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AN ABSTRACT OF THE THESIS OF Ann Schroeder Sato for the  
Master of Arts in Sociology presented May 1, 1970.

Title: Mobility of Physicians into Prepaid Group Health  
Practice: A Case Study.

APPROVED BY MEMBERS OF THE THESIS COMMITTEE:

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James Weiss, Chairman

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Donald Peterson

This thesis is concerned with changes over time in the social characteristics of doctors who have entered prepaid group health plans. It focuses on the past social positions which these doctors have occupied and on their status, or rank. The general expectation is that both the rank and the positions occupied by doctors prior to entering prepaid group plans have varied as the prestige of these plans has varied.

The entrance of physicians into prepaid group health plans was conceptualized as mobility between different contexts of work. Blau's exchange theory of mobility proved

to be the most fruitful source of hypotheses for this study. Blau states that extrinsic rewards are the major incentives for mobility and that intrinsic rewards interact with extrinsic rewards in influencing mobility. From these basic propositions two hypotheses were generated: 1) As the status of prepaid group health plans increases, the status of physicians entering these plans will increase. 2) As the status of prepaid group health plans increases, high status recruits will less frequently come from positions offering intrinsic rewards similar to those found in prepaid group plans.

The design of this research was a longitudinal case study. Data were obtained relevant to one prepaid group health plan, the Portland Kaiser Foundation Health Plan. The universe included all physicians who had practiced as full-time, salaried staff in Kaiser at any time since 1945 when Kaiser was first opened to the public.

Indicators were obtained from various sources of data. The Kaiser personnel records provided data on physicians' social characteristics. Data on the status of Kaiser came from an official salary schedule and records of personnel advertisements. Informants were used to rank medical schools and the AMA's Directory of Approved Internships and Residencies provided a ranking of teaching hospitals.

The evidence for the first hypothesis was generally negative. The data indicated that although the status of

Kaiser had increased over the years, the status of physicians entering Kaiser had decreased. This conclusion was reached on the basis of findings using prestige of medical school as an indicator for physicians' achieved status as well as findings using nationality and length of practice as indicators for their ascribed status. Thus, the first hypothesis of this study had to be rejected.

The evidence for the second hypothesis was inconclusive: it indicated that as the status of Kaiser increased, the percentage of high status recruits from certain positions with intrinsic rewards similar to Kaiser's decreased, whereas the percentage from other positions increased. High status physicians have less frequently entered Kaiser

- a) having held positions emphasizing the scientific aspects of care,
- b) having memberships in scientific or specialty societies,
- c) having changed the location of their practice,
- and d) having changed their specialty. They have more frequently entered Kaiser

- a) having had postgraduate training,
- b) having had at least five years of training,
- c) having held jobs in bureaucratic contexts,
- d) having graduated from medical schools in the North Central and Western states, and
- e) having engaged in two or more different types of activities.

In sum, it was unclear whether the second hypothesis should be accepted or rejected.

MOBILITY OF PHYSICIANS INTO PREPAID GROUP  
HEALTH PRACTICE: A CASE STUDY

by

ANN SCHROEDER SATO

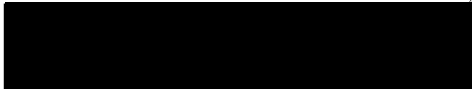
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requirements for the degree of

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in  
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1970

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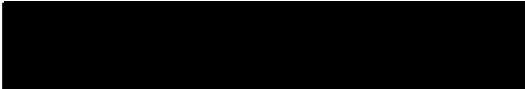
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May 1, 1970

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## CHAPTER I

### INTRODUCTION

Common knowledge to the observer of recent trends in the medical profession is the controversy which has taken place within the profession over the professional acceptability of prepaid group practice. In light of the American Medical Association's (AMA'S) open opposition to prepaid group health plans, one might expect that such plans would be regarded by many physicians as undesirable places to practice. One might also expect such plans to experience difficulty in recruiting physicians.<sup>1</sup>

