies to the number employed to develop more precise estimates of current and past demand.

In suggesting this potential use for vacancy data, I have to admit that our estimates of current employment by occupation are rather rough, and our projections, of course, even rougher. If vacancies amount to 1 or 2 per cent of current employment in an occupation,

adding them in does not add much precision to our estimates; if, however, vacancies are of the order of 10 per cent or more in an occupation, we should take them into account in estimating current demand. Thus, in those cases of substantial shortages, vacancy data would make a useful contribution to systematic estimates of the number of workers that have to be trained to meet future needs.

As Chavrid said, we need much more than vacancy data to make estimates of manpower requirements for planning training programs—data on employment by occupation, nationally and by area (a program toward which the Department of Labor is working), and projections of demand nationally and by area. Job vacancy data will make a contribution to the latter in a limited number of cases.

R. E. JOHNSON, WESTERN ELECTRIC COMPANY

I concur in the opinion of most of the previous discussants that we do not yet know why we want vacancy figures. Neither are we completely clear how we would use the figures if we had them. I have been struggling for more than two years to figure out how I would use a vacancy index in general economic analysis or economic forecasting. Frankly I am still not clear about what advantage I would find in such an index, assuming that one could be developed. Furthermore, I am not convinced that we need vacancy statistics for the operating purpose of matching men with skills to jobs requiring these skills. I am of the opinion that we do have the necessary mechanisms in the labor market and that we are able to match men to jobs reasonably well. The reason for the unmatching, I believe, is not a matter of lack of knowledge or know-how; rather the problem is sociological or personal. I agree with several of the previous discussants that we could better allocate whatever funds are contemplated for the job vacancy surveys to efforts toward improving other areas of employment and unemployment statistics. We in the Western Electric Company do attempt to forecast our employment requirements for as much as ten years ahead. This is done in aggregate by two mathematical models; then we attempt to develop our requirements for professional people, such

as engineers and management. We take account of anticipated retirements, deaths, and labor turnover. Of course such estimates are not accurate, but they are of reasonable order of magnitude.

We think we know a great deal about the shortage of skills in the areas in which we operate. We are about to establish a new plant in Shreveport, Louisiana. I suspect that, as is the case in most new plants, we will be required to train certain skilled trades, such as machinist and tool and die makers. We run our own schools, for this purpose, when necessary. We do have a heavy loss of trained people to other industries in the community, but we feel that we must know what our short skills are going to be and that we must train these people and have them ready when the organization starts operating. We go to wide geographic areas in order to recruit the skilled talents we need. We have been known to go several hundred miles in our search for particular skilled people.

We recognize shortages of particular skills not only in the geographical area but in the nation as a whole. For instance, as we moved into the application of operations research techniques, we knew that there was going to be an extreme shortage of qualified people. Hence, we surveyed a number of universities and have established, with Lehigh University, a master's degree program running for eighteen to twenty-four months in which the academicians come to our facilities in Princeton, New Jersey, to assign the academic work and our staff gives work in the practical application of the techniques taught in the classroom. Lehigh has the responsibility of deciding the quality of the students' work, and awards master's degrees to those felt to be qualified. We are running a similar course in solid-state physics.

We do a great deal of training of our people at all levels. For instance, we train, for about two weeks before they go on the job, those who install central offices and PBX boards for operating telephone companies. These, by and large, are high school graduates or the equivalent. We bring these individuals back for training during the first year or so as they progress in their skills. This type of training is done throughout the company where we feel it is essential.

For our newly hired college graduates we give an orientation

course of about two weeks to expose them to the nature of the Western Electric Company and the Bell System, and how we expect their talents to be of assistance to us in running our business. The engineers receive a somewhat longer course of orientation than do the nonengineers, since we feel that there is more for the engineer to be exposed to before he enters the job. Both groups are brought back periodically.

The engineers are brought back to round out their education. For instance, the chemical engineer may be brought in for as much as six or eight weeks' training in electrical or mechanical engineering, so that he can move into these various engineering fields. Similarly, the engineers are brought back periodically through their career to take refresher courses to update them in this new and fast-moving field.

