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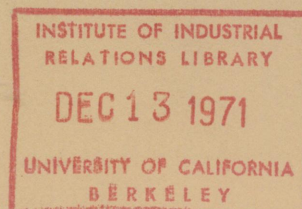
THE NEW INDUSTRIAL FEUDALISM:
SECULAR TRENDS IN VOLUNTARY
LABOR MOBILITY

by John F. Burton, Jr.

and John E. Parker

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**THE NEW INDUSTRIAL FEUDALISM: SECULAR TRENDS IN
VOLUNTARY LABOR MOBILITY**

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THE NEW INDUSTRIAL FEUDALISM: SECULAR TRENDS IN VOLUNTARY LABOR MOBILITY*

Our concern is the secular behavior of voluntary labor mobility in the U.S. manufacturing sector. The topic has largely been dormant since the 1958 investigation by Arthur Ross, whose conclusion was that: "All in all, little evidence can be found for the proposition that labor resources have become immobilized and a new industrial feudalism has been created because men can no longer afford to quit their jobs."¹ In a 1967 article, we provided evidence of an apparent decline in voluntary mobility in the manufacturing sector over the past several decades, and we asserted that the conclusion reached by Ross must be thoroughly reexamined.² This article attempts that examination by providing a model to explain voluntary labor mobility, by evaluating Ross's analysis, by extending the data used in our earlier article, and by considering some of the most recent writing pertaining to time trends in labor mobility.³

A reexamination of Ross's conclusion is important because of the crucial role that labor mobility plays in shaping the performance of the economy. The ability of

*An early version of this paper was completed before John Parker's untimely death. A revised version was prepared in December, 1969. Subsequently, an important contribution to the mobility literature was published: John H. Pencavel, An Analysis of the Quit Rate in American Manufacturing Industry (Princeton: Princeton University, Industrial Relations Section, 1970). In 1971, the statistical results of this paper were recalculated based on the latest available data and a few minor changes in the text were made as a result of the recalculations, but because of other commitments, co-author Burton has been unable to make any revisions in light of Pencavel's work. Publication of this paper should be of some value, despite its lack of revision in response to Pencavel's work, if for no other reason than one of our central theses--that the quit rate has not declined in the postwar period--is inconsistent with Pencavel's conclusion that the quit rate has declined and with his efforts to determine the causes of that decline.

¹ Arthur M. Ross, "Do We Have a New Industrial Feudalism?" American Economic Review, 48 (Dec. 1958), p. 918. Several recent studies have emphasized the crucial role that the quit rate plays in explaining the short-run operations of the labor market. See, e.g., Sara Behman, "Labor Mobility, Increasing Labor Demand, and Money Wage-Rate Increases in United States Manufacturing," Review of Economic Studies, 31 (Oct. 1964), pp. 253-66. The present study differs from these studies because our concern is with the quit rate as a dependent variable due to the importance that quits have in their own right as a facet of the mobility process. The present study also differs from recent cross-section studies of the quit rate, which do not permit tests of secular trends in voluntary labor mobility. These studies include Vladimir Stoikov and Robert L. Raimon, "Determinants of Differences in the Quit Rate Among Industries," American Economic Review, 58 (Dec. 1968), pp. 1283-97; and John F. Burton, Jr. and John E. Parker, "Interindustry Variations in Voluntary Labor Mobility," Industrial and Labor Relations Review, 22 (Jan. 1969), pp. 199-216.

² John E. Parker and John F. Burton, Jr., "Voluntary Labor Mobility in the U.S. Manufacturing Sector," in Gerald Somers, ed., Proceedings of the Twentieth Annual Winter Meeting of the IRRA (1968), pp. 61-70.

³ The most important recent article is Hugh Folk, "Private Pensions and Labor Mobility," in Old Age Income Assurance, Part IV: Employment Aspects of Pension Plans, Dec. 1967, submitted to the Subcommittee on Fiscal Policy of the Joint Economic Committee, Congress of the United States. The present article also responds to comments on Parker and Burton, "Voluntary Labor Mobility," made by Myron Joseph in "Discussion," in Gerald Somers, ed., Proceedings of the Twentieth Annual Winter Meeting of the IRRA (1968), pp. 94-96.

the labor force to adjust rapidly in the short run to changing labor market conditions is an important determinant of the level and structure of unemployment. In the long run, the flexibility of the work force will be a factor in determining the economy's growth rate and the patterns of income distribution within the economy. Of course, there can be excessive as well as insufficient mobility, and one task of this paper is to attempt to distinguish between desirable and undesirable influences on voluntary labor mobility.⁴

The statistic which best measures voluntary labor mobility is the quit rate. The first section of the paper develops a theoretical framework in which we attempt to specify the factors that influence the quit rate in the manufacturing sector. The section also provides some tests to determine if the amount of voluntary mobility has been declining through time and to determine the causes of any such decline in mobility. In Section II of the paper, we review some of the conclusions from earlier studies on the trends in voluntary mobility. In Section III, we use our model in a time series analysis of the 1930-69 (and for some results, 1930-70) behavior of the quit rate. Section IV presents our conclusions.

I. A THEORETICAL FRAMEWORK

This section constructs a model to explain quit rate behavior. Several characteristics of the definitions of the quit rate and quits must be noted because of the implications for the construction of the model. The quit rate is the number of quits per month for each 100 employees, and quits "are terminations of employment initiated by employees for any reason except retirement, transfer to another establishment of the same firm, or service in the Armed Forces."⁵ One consequence of these definitions is that many aspects of voluntary mobility are not measured by the quit rate. For example, the quit rate does not include moves between establishments of the same firm or occupational shifts within the same establishment. On the other hand, the quit rate includes certain kinds of employee moves which might preferably be excluded for hypothesis testing. For example, one problem arises because the quit rate measures both moves from one industry to another industry and moves between different firms within an industry. Unfortunately, because of the unavailability of better data, many variables used to explain quit rate behavior only measure characteristics of the average firm in each industry and not variations in the characteristics among the firms in the industry, even though these variations may influence the intraindustry element of the quit rate.⁶

⁴It has long been recognized that lack of sufficient mobility can have adverse effects on the economy's performance. More recently, the undesirable effects of some sources of labor mobility have been stressed by Richard A. Lester, especially in Chapter 6 of his Manpower Planning in a Free Society (Princeton: Princeton University Press, 1966), pp. 135-71.

⁵The definition of quits includes "... persons who failed to report after being hired (if previously counted as accessions), and unauthorized absences which, on the last day of the month, have lasted more than 7 consecutive calendar days." U.S. Department of Labor, Bureau of Labor Statistics, Measurement of Labor Turnover (Jun. 1966), p. 2.

⁶Another characteristic of the definition of the quit rate that affects the construction of the model is that before 1943 only production employees were considered, while since 1943 the quit rate has reflected the experience of all workers.