A question arises as to how these barriers to recruitment might be overcome by prepaid group health plans. In other words, are these recruitment problems likely to be long-term or short-term trends? Assuming that changes in the social characteristics of physicians entering prepaid group health plans reflect changes in problems of recruitment, one might also ask whether or not the kinds of physicians entering prepaid group practice have varied over time. This thesis is concerned with the latter question regarding variations in the types of physicians who enter prepaid

<sup>1</sup>Dennis C. McElrath, "Perspective and Participation of Physicians in Prepaid Group Practice," ASR, XXVI (1961), 601, 603.

group health plans.

There are two reasons for expecting that prepaid group health plans might gain acceptance within the medical profession and thereby solve their recruitment problems. It is widely recognized that one of the goals which has guided the establishment of all prepaid group health plans is to provide more efficient health care services.<sup>2</sup> Accordingly, it is possible that due to the increasing need for a more efficient provision of health care, the demand for and acceptance of prepaid group plans will increase. A second goal of prepaid group plans has been the provision of high quality medical care in all of the various areas of medicine.<sup>3</sup> Accordingly, the possibility arises that prepaid group plans will gain acceptance by meeting the increasing pressure for high quality medical care to a greater degree than traditional forms. In achieving acceptance within the medical community, prepaid group plans would be expected to overcome their recruitment difficulties.

In sum, there is reason to believe that the recruitment problems of prepaid group practice represent short-term rather than long-term trends. Assuming that changes in the

<sup>2</sup>Ernest W. Seward, M.D., Janet D. Blank, and Merwyn R. Greenlick, "Documentation of Twenty Years of Operation and Growth of a Prepaid Group Practice Plan," Medical Care, VI (May-June, 1968), 232. Edmund K. Faltermayer, "Better Care at Less Cost Without Miracles," Fortune, LXXXI (January, 1970), 82-83, 126.

<sup>3</sup>"Giant Group Practice Heads East," Medical World News, November 1, 1968, p. 48. Faltermayer, Fortune, LXXXI (January, 1970), 83, 126.

social characteristics of recruits reflect changes in recruitment problems, then there is also reason to believe that the social characteristics of physicians entering prepaid group health plans since their inception have systematically varied over time. Such variation presents a problem for research, namely, to inquire into the direction of and reasons for the variation. The task of the present thesis will be to "solve" this problem.

A sociological approach will be used to guide the present research on variations in the social characteristics of physicians entering prepaid group practice for two reasons. First, manpower, i.e., personnel, is an important resource with far-reaching consequences for any collectivity. Blau states that:

Another distinctive characteristic of intergroup relations is that they involve mobility of individuals from group to group. . . . The major patterns of these movements redefine the boundaries of the substructures in the macrostructure and modify their internal structures.<sup>4</sup>

In other words, changes in the personnel of a given collectivity affect the internal structure of the collectivity as well as the relations between the collectivity and others. The first reason for the sociological approach of this thesis is that manpower, or personnel, is an important sociological variable.

<sup>4</sup>Peter M. Blau, Exchange and Power in Social Life (New York: John Wiley & Sons, Inc., 1964), p. 295

The second reason is that changes in the personnel of a given collectivity may be accounted for, at least in part, by sociological variables. Elau goes on to state that:

"The origin of these patterns of mobility is also found in the interrelated status structures."<sup>5</sup> Accordingly, a sociological approach should be capable of predicting the direction of and giving reasons for variations in the kinds of physicians who have entered prepaid group plans since these plans were first instituted. Therefore, this thesis will use such an approach to describe and partially account for variations in the social characteristics of physicians who have entered prepaid group practice.<sup>6</sup>

## I. PAST STUDIES

As stated above, the problem of this thesis is to describe and account for variations in the types of

<sup>5</sup>Ibid.