Our management trainees, after their first indoctrination course, are brought back as they progress up the management ladder. For instance, they will have about two weeks of off-the-job training when they are about to become supervisors, and then as they move up the supervisory ladder they are brought back for about two or three weeks of training. In all of these training courses, including those for the engineers, we utilize a number of faculty members in their specialty field. We attempt to stretch the trainees' minds into new subject fields of a social, economic, and managerial nature in order that they may utilize the broad environment in which they are working.

Let me close by saying that I found our people who would be required to fill out the vacancy reports reluctant to do so. I have knowledge of only one sector, the New York metropolitan area, where we did fill out reports, and I believe accurately. We had as of November, in our establishments in the New York City area, better than 9,000 people. We reported eleven vacancies, which we were attempting to fill. If anyone got any new knowledge, I am amazed. I think all of us know the hard-to-fill jobs; for instance, we had one job for a senior programmer, where we wanted academic training and three years of experience. We had another job for a political science writer with ten to fifteen years experience. I fail to see how this would have given anyone any help in develop-

ing training programs. Among the other nine jobs, the majority were for junior programmers. We have known, and I think everybody has known, that programmers are a scarce talent in our labor force. The other jobs were for two or three people for jobs such as file clerks, collators, and the like. These jobs had been opened but a short time and we would expect to fill them reasonably soon.

REPLY BY MYERS

Some of Weinberg's statements call for comment. In order to avoid long quotations, I shall rely on the reader to look up the appropriate passages in my paper or in Mr. Weinberg's discussion.

EXAGGERATION OR UNDERSTATEMENT OF NUMBER OF JOB VACANCIES

Weinberg states, "He admits that employers exaggerate the number of their vacancies in a tight labor market, yet he solemnly counts . . ." The admission is contained in my paper, accompanied, however, by mention of the possibility of understatement as well. Weinberg also recognizes that bias in either direction, exaggeration or understatement of the total number of vacancies, is possible. In a later paragraph of his discussion, he states: (a) "In a tight labor market, general or specific, employers will often inflate their needs . . ." (b) "Withdrawals of job vacancies, i.e., cessation of recruiting, tend to be greatest at the peak of the business cycle . . ." After some experience with collecting job vacancy data, I am convinced that careful questioning of employers can reduce these and other biases.

OCCUPATIONAL COMPOSITION OF JOB VACANCY STATISTICS

Weinberg states correctly that ". . . blue-collar unemployment fluctuates much more widely than white-collar unemployment as aggregate demand rises and falls." Later on, however, he seems to imply the contrary: ". . . it is obvious that the proportion of total vacancies lasting for less than one week would be much higher in a loose

labor market, in which a large proportion of the vacancies were in unskilled and semiskilled jobs, than under the conditions Myers found in Rochester." Later yet, after restating the relation between blue-collar unemployment and aggregate demand, Weinberg states: "It could well be that if demand were raised, the occupational distributions of the vacancies and of the unemployed would come more closely into line . . ."

These remarks indicate a confusion between stocks and flows. The average period required to fill a vacancy, or hiring period, varies with occupation, as has been observed by many persons at this conference. Therefore, the occupational distribution of the stock of job vacancies unfilled at a point in time will differ from the occupational distribution of the flow of new job vacancies created during a period of time. Those occupations with a long hiring period will represent a greater percentage of the stock of vacancies than of the flow of new vacancies, while occupations with a short hiring period will be less important in the stock than in the flow.

When variations in aggregate demand are taken into account, the situation becomes more complex. The hiring periods of various occupations rise with increasing demand, but by different degrees. Our interviews in the Rochester study led us to the following generalizations. Professional workers have a rather long hiring period, which lengthens with rising aggregate demand. Unskilled workers have a short hiring period, which does not rise significantly (until possibly a general labor shortage develops). Skilled workers have a highly variable hiring period; it is short when the labor market is slack but lengthens considerably when local pools of workmen are fully employed and workers must be drawn from other areas.