Bearing in mind the problems caused by the definition of the quit rate, one can postulate a model:

$$(1) \quad QR = f(I, O, P, X),$$

where QR is the quit rate, I is a set of variables which measure the incentives for workers to quit, O is a set of variables which measure the cyclical or short-run variations in the opportunities for workers to move, P is a set of variables which measure factors subject to control by public policy that influence voluntary mobility, and X is a set of variables which measure all other factors that influence the quit rate. These sets of variables are explained in the next few paragraphs, although a more complete discussion of individual variables within each set is reserved for Section III.

Interindustry wage differentials are an example of I, those variables which measure the incentives for workers to quit because of the comparisons they make of the attributes of their own firm and other firms. Labor market theory assumes that a worker will quit his job if he feels that an alternative job offers a net advantage. The most obvious inducement to a worker that would cause him to quit his job is a higher paying job elsewhere, assuming that the nonwage aspects of the two jobs are equivalent. One might expect, therefore, that the volume of quits would increase as interindustry wage differentials increase because the widening differentials would cause an increasing volume of turnover in the low wage industries.⁷

It can be argued that an increase in interindustry wage differentials will not necessarily lead to an increase in voluntary mobility. Even when there are no pecuniary incentives for workers to leave their firms, there is normal level of voluntary turnover because employees become disillusioned with their jobs, exchange acrimonious words with their foremen, or because of innumerable other reasons associated with the vagaries of being human. If the interindustry wage differentials now widen, it can be argued that the increase in quits in the low wage industries will be offset by a decrease in the normal amount of quits in the high wage industries. On a priori grounds, however, it seems more likely that widening wage differentials will provide a net increase in mobility because much of the normal turnover is largely insensitive to pecuniary considerations and therefore the increase in quits in low wage industries will not be matched by an equivalent decline of quits in the high wage industries.

In addition to interindustry wage differentials, geographical and intraindustry wage differentials also belong to the set of I variables because workers receiving high wages along these dimensions should also have less incentive to quit than workers receiving low wages. There are other I variables in addition to wage differentials. An example is an industry attribute such as seasonality, which will probably be unattractive to workers.

⁷The response of increased quits to widening wage differentials assumes that the widened differentials represent short run deviations from the long run equilibrium wage structure. In comments on an earlier draft of this paper, H. Gregg Lewis demonstrated that an institution such as a union could cause an increase in the dispersion of long run equilibrium wages which could actually lead to a decrease in voluntary mobility. While recognizing the validity of this argument, we do not believe that it requires an alteration of our theory because we assume that most movements in the interindustry wage structure reflect short run factors.

The variables discussed above measure the incentives for workers to quit and move to superior jobs. The volume of voluntary mobility also depends on the workers' opportunities to move to these jobs. The opportunity variables, labeled O variables, measure cyclical or short-run variations in the state of the labor market. The variables which seem to be the most appropriate measures of O are the unemployment rate and the accession rate.⁸ We believe that workers are less likely to quit when they perceive that the labor market they would enter is slack, and we believe that the O variables are the most likely indicators of employees' attitudes.⁹

The third set of variables, P, includes those factors which might be regulated by public control for the purpose of influencing the amount of voluntary mobility in the economy.¹⁰ Examples are the extent of unionism, an institution which many have argued has a restrictive impact on mobility, or the extent of the information-disseminating activities of the employment service, a factor which should increase mobility.

The final set of variables is X, which includes those factors that may influence the quit rate but that do not fall into the previous categories of variables. The primary significance of this category is that it includes factors influencing the amount of mobility that are not subject to public control. For example, the amount of voluntary mobility may vary through time because of variations in the proportions of certain sectors of the labor force which have distinctive mobility traits. If skilled workers are less prone to quit and skilled workers constitute a larger proportion of the work force now than 30 years ago, then ceteris paribus the quit rate should be decreasing through time. Despite such a trend, few would suggest that skilled workers should be barred from the labor force in order to increase the quit rate. Other X factors include the sex composition and age distribution of the economy's labor force.¹¹

Assuming that all the variables that affect the quit rate can be assigned to one of the categories I, O, P, or X, and assuming that the primary goal of voluntary mobility is an efficient allocation of resources, the model can be used to prescribe desirable relationships between the quit rate and the variables of the different categories. It is hoped that increased incentives to mobility, as measured by the I variables, lead to a higher quit rate because presumably this mobility pattern leads to the desired allocation of labor. The appropriate relationship between the quit rate and the variations in the O variables is less mobility when labor market conditions are adverse, since this

⁸There are several problems involved in assigning accessions to the opportunity class of variables which will be discussed in detail in Section III.

⁹Theoretically, a worker should be able to move to a superior job for which he is qualified even if the work force for that job is not being expanded--the envious worker need only offer his services at a lower rate than the going wage for the job and he will displace a previous employee. In practice, workers seldom behave in this manner and only attempt to move to superior employers when these employers are actually seeking workers.

¹⁰More precisely, the P category includes those variables that influence the quit rate which are subject to public control but which do not fall in the I or O categories of variables. Thus, even though the unemployment rate is affected by public policy, it is classified as an O variable because it is used to measure cyclical variations in the state of the labor market.

¹¹It is necessary to distinguish between the average age of the labor force, which is largely beyond the influence of direct public control, and the average age of the workers employed in the manufacturing sector, which might be influenced by public regulation of seniority systems and pension plans.

relationship indicates that workers both learn about and respond to changing labor market conditions. Of course, since the expected decline in voluntary mobility in a slack labor market impedes the movement of workers to more desirable industries, our preference is for a buoyant labor market.

The P variables, those subject to public control, have an optimal value on the basis of criteria other than labor mobility. Thus, there is a preferred level of the extent of unionism which reflects society's evaluation of the impact of unions on protecting workers from arbitrary treatment, on distortions of the wage structure, etc. The desired relationship between the P variables and the quit rate is that the optimal value of any P program or institution in terms of the nonmobility criteria is also a value of the P program which does not reduce the quit rate, because presumably any reduction interferes with the most efficient allocation of resources. Finally, we are generally indifferent to changes through time in the amount of voluntary mobility associated with variations in the X variables because these variables merely measure the demographic characteristics of the labor force and are not subject to public control.¹²

Test for Time Trends. Assuming that the quit rate is solely influenced by variables in the categories I, O, P, or X, there are statistical tests which can be used to determine if the amount of voluntary mobility has been declining through time and to determine whether any such decline in mobility is undesirable.

Let a time series analysis be made of the equation:

$$(2) \quad QR = f(I, O, T),$$

where QR, I, and O retain their previous meanings and T measures time. If the coefficient for T is negative and significant, the result is consistent with the proposition that, after adjusting for the incentives and opportunities for voluntary mobility, voluntary mobility is declining through time.¹³ Extending the terminology used in the article by Ross, which is discussed in detail in the next section, the occurrence of such a secular trend is termed Industrial Feudalism.