<sup>6</sup>With the help of the classification of hypotheses found in McGinnis, the research objectives of this thesis can be stated more precisely as follows: finitely conditional hypotheses will be generated regarding variations in the social characteristics of physicians who have entered prepaid group practice. Such hypotheses will not be purely descriptive, when this term means that "... no conditions are established regarding the relation of the variables under consideration to any others." Neither will they be purely explanatory, when the term indicates that "... conditions are specified for the variables  $x$ ,  $y$  and an infinite number of variables  $z_1$ ." Rather, the hypotheses of this study will be finitely conditional, meaning that "... a condition of statistical independence is required between variables  $x$ ,  $y$  and a finite number of other variables,  $z_1$ , if the hypothesis is to be true." Robert McGinnis, "Randomization and Inference in Sociological Research," ASR, XXIII (1958), 411-412.

physicians entering prepaid group practice. A number of sociological concepts can be used to approach this problem. From the perspective of the individual we can speak of mobility, which, in the broadest sense, can be defined as the "movement of persons . . . through the social structure."<sup>7</sup> Or, we can talk of careers, i.e., typical sequences of movement among a set of positions. From the perspective of the organization (e.g., a group of physicians in a prepaid group health plan) we can speak of recruitment, i.e., filling positions with personnel according to a set of standards.

The problem with which this thesis deals has not been raised before. The literature on social mobility and recruitment<sup>8</sup> has generally focused on intergenerational occupational mobility. Among such studies are two which concern physicians. Adams studied intergenerational occupational mobility among physicians from 1900 to 1950.<sup>9</sup> Colombotos presented data on the relation between the socio-economic status (SES) of a physician's family of origin (measured by

<sup>7</sup>Neil J. Smelser and Seymour Martin Lipset (eds.), "Social Structure, Mobility and Development," Social Structure and Mobility in Economic Development (Chicago: Aldine Publishing Company, 1966), p. 2. See also Blau, pp. 162-163.

<sup>8</sup>Studies on recruitment need not be considered separately from studies on mobility and careers since the recruitment perspective is usually used in combination with either the mobility or career perspective.

<sup>9</sup>Stuart Adams, "Trends in Occupational Origins of Physicians," ASR, XVIII (1953), 404-409.

the SES of his father's occupation) and his ideology.<sup>10</sup>

This focus on intergenerational occupational mobility has persisted even though the concept of mobility has been defined in more general terms and many other types of mobility, such as intragenerational as well as intergenerational, educational and geographic as well as occupational, have been deemed worthy of study. In support of a wider focus within studies on mobility, Wilensky states:

The results affirm the need for diversified analysis of social mobility fitting the diversity of modern life. They underscore the wondrous variety of phenomena encompassed by "mobility," placing intergenerational occupational change in perspective as one among a dozen types of movement.<sup>11</sup>

Following Wilensky's suggestion, one can describe the movement of physicians between different work contexts (e.g., solo practice, prepaid group practice, medical schools, hospitals, and the public health service) as mobility in the broad sense of movement through the social structure. However, it is not easy to identify the dimension or dimensions

<sup>10</sup>John Colombotos, "Social Origins and Ideology of Physicians: A Study of the Effects of Early Socialization," Journal of Health and Social Behavior, X (March, 1969), 16-29. It is interesting to note how the design of this study allows him to ignore problems raised by the diversification of the medical profession. His sample excludes female physicians as well as physicians on full-time salary (e.g., medical school faculty, full-time hospital staff, and public health physicians). He fails to mention that he has also excluded physicians in prepaid group practice.

<sup>11</sup>Harold L. Wilensky, "Measures and Effects of Mobility," Social Structure and Mobility, ed. Smelser and Lipset, p. 110.

of mobility, if any, which this kind of movement entails. Obviously this change does not involve occupational mobility--the physician remains a physician. However, it may lead to higher pay or higher prestige for the physician and thus would involve vertical mobility (movement between positions in a status hierarchy). It may also involve geographical mobility (change in location of residence).