A hypothesis about the effects of rising aggregate demand on the occupational distribution of stocks and flows of job vacancies can be constructed from the preceding observations:

1. Professional workers will be relatively more important in the stock than in the flow at all times; the difference will increase with rising aggregate demand.

2. Skilled workers (skilled trades) will be less important in the

stock than in the flow at low levels of demand and more important in the stock than in the flow at high levels of demand.

3. Unskilled workers will be less important in the stock than in the flow at all levels of demand.

It is unlikely that the occupational distribution of unfilled job vacancies will be easy to interpret as evidence for or against the structural unemployment thesis. As analysis proceeds, however, we shall undoubtedly learn a great deal more than we now know about the functioning of the labor market. Weinberg's provocative views should serve to stimulate this research.

DURATION OF VACANCY AND DEFINITION

"He includes jobs vacant less than one week . . . Myers attempts to excuse this departure from comparability on grounds that it is difficult to get information about the date when a vacancy developed because employers do not have the information." Two reasons for including job vacancies unfilled for less than one week are given in my paper. The first is that a wider measure seems preferable for many uses of job vacancy data. The second is that employers experienced much difficulty in furnishing the date on which the job vacancy was created, not that the information did not exist. A distribution of job vacancies by duration is given in Table 4 of my paper for 1,407 of the total of 1,436 openings found. The difficulties in dating the vacancies arose from the necessity of consulting individual job requisitions, contacting independent hiring centers within the firm, and so on. My "attempt to excuse" stems not from the absence of information but from the difficulty in assembling it. Compromises between maximum desired information and difficulties experienced in response are necessary in job vacancy and other surveys, in order to elicit accurate response. A series of questions which are difficult and expensive for employers to answer will serve to minimize the total number of vacancies reported, if that is desired for any reason.

In discussing the relation between "hard to fill" vacancies and the length of time the vacancies were open, Weinberg states: "Myers points to the fuzzy answers he got on whether the job was vacant

one week or more." Here he has apparently fallen into the common error of confusing the time the vacancy was open (duration) with the time which will elapse between the survey date and the date a person hired could begin work (earliest starting date). The fuzzy answers were given in response to the question about earliest starting date; employers often gave the month a new employee could begin but not the day of the month. The data are presented in Table 5 of my paper and are discussed in the text.

OCCUPATIONAL CLASSIFICATION

"He reports that 25 per cent of the vacancies outside the managerial and professional categories were improperly classified by occupation when he tried to apply the *Dictionary of Occupational Titles* to the job titles he had obtained from employers." The reference is to a test of the classification of several hundred job vacancies, reported on in my paper. The tables in my paper that classify vacancies by occupation only present broad occupation groups (one-digit *DOT* codes). All vacancies (save eighteen) were classified more precisely, however; at least a three-digit code and in most cases a five-digit code was assigned to each vacancy. The errors were made in the more detailed classification, therefore. Further, as pointed out in my paper, some of the titles which employers found to be improperly classified represented disagreement with the *DOT*.

Despite these qualifications, a large classification error persists. What are the prospects for improvement? We believe that they are good. In our Rochester surveys, we have learned which job titles are difficult to classify ("helper," "maintenance man," "machine operator," and so forth) and will obtain more specific information in the future. Further, a learning process is taking place among the employers from whom we collect information; they will provide better job titles in the future in response to our questioning. It seems reasonable to assume that other, repeated surveys would have the same experience. A continuing survey should be able to achieve as much accuracy in occupation classification as is achieved in classifying job orders filed with the Employment Service.

OPTIONAL UNEMPLOYMENT

“The hybrid nature of the data flows in large part from Myers’ emphasis on supply-demand comparisons and his anxiety to establish the ‘optional unemployment’ thesis.” If I had been anxious to establish the optional unemployment thesis, I should not have provided so many statements in my paper which could be taken out of context to use against that thesis. Fortunately, the NICB is not so monolithic an organization that its employees must all support the same “line.”

Rather than prolong these comments, I refer the reader to a careful comparison of Weinberg’s discussion with the papers he discussed.

PART IV
*Alternative Approaches to Measuring
Job Vacancies*