While any evidence of Industrial Feudalism is disquieting, a complete evaluation of the time trend of labor mobility requires a statistical examination of the full model:

¹² In an extreme case the impact of the X variables on mobility may be so substantial and adverse as to require remedial action. Thus an industry might have excessively low voluntary mobility because its job openings precipitately decline while its work force is aged and trained in skills peculiar to the industry. These circumstances might justify compensating adjustments in the P variables, such as increased assistance from the employment service, to partially offset the reduction in mobility due to the X variables. We are indebted to Myron Joseph for clarifying our thinking on this point. See Joseph, "Discussion," p. 96. Contrary to Joseph's assertion, however, we do not believe this compensating activity means that the distinction between the X and P variables breaks down. The essential point is that the intolerable consequences of a decline in mobility due to an X variable will be dealt with, not by directly manipulating the X variable, but by concentrating activity on some variable which falls in the P category.

¹³ Conversely, if the coefficient for T is positive and significant, the implication is that mobility is increasing through time.

$$(3) \quad QR = f(I, O, X, P, T).$$

If T is no longer significant in equation (3), an examination of the coefficients for the X and P variables may enable a determination to be made of the causes of the decline in voluntary mobility. If, for example, the coefficients for the X variables are significant while the coefficients for the P variables are not significant, then one could conclude that the decline in mobility through time was not a matter of concern for public policy. On the other hand, if the P variables have been increasing through time and the coefficients for the P variables are negative and significant, then there is cause for concern.¹⁴ If T is still negative and significant in equation (3), a failure to include all relevant independent variables would not appear to be an inappropriate conclusion. A variety of other combinations of results for the tests for equations (2) and (3) is possible, but the discussion of the implications of any particular set of results will only be discussed as necessary in the subsequent sections.

The attempts in later sections to apply the tests of equations (2) and (3) to actual data may result in specification errors. The data are not available for some variables which probably should be included in the regressions, such as annual data on the proportion of all workers who are in skilled occupations.¹⁵ Moreover, some data used may represent an inaccurate measurement of a variable, such as the data for interindustry wage differentials. Furthermore, certain variables which are deliberately omitted, such as the absolute wage level, perhaps should be included.¹⁶ Despite these potential problems, we feel that empirical testing based on a model such as the one developed here is the only proper way to analyze secular trends in voluntary mobility.

II. PREVIOUS VIEWS ON TRENDS IN VOLUNTARY MOBILITY

The question of the secular behavior of the quit rate was raised in several articles published a decade ago. At least two writers then set forth the thesis that the quit rate in the 1950's had declined from earlier levels, and attributed this decline to such factors as the growth of unionism and the spread of pension plans.¹⁷ However, this thesis and indication of causation were at least partially attacked in the most recent

¹⁴The mere fact that the coefficients for some of the P variables are significant does not justify an inference that these factors are responsible for the Industrial Feudalism. There may be cyclical variations in QR and the P variables which explains their significant relationships, but no secular trend in the P variables which could account for the secular decline in the quit rate.

¹⁵Joseph, "Discussion," pp. 95-96 criticized us for not using the sex composition and the age distribution of the labor force as variables in our statistical analysis. Unfortunately, annual data dating to 1930 are unavailable for these variables.

¹⁶It can be argued that a constant interindustry dispersion of wages and a secularly increasing average real wage should lead to decreased voluntary mobility because the increasing real wage of the typical worker will remove some of his motivation to leave his job. We do not feel that these circumstances will lead to a decline in mobility because the same interindustry differential in relative terms represents an increasing increment in real terms as the average real wage increases, and this increasing increment adds an incentive to mobility which should offset the disincentive caused by the increasing real wage of the typical worker.

¹⁷E. Clague, "Long Term Trends in Quit Rates," Employment and Earnings, 3 (Dec. 1956), pp. iii-ix, and J. Shister, "Labor Mobility: Some Institutional Aspects," in Milton Derber, ed., Proceedings of the Third Annual Meeting of the IRRA (1950), pp. 42-59.

full study of long term trends in the quit rate, the 1958 article by Arthur Ross entitled "Do We Have a New Industrial Feudalism?"¹⁸ In his paper Ross tested "the proposition that our labor force is being immobilized by the attractions of seniority and negotiated fringe benefits."¹⁹ His general conclusion, quoted at length earlier, was that little evidence could be found to support the proposition. We believe that his conclusion is questionable because both the tools he used in his analysis and his definition of Industrial Feudalism are deficient. These deficiencies are examined in turn in the balance of this section.

The basic tools Ross used in his arguments to support his conclusion were the quit rate as the dependent variable and two explanatory variables which he viewed as alternative measures of the same concept. The first variable was unemployment, measured as a per cent of the civilian labor force.²⁰ The alternative variable (hereinafter referred to as the Employment Opportunity Index or EOI) was formulated as manufacturing employment as a per cent of the nonagricultural labor force. The non-agricultural labor force includes nonagricultural employment plus the number unemployed. That is,

$$(4) \quad EOI = \frac{\text{manufacturing employment}}{\text{nonagricultural employment} + \text{nonagricultural unemployment}}$$

Ross viewed the unemployment rate and the EOI as "alternative measures of work opportunity..."²¹ and we also consider them opportunity variables in terms of the model developed in Section I. Ross believed that the second variable represented "the most satisfactory measure of the factory worker's opportunity to change jobs."²² Ross calculated the statistical association between the quit rate and the alternative explanatory variables for 1910-1956 and 1930-1956. His results are shown in Table 1, and it is clear that for these periods much of the variance in the quit rate can be explained by either of his measures, and that the EOI outperforms the unemployment rate.

TABLE 1. STATISTICAL ASSOCIATION BETWEEN LOG QUIT RATE
AND LOG UNEMPLOYMENT RATE OR EMPLOYMENT
OPPORTUNITY INDEX

	Time Periods	
	1910-1956	1930-1956
Log Unemployment	.398	.700
Employment Opportunity Index	.713	.841

SOURCES: Ross, "Industrial Feudalism," pp. 905, 908, and 910; the statistics are coefficients of determination.

¹⁸Ross, "Industrial Feudalism."

¹⁹*Ibid.*, p. 904.

²⁰Ross used log values for the quit rate and per cent unemployment in his article. Throughout this section, we also use log values for these variables in all calculations.

²¹Ross, "Industrial Feudalism," p. 905.

²²*Ibid.*, p. 909.

Despite the apparent superiority of the Employment Opportunities Index, there are several objections that can be made to its use. First, the reason offered by Ross for its conceptual superiority over the unemployment rate is unconvincing. He objects to the unemployment rate because "it refers to the labor force as a whole, whereas the available quit rate data refer to manufacturing workers. There are strong reasons to believe that the manufacturing worker's opportunity to change his job is more closely related to employment conditions in manufacturing than to those in the total economy. It makes a real difference if the measurement of work opportunity is limited to the manufacturing sector or extended throughout the entire economy."²³ This is a strange rationale for an index which, as indicated in equation (4), has as its denominator the total nonagricultural labor force. Furthermore, increasing manufacturing employment coupled with a more rapidly increasing total nonagricultural labor force would lead to a decline in the EOI ratio. This combination, however, clearly indicates an increase in work opportunities in manufacturing and elsewhere, which should lead to a higher, not a lower quit rate. For these reasons, the use of the EOI instead of the unemployment rate on conceptual grounds is questionable.

A more telling indictment of the EOI is its statistical performance in recent years. As shown in Table 2, the EOI outperforms the unemployment rate in 1930-69, but is decidedly inferior in the postwar decades.²⁴ One possible explanation of the superiority of the EOI over the unemployment rate in earlier periods is that the EOI is closely correlated with cyclical movements (as is the unemployment rate) but also has a secular trend unrelated to the business cycle (unlike the unemployment rate); over periods including years prior to 1949 the quit rate had both cyclical and secular components. Since 1949, the secular trend in quits has ceased, and with the cessation the superiority of the EOI over the unemployment rate has vanished.²⁵

TABLE 2. STATISTICAL ASSOCIATION BETWEEN LOG QUIT RATE
AND LOG UNEMPLOYMENT RATE OR EMPLOYMENT
OPPORTUNITY INDEX

	Time Periods	
	1930-1969	1949-1969
Log Unemployment	.673	.799
Employment Opportunity Index	.768	.202

SOURCES: Calculated from data noted in the Appendix. The statistics are coefficients of determination.

In addition to these objections concerning the formulation and statistical properties of the Employment Opportunity Index, there are more serious objections to the use that was made of both the EOI and the unemployment rate. Ross used these variables to adjust for labor market conditions, and then noted that a substantial decline in quits

²³ *Ibid.*, pp. 908-09.

²⁴ The results shown in Table 1 are based on data whose sources are indicated, *Ibid.*, p. 907. The results in Table 2 are based on data whose sources are indicated in the Appendix. There are several minor changes in the values for certain variables for years prior to 1957.

²⁵ These assertions concerning secular trends in the quit rate are documented in Section III.

took place during the 1920's, and that a less pronounced decline relative to the 1920's had occurred by the period 1949-1956.²⁶ A major deficiency with Ross's analysis is that his model was underspecified since the only explanatory variable it included was a measure of work opportunities. As explained in Section I, we feel that an adequate test of secular trends in voluntary mobility must also include some measure of the incentives to mobility.

But even assuming that Ross was correct in identifying a decline in mobility from the late 1920's to the 1949-1956 period, we feel that there are problems with his evaluation of the causes of the declining mobility. He concluded that the following factors were related to the decline: (1) the spread of unionism; (2) aging of the labor force; (3) the stability of manufacturing employment; and (4) the effect of seniority rules.²⁷ Despite the decline of mobility and these causal factors, Ross did not find evidence of Industrial Feudalism because he confined that term to the immobilization of the labor force "by the attractions of seniority and negotiated fringe benefits."²⁸ We find this definition of Industrial Feudalism unduly narrow and ambiguous. In particular, his handling of the impact of seniority on mobility leaves the reader on uncertain grounds. He concedes that seniority rules have contributed to the reduction of the quit rate during recent years, but argues that "they have done so not by virtue of their attractiveness and not by tying men to their jobs [which apparently would be Industrial Feudalism], but rather by tiding them over the trial-and-error period."²⁹ This distinction, which at first glance appears insightful, after scrutiny seems bound to muddle the meaning of Industrial Feudalism. Because of these difficulties with Ross's analysis, our investigation in the balance of this article of secular trends in mobility is based primarily on the model developed in Section I.

III. A TIME SERIES ANALYSIS

This section uses the model developed in Section I in order to examine the actual behavior of the quit rate in recent decades. First, the actual variables used to represent the categories of the model are discussed. Then we present the statistical results for the 1930-69 period,³⁰ and for two subperiods: 1943-69 and 1949-69. This section tests the proposition that a change has taken place over time in the amount of voluntary mobility after incentive and opportunity factors have been taken into account.

²⁶Ross, "Industrial Feudalism," pp. 908-11.

²⁷*Ibid.*, pp. 915-17.

²⁸*Ibid.*, p. 904.

²⁹*Ibid.*, p. 917.

³⁰We begin with 1930, since the data are much less satisfactory for the years prior to 1930. See *Ibid.*, Appendix A, for a full description of the data for the earlier years. For example, Ross states, *Ibid.*, p. 918: "Data for 1919-1929 were gathered by the Metropolitan Life Insurance Company. Again the inadequacy of the sample is evident, especially for the 1919-1926 period when fewer than 160 firms of uncertain industrial and geographical composition were included. This time the employment basis is the average number of workers on the payroll; and the aggregated rates are unweighted medians."

Variables Used in the Analysis³¹

Incentive Variables. Included in our regressions are two incentive variables. The first is a measure of interindustry wage differentials within the manufacturing sector. The specific variable used is the coefficient of variation (the standard deviation divided by the mean) of annual compensation per full-time employee for two-digit manufacturing industries; it is called intra-manufacturing compensation dispersion. This variable measures the kind of incentive to change included in the model and we expect that the quit rate will increase as differentials within manufacturing widen.

The second variable in the I category is a measure of the relationship of wages in manufacturing to those in the rest of the economy; it is called the manufacturing-all economy compensation differential. It is annual compensation per full-time employee in manufacturing divided by annual compensation per full-time employee in all industries. As manufacturing wages increase relative to wages in the rest of the economy, the quit rate in the manufacturing sector should decline since manufacturing jobs become relatively more attractive and consequently incentives for intersectoral transfers diminish.

The incentive variables do not measure all pecuniary incentives to change; e.g., they do not measure occupational and geographical wage differentials. We include the variables in our basic model because, even though they are crude, they appear to be the best available measures of incentives to move. Because of their limitations, however, our results will also include an alternative model A which excludes the incentive variables from the regression.

Opportunity Variables. We also have two variables which measure the opportunity characteristics of the labor market. The first is the civilian unemployment rate. The hypothesis supporting its use is that a high rate of unemployment indicates to an employed worker that there are few jobs to which he can directly transfer and also that there is a high risk of unemployment if he quits his job and enters the labor market in search of a new job.

The accession rate is also used as an opportunity variable. Accessions are additions to the work force, and the accession rate is a monthly measure of the number of additions per one hundred employees. The primary justification for the use of the accession rate as an opportunity variable is that workers are more likely to quit their present jobs if other employers are hiring.

Unfortunately, the accession rate and the quit rate are not related by a simple chain of causation running from increased opportunity to increased mobility. Because a large component of accessions is new hires,³² and because new hires include many

³¹The exact sources of the data used in the time series analysis are included in the Appendix. More complete discussions of the hypotheses concerning the determinants of voluntary mobility are included in Herbert S. Parnes, Research on Labor Mobility (New York: Social Science Research Council, 1954), pp. 100-190, and Herbert S. Parnes, "The Labor Force and Labor Markets," in Herbert G. Heneman, Jr., et al., eds, Employment Relations Research (New York: Harper & Bros., 1960), pp. 16-33.

³²New hires are not used in our analysis because data are not available for this series for years before 1951, while data on accessions are available for the full period. Accessions and new hires are highly correlated in the period since 1951.

younger workers who are shopping for jobs, a high accession rate is likely to be followed by a high quit rate as the newly hired younger workers become disillusioned with their jobs and quit without particular regard to the alternative job opportunities available at the time of quitting.³³ Another difficulty of determining the nature of the relationships between the accession rate and the quit rate is that while higher accessions may be a signal of opportunity to workers which leads to higher quits, these quits then cause employee shortages which lead to an employer response of more hiring which increases the accession rate.

We do not believe that the complicated interrelationships between the accession rate and the quit rate can be completely identified in the present statistical analysis because we are limited to annual data. Nonetheless, in our basic model we include the accession rate as an independent variable in our search for secular trends in mobility because we feel the accession rate produces some indication of the opportunities available to workers and some control for the amount of quitting which is associated with high accessions for other reasons. We also present alternative model B which excludes the accession rate in order to determine the sensitivity of our results to the use of a turnover variable as an independent variable.

Public Policy Variable. Unionization is included as a P variable since it is a dimension of the structure of the factor market that could be altered by public policy if its impact on voluntary mobility were detrimental to the public interest. Union membership as a percentage of nonagricultural employees is used to measure the extent of unionization. This formulation does not make an assessment of the importance of union mobility-inhibiting policies, such as the encouragement of seniority systems, as these have changed through time. Nonetheless, it is the best measure available of this aspect of factor market structure. Most commentators assume that unions have reduced mobility, but they differ in the reasons offered for the expected relationship. Some argue that unions inhibit mobility by insulating the workers from the pull of the market place by sponsoring seniority schemes and pension plans. It is also argued that unions may reduce the push on workers toward the market place by removing many of the grievances in the work place. A few writers suggest that unions might increase worker mobility by providing more systematic information on alternative work opportunities, but on a priori grounds this stimulus to quits would seem to be overshadowed by the quit-inhibiting facets of unionization.³⁴ Shister put the conclusion in these terms: "Union policies reduce the amount of voluntary mobility, on net balance."³⁵

³³Ross observed at pp. 912-13 of "Industrial Feudalism" that: "Most workers who quit their jobs are young in years and low in service. They do not have enough seniority to keep them from changing jobs; they have typically not reached an age where retirement is a real element in their thinking; and they have plenty of time to accumulate work credits after coming to rest."

To the extent that the quit rate and the accession rate are associated because of the young worker phenomenon, the accession rate can be considered an X variable as well as an O variable.

³⁴Clark Kerr, "The Balkanization of Labor Markets," in E. Wight Bakke, et al., Labor Mobility and Economic Opportunity (New York: Wiley and Sons, 1954), pp. 97-101, has suggested that a distinction should be made between craft unions, which increase interfirm mobility but generally reduce occupational mobility, and industrial unions, which increase occupational movements within a firm but reduce all other types of mobility. Kerr feels that the over-all impact of unions has probably been to reduce mobility. Ibid., p. 103.

³⁵Shister, "Labor Mobility," p. 7.

Other Variables. For the variables in the X category--those not subject to control by public policy--we use nonproduction workers as a per cent of total employment in the manufacturing sector. It is not included in Table 3, since before 1943 the quit rate only measured production worker mobility. The percentage of all employees who are nonproduction workers probably should be negatively correlated with the quit rate because previous studies have revealed a general inverse relationship between mobility and socioeconomic rank. However, this relationship is partially due to involuntary turnover in lower occupations, and since the present study concentrates on voluntary turnover, the normal relationship between skill and mobility may be absent. Voluntary mobility might be expected to be less for nonproduction workers because they have more stable careers and therefore less need for quitting.³⁶ On the other hand, more mobility might accompany an increasing proportion of nonproduction workers because more education gives them added job flexibility, increases their visibility in the labor market, and increases their information on alternative jobs.

The final variable is time, which is included in order to determine if there has been a change in the relationship between the independent and dependent variables during recent decades. Based on Ross's work, we have distinguished three subperiods within the 1930-69 period: the 1930-41 prewar period, the war and adjustment period of 1942-48, and the 1949-69 postwar period. The years 1946-48 are not included in the postwar period since there were abnormal influences present which made them more comparable to war years. Ross argued "...that quit rates in wartime and immediate postwar periods are affected by short-run changes in the propensity to move. Therefore, these years should probably be excluded from the comparison."³⁷

In Tables 3 and 4, the three periods are distinguished by the use of dummy variables. In Table 5, time is entered as a linear variable (with a value of 1 for 1949) to determine if there has been a change in the functional relationship within the postwar period.

Statistical Results

Tables 3-5 present the results for various time periods for the basic model developed in Section I, as well as for alternative model A, which excludes the incentive variables from the analysis on the assumption that the available incentive variables may provide an inaccurate measurement of wage differentials, and alternative model

³⁶ There is another reason why an increasing proportion of nonproduction workers might be associated with a declining quit rate. Gary S. Becker has argued that "employees with specific training have less incentive to quit...than employees with no training or general training..." and he indicated that this proposition is applicable to secular movements in turnover. Gary S. Becker, Human Capital (New York: Columbia University Press, 1964), p. 24. Specific training is defined as training that increases the worker's marginal product more in the firm providing it than in other firms. Becker argues that specifically trained workers are paid a higher wage than they could receive in alternative jobs and, therefore, these workers are less likely to quit than workers without specific training. If one assumes that specific training is associated with increasing investment in human capital and thus with increasing skill levels, and one assumes that nonproduction workers tend to be more skilled than production workers, then the increasing proportion of nonproduction workers through time should imply a declining quit rate.

³⁷ Ross, "Industrial Feudalism," p. 908. Ross, Ibid., at p. 905, footnote 2, asserted "that the Korean War involved very little strain on the economy or the labor force." The years 1951-53 are therefore included in the postwar period.

TABLE 3. DETERMINANTS OF THE 1930-69 VARIATIONS
IN THE QUIT RATE

	Basic Model		Alternative Models	
	Step 1	Step 2	A	B*
Constant	8.9516 (5.2129) ^a	8.6868 (5.0721) ^a	4.2263 (8.8428) ^a	8.4655 (2.3827) ^b
Intra-Manufacturing Compensation Dispersion	0.2038 (0.1015)	-0.2811 (0.1390)		-2.6545 (0.6012)
Manufacturing-All Economy Compensation Differential	-4.3834 (2.6860) ^b	-3.8531 (2.3108) ^b		-0.6684 (0.1976)
Log Unemployment Rate	-1.7676 (13.747) ^a	-1.7706 (13.905) ^a	-1.5899 (13.634) ^a	-1.9040 (7.1375) ^a
Accession Rate	0.3891 (9.7501) ^a	0.3857 (9.7412) ^a	0.3504 (8.1193) ^a	
War Time Dummy	-0.0320 (0.1446)	0.0713 (0.3050)	0.2852 (1.1320)	0.6839 (1.5716)
Postwar Time Dummy	-1.0564 (6.3913) ^a	-0.9604 (5.3416) ^a	-0.9718 (5.1515) ^a	-1.3844 (3.9295) ^a
Unionization		-0.0097 (1.2886)	-0.0136 (1.6566)	-0.0259 (1.4621)
\bar{R}^2	.9821	.9824	.9775	.9134
First Order Serial Correlation Coefficient	0.0384	-0.0856	0.0983	0.2217
Durbin-Watson Statistic	1.9192	2.1569	1.7897	1.8568

NOTE: The results for each regression display the first order serial correlation coefficient calculated from the original data. A significant coefficient indicates that the null hypothesis of residual independence should be rejected. When the absolute value of the coefficient exceeded .1, the data were transformed to take account of autocorrelated disturbances.

* Transformed regressions are indicated by an asterisk: the results for each of these regressions include the regression coefficients, t-values, adjusted coefficients of determination, and the Durbin-Watson statistic found after transformation for first order serial correlation. For details on the transformation process, see Hodson Thornber, "Manual for (B34T, 8 Mar 66): A Stepwise Regression Program," Technical Report No. 6603 (1966), Center for Mathematical Studies in Business and Economics, University of Chicago.

^aSignificant at the .01 level (t-values in parentheses).

^bSignificant at the .05 level.

^cSignificant at the .10 level.

TABLE 4. DETERMINANTS OF THE 1943-69 VARIATIONS
IN THE QUIT RATE

	Basic Model		Alternative Models	
	Step 1 [*]	Step 2	A [*]	B [*]
Constant	5.3326 (2.4539) ^b	11.954 (5.0100) ^a	1.3730 (1.0284)	22.878 (3.4183) ^a
Intra-Manufacturing Compensation Dispersion	2.0524 (1.0914)	22.994 (3.6640) ^a		19.970 (1.0551) ^c
Manufacturing-All Economy Compensation Differential	-3.0896 (1.6697)	-13.545 (4.5485) ^a		-17.681 (2.0568) ^c
Log Unemployment Rate	-1.4019 (9.0373) ^a	-1.4031 (13.168) ^a	-1.2731 (10.293) ^a	-2.2225 (5.9847) ^a
Accession Rate	0.5867 (9.6352) ^a	0.5681 (13.660) ^a	0.6151 (9.9655) ^a	
Postwar Time Dummy	-0.7832 (5.4842) ^a	-0.6830 (6.0647) ^a	-0.7822 (4.8950) ^a	-1.3630 (4.4404) ^a
Unionization		0.0728 (3.5512) ^a	0.0130 (0.5183)	0.0521 (0.7944)
Nonproduction Employees		-0.0871 (2.5739) ^b	0.0087 (0.4187)	-0.1045 (0.9142)
\bar{R}^2	.9883	.9947	.9836	.9269
First Order Serial Correlation Coefficient	-0.1276	0.0395	0.1189	0.1107
Durbin-Watson Statistic	2.3615	1.8879	2.1513	1.5494

FOOTNOTES: See Table 3.

TABLE 5. DETERMINANTS OF THE 1949-69 VARIATIONS
IN THE QUIT RATE

	Basic Model		Alternative Models	
	Step 1 *	Step 2 *	A	B*
Constant	15.963 (2.9849) ^a	14.743 (3.0118) ^b	4.9510 (2.7512) ^b	24.513 (2.6334) ^b
Intra-Manufacturing Compensation Dispersion	4.7023 (0.4862)	9.2960 (1.0172)		9.3821 (0.5090)
Manufacturing-All Economy Compensation Differential	-12.630 (2.0610) ^c	-13.663 (2.4199) ^b		-15.638 (1.3801)
Log Unemployment Rate	-1.5046 (12.289) ^a	-1.2890 (8.5968) ^a	-1.0405 (5.1687) ^a	-1.7928 (6.9955) ^a
Accession Rate	0.3828 (6.9732) ^a	0.4660 (6.3420) ^a	0.3717 (3.6762) ^a	
Time	-0.0087 (0.2879)	0.0237 (0.7478)	0.0831 (2.6752) ^b	-0.0138 (0.2201)
Unionization		0.0523 (1.9618) ^c	0.0051 (0.1348)	-0.0657 (1.7257)
Nonproduction Employees		-0.0594 (1.3565)	-0.1760 (3.5319) ^a	-0.0867 (1.0007)
\bar{R}^2	.9857	.9882	.9639	.9534
First Order Serial Correlation Coefficient	-0.3260	-0.1360	0.0213	-0.1474
Durbin-Watson Statistic	2.5712	2.2538	1.6828	2.4242

FOOTNOTES: See Table 3.

B, which excludes the accession rate because of the interrelationships between the accession and quit rates.

1930-1969. Table 3 indicates that the model can explain over 90 per cent of the 1930-1969 annual variations in the quit rate. In the basic model, three of the four I and O variables have significant coefficients with the expected signs. Step 1, which corresponds to equation (2), indicates that there is no difference between the prewar and war periods in the ability of the I and O variables to explain the level of the quit rate, but that the postwar predictions of the quit rate are systematically too high. The significance of the negative coefficient for time meets the test for Industrial Feudalism.³⁸ The size of the postwar time dummy suggests that after adjusting for the influence of the I and O variables, the quit rate is about one unit lower in the 1949-69 period than it was both in the 1930-41 and 1942-48 periods. Since the average value of the quit rate for the entire 1930-69 period was only 2.3025, the decline in mobility indicated by Table 3 is far from trivial.

Step 2 of Table 3 corresponds to equation (3). There is no evidence that unions have caused the decline in voluntary mobility since 1930. Unfortunately, as revealed by the continued significance of the postwar time dummy, we are unable to determine what did cause the decline. The alternative models explain a lower proportion of the variations in the quit rate, but do not detract from the finding of Industrial Feudalism.

1943-69. Table 4 begins with 1943 because of the change that year in the definition of the quit rate. The extension of the quit rate to cover nonproduction workers (as well as the previously covered production workers) enables us to use an additional independent variable, namely the percentage of all employees who are nonproduction workers. The addition of this variable does not materially affect our results.

Step 1 of the basic model again reveals that the I and O variables consistently overpredict the amount of voluntary mobility in the postwar period. The occurrence of Industrial Feudalism is confirmed. The coefficient for the postwar time dummy is about -.8, compared to the 1943-69 average of 2.6741 for the quit rate.

³⁸ Joseph, "Discussion," p. 95, offers an alternative explanation of this result. "If, at any point in time, there is a minimum average quit rate, abnormally high unemployment rates will not force the quit rate down to levels consistent with the relationship between the two variables under normal conditions. When the extremely high unemployment rates of the 30's and the associated quit rates are included in the analysis they generate a relationship that will predict consistently high quit rates in periods when a normal cyclical relationship prevails. This effect would be masked and accentuated during the period of World War II, when quit rates were again abnormally high. As a result, an equation fitted for the 1930-66 period would produce systematically high quit rate predictions for the postwar period, and would lead to an overestimate of the secular decline in the quit rate."

It is true that if there are floors to the quit rate and to the unemployment rate, a regression fitted to data which includes years when one or the other floor is operative will overpredict the quit rate in normal years. However, we do not believe the floor phenomenon explains the significance of the postwar time dummy in regressions such as Step 1 of the Basic Model of Table 3. The six years with the highest unemployment rate in the prewar period (1930-41) and the three years with the lowest unemployment rate in the war period (1942-48) were identified. If the quit rate and unemployment rate floors were operating, positive residuals would be expected in these nine years. In the Step 1 regression, five of the residuals for these years were negative.

Step 2 attempts to isolate the causes of the decline in mobility since 1943. The statistical results suggest that increased union strength is associated with a higher quit rate (contrary to our expectations) and that an increasing proportion of nonproduction workers is associated with less mobility. But even though every I, O, X, and P variable in our arsenal is significant, the negative coefficient for the postwar time dummy remains highly significant. In short, we cannot locate the cause of the apparent decline in voluntary labor mobility which has occurred since 1943.

1949-69. Table 5 presents our attempt to determine if there has been a continuing decline in voluntary mobility within the postwar period. Given the limited number of observations, the adjusted coefficients of determination are reasonably high, but fewer variables have significant coefficients than in Table 4. Of central importance, in the basic model there is no statistically significant evidence of a trend within the postwar period toward greater or less voluntary mobility.

The alternative models present some evidence that the shift towards nonproduction employees is associated with declining mobility.³⁹ Alternative model A also provides some evidence of a trend towards greater mobility in the postwar period. We believe the most appropriate conclusion, however, is that there is no move toward or away from Industrial Feudalism within the postwar decades.

Other evidence on the postwar period. A recent study by Hugh Folk includes evidence which seems to contradict our finding of no decline in voluntary mobility in the postwar period. Folk concluded "there is good evidence that mobility has decreased considerably since World War II: (1) The manufacturing quit rate has declined, even when account is taken of variations in economic conditions. . . ."⁴⁰

Folk based his conclusion on a number of regressions where the manufacturing quit rate was explained by turnover or unemployment variables. Table 6 reproduces the portion of his results essential to the assertion of a decline in mobility.⁴¹ The coefficient for the time variable is negative and significant in each of his five regressions, which is evidence apparently consistent with his conclusion.

We nonetheless believe the conclusion is unwarranted. We have rerun Folk's regressions with appropriate modifications of the data and the evidence of a decline in mobility in the postwar period is dissipated. The modifications are: (1) the first three regressions begin with 1949 instead of 1947 or 1948 because of the previously discussed abnormality of the immediate postwar period, and (2) data from 1966-70

³⁹The evidence on the relationship between an increasing proportion of nonproduction employees and a decline in voluntary mobility is consistent with Becker's hypothesis concerning the impact of specific training on mobility, as discussed in footnote 36, supra. We urge caution in using this conclusion, however. Earlier attempts to test Becker's theory are reviewed in Burton and Parker, "Interindustry Variations," pp. 208-09, where we conclude the results are ambiguous. Our efforts to test Becker's theory in a cross-section analysis, where many more independent variables are used than in the present article, provides results which are not consistent with Becker's predictions. Ibid., footnote 56, p. 214.

⁴⁰Folk, "Private Pensions," p. 161.

⁴¹The statistics are in Ibid., Table 5, p. 154. In order to make Folk's results consistent with the other tables in this article, we have calculated t-values from the data he provides on regression coefficients and standard errors.

TABLE 6. DETERMINANTS OF POSTWAR VARIATIONS IN THE QUIT RATE

Independent Variables and Years of Data	Regression Coefficient	Time Trend Coefficient	Constant	Adjusted Coefficient of Determination	First Order Serial Correlation Coefficient	Durbin-Watson Statistic
<u>Unemployment Rate and Trend</u>						
1948-65 (Folk)	-0.2393 (6.433) ^a	-0.0678 (5.512) ^a	3.5213	.85		
1949-70 *	-0.4014 (7.815) ^a	0.0071 (0.427)	3.7247	.75	0.4981	2.0901
<u>Net Accession Rate (Accession Rate - Separation Rate) and Trend</u>						
1947-65 (Folk)	0.4208 (1.541)	-0.1067 (4.721) ^a	2.5181	.57		
1949-70 *	0.2364 (1.181)	0.0049 (0.156)	1.9077	-.03	0.6843	1.4814
<u>Lay Off Rate and Trend</u>						
1947-65 (Folk)	-0.9253 (5.421) ^a	-0.0940 (6.438) ^a	4.1903	.84		
1949-70 *	-1.0090 (5.736) ^a	-0.0099 (0.628)	3.8012	.61	0.2819	1.4972
<u>New Hire Rate and Trend</u>						
1951-65 (Folk)	0.6738 (12.618) ^a	-0.0351 (4.034) ^a	0.1777	.95		
1951-70 *	0.8098 (12.487) ^a	-0.0035 (0.453)	-0.3734	.90	0.4318	1.0371
<u>Multiple Variables and Trend: 1951-1965 (Folk)</u>						
Unemployment Rate	-0.0931 (2.102) ^c	-0.0299 (2.821) ^b	0.4993	.96		
Lay Off Rate	.6582 (14.858) ^a					
Net Accession Rate	.0077 (0.085)					
New Hire Rate	.7973 (5.919) ^a					

TABLE 6--Continued

Independent Variables and Years of Data	Regression Coefficient	Time Trend Coefficient	Constant	Adjusted Coefficient of Determination	First Order Serial Correlation Coefficient	Durbin-Watson Statistic
<u>Multiple Variables and Trend: 1951-1970</u>						
Unemployment Rate	-0.0304 (0.437)	-0.0125 (1.633)	0.6527	.98	-0.0215	1.9090
Lay Off Rate	-0.3165 (1.301)					
Net Accession Rate	-0.4854 (4.025) ^a					
New Hire Rate	0.7135 (7.982) ^a					
<u>Accession Rate and Trend</u>						
1949-70*	0.8341 (6.640) ^a	0.0185 (1.188)	-1.8930	.68	0.3508	1.6830

FOOTNOTES: See Table 3.

are added to all regressions. The results, as shown in Table 6, are that all of the time trend coefficients are insignificant.⁴² We have also added a regression in which the accession rate is used instead of the net accession rate, and again the time trend coefficient is insignificant.⁴³ We therefore do not believe that Folk's evidence of a postwar decline in mobility is convincing. Moreover, the statistical results are less compelling than the results of Table 5 because of Folk's failure to specify a model which takes account of incentive (I), public policy (P), or other (X) variables.

⁴² Consistent with our practice in Tables 3-5, whenever the absolute value of the first order serial correlation coefficient exceeds .1, we present results from regressions using data transformed to take account of autocorrelated disturbances. The only case where the time trend coefficient is significant in the untransformed regressions is when used in conjunction with the lay off rate (time trend coefficient is -0.0028 with a t-value of 2.116). When the lay off rate is included in the multiple variable model with other opportunity variables, the time trend variable is insignificant.

⁴³ This result is shown at the bottom of Table 6. The use of the accession rate instead of the net accession rate seems justified if for no other reason than the low adjusted coefficient of determination that results from the regression using the net accession rate.

IV. CONCLUSIONS

Is there a new Industrial Feudalism? Ross, in analyzing the behavior of the quit rate after the 1920's, found little evidence for the proposition that labor resources have become immobilized. Folk, in analyzing the postwar period, found evidence which supports the proposition. Thus Ross would answer no and Folk would answer yes.

Our analysis suggests they are both wrong. Ross, because his model was underspecified, because the construction of his most important independent variable is questionable, and fundamentally because his definition of Industrial Feudalism is inadequate. Folk, also because his model is underspecified, but fundamentally because data from a longer series of postwar years (1949-70) does not provide a confirmation of the declining trend in mobility found in a shorter period with a less defensible starting point (1947-65).

The evidence we present which contradicts Ross's conclusion is disquieting. The results in Tables 3 and 4 suggest that, after adjusting for the incentives and opportunities for voluntary mobility, there has been a substantial decline in voluntary mobility from the prewar and the war periods to the postwar period.⁴⁴ Unfortunately, we are unable to isolate the cause of the decline. Unionization (at least as we have measured it) does not explain any decline in mobility, and the increasing proportion of nonproduction workers only provides a partial explanation of the decline. Part of the explanation of the decline may be due to the impact of variables which we are unable to include in this analysis, and we are working on other approaches to this topic which may enable us to better identify the determinants of voluntary mobility. The most appropriate conclusion based on our current knowledge is that there has been an apparent decline in voluntary mobility in the U.S. manufacturing sector in the decades since 1930, but that the reason for the decline is unclear.

The evidence we present which contradicts Folk's conclusion is encouraging. Moreover, we believe our conclusion that, after adjusting for the incentives and oppor-

⁴⁴It has been suggested to us that part of the decline in voluntary mobility we noted between the prewar and postwar periods may be due to changes in the de facto definition of quits. If in bad times some employees do not leave their employer by quitting, but instead, with the cooperation of their employer, manage to be "laid off" in order to get unemployment compensation, then a decline in the quit rate in good times can be illusory. Also, if employees when they reach advanced ages no longer "quit" but instead now clearly retire (an act included in the total separation rate but not in the quit rate) because of the benefits contingent upon a formal act of retirement, there is an additional illusion concealed in an apparent decline in the quit rate since the prewar period.

It is obviously impossible directly to test these suggestions. An indirect bit of evidence is the fact that the quit rate averaged 27.3 per cent of the total separation rate in the 1930-41 period and 44.4 per cent in the 1949-70 period. This evidence, while calling into question the idea that acts formerly classified as quits are now classified as other forms of separations, must be treated with extreme caution because of the wide variety of factors which may have caused a change in the quit rate-separation rate ratio since the prewar period. Apart from this limited evidence inconsistent with the idea that a declining quit rate may be illusory because of changes in the de facto definition of quits, we feel that changing standards could not explain the magnitude of the decline in mobility between the prewar and postwar periods shown in Table 3. Moreover, the disguised lay off argument provides no explanation of the decline in mobility between the war period and postwar period shown in Tables 3 and 4.

tunities for voluntary mobility, there is no trend towards declining voluntary mobility in the postwar period is our most important finding. Our emphasis on the evidence from the postwar period (Table 5) is warranted because of the widespread presence in this period of factors assumed to be mobility inhibiting, such as a maturing union movement and a proliferation of fringes such as pension plans. If, during the most recent two full decades, there is no tendency for these factors to perceptively reduce the amount of voluntary labor mobility, we believe that for the present-day U.S. manufacturing sector the spectre of Industrial Feudalism is illusory.

APPENDIX

Sources of Data

1. Accession rate, separation rate, new hire rate, quit rate, lay off rate: U.S., Department of Labor, Bureau of Labor Statistics, Handbook of Labor Statistics 1970 (1970), p. 116, and Employment and Earnings, 17 (April, 1971), p. 98.
2. Nonproduction workers as per cent of total employment, manufacturing: Handbook of Labor Statistics 1970, p. 87.
3. Union membership as a percentage of employees in nonagricultural establishments: Ibid., p. 339, plus authors' estimate for 1969.
4. Unemployment rate, number of unemployed: Employment and Earnings, 17 (April, 1971), p. 21.
5. Total employees on nonagricultural payrolls, manufacturing employees: Ibid., p. 49.
6. The coefficient of variation of annual compensation per full-time employee for two-digit manufacturing industries, and annual compensation per full-time employee in manufacturing divided by annual compensation per full-time employee in all industries were calculated from data in Tables 6.1 (Compensation of Employees by Industry) and 6.4 (Number of Full-Time Equivalent Employees by Industry) in various Department of Commerce publications. Data for 1930-63 are from U.S., Department of Commerce, The National Income and Product Accounts of the United States, 1929-65, Statistical Tables (1966); 1964 data are from Survey of Current Business, 48 (July, 1968); 1965 data are from Survey of Current Business, 49 (July, 1969); 1966-69 data are from Survey of Current Business, 50 (July, 1970).
7. The war time dummy had a value of one for all years 1942-48; the postwar time dummy had a value of one for all years 1949-69. The time variable in Table 5 had a value of one in 1949, two in 1950, etc.
8. A copy of the data is available from John F. Burton, Jr., Graduate School of Business, University of Chicago, Chicago, Illinois 60637.

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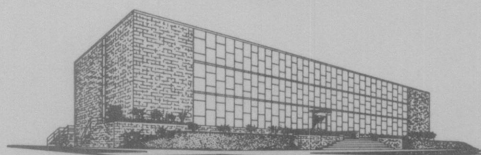
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