Fortunately, there are data which shed light on this definitional problem. According to Wilensky, there are numerous systems of ranking along which mobility can occur, one of which is the economic opportunities of worklife.<sup>12</sup> In his factor analysis of mobility he found that the choice between self-employment and working for an employer was one such opportunity. These findings suggest that the movement of physicians into solo versus prepaid group practice involves one dimension of mobility, although they do not really tell us what to name the dimension. Thus, on an empirical basis it appears legitimate to conceptualize the entrance of physicians into prepaid group plans in terms of mobility even though previous studies have not done so.

Our review of the literature on social mobility has revealed that in focusing on only a few types of mobility, such studies ignore the conceptual problem raised by the movement of physicians among different contexts of work.

<sup>12</sup>Ibid., pp. 110-111.

Likewise, studies of physicians' careers have also ignored this kind of problem. However, there appears to be no theoretical justification for their doing so. Definitions of the term career are often general. The notion of orderliness and typicality of a sequence of events are the major defining characteristics of the term rather than a notion of the context of the events forming the stages of a career. Therefore, there appears to be no a priori reason why a physician's "job" history, i.e., a history of the contexts in which he has worked, would not constitute part of his career.

We may cite a variety of studies on physician's careers, none of which raise the kind of problem with which we are concerned. In "The Stages of a Medical Career" Hall describes the stages of a medical career as 1) generating ambition, 2) gaining admittance to medical institutions, 3) acquiring a clientele, and 4) developing colleague relations.<sup>13</sup> However, although these stages may be typical for the private practitioner, they would not be typical for the physician who goes into research or teaching, into the public health service, or into prepaid group practice. In the latter cases the physician either does not have a patient clientele or else his clientele is acquired automatically with his job. Thus, one shortcoming of Hall's study is the

<sup>13</sup>Oswald Hall, "The Stages of a Medical Career," AJS, LIII (1948), 327.

lack of typicality of the career stages which he has delineated.

Another shortcoming of Hall's study is his failure to deal with the changes which may occur in a physician's career after he has made his initial efforts to acquire a clientele and develop colleague relations. It is possible that the physician's later career is characterized by typical patterns of practice in a variety of contexts. However, Hall fails to raise the question of whether or not these changes constitute stages in a physician's career.

In another study, "Types of Medical Careers," Hall again ignores the kind of problem being raised in this thesis.<sup>14</sup> He differentiates types of medical careers along the dimensions of orientations to patients and to colleagues. However, he does not indicate how different career orientations lead physicians to practice medicine in contexts varying, for example, in their degree of bureaucratization or departure from traditional forms of practice.

Studies on physicians' careers also were made by Solomon<sup>15</sup> and Liberson.<sup>16</sup> Solomon presents data on the

<sup>14</sup>Oswald Hall, "Types of Medical Careers," AJS, LV (1949), 243-253.

<sup>15</sup>David N. Solomon, "Ethnic and Class Differences among Hospitals as Contingencies in Medical Careers," AJS, LXVI (1961), 463-471.

<sup>16</sup>Stanley Liberson, "Ethnic Groups and the Practice of Medicine," ASR, XXIII (1958), 542-549.

effect of ethnic and class differences among hospitals on physicians' careers. However, he considers only an early stage in the physician's career, namely, his training period. Liberson investigates the effect of ethnicity on the spatial distribution and degree of specialization of physicians' practices. Thus, his study focuses on one contextual aspect of physicians' practices. However, he fails to consider the effect of ethnicity on other contextual factors, e.g., the degree of bureaucratization of the context in which a physician works.

Only one other group of studies is relevant to the present research, namely, studies by Ben-David,<sup>17</sup> McElrath,<sup>18</sup> and Freidson,<sup>19</sup> which are specifically concerned with prepaid group practice. They all focus on the physician's role as it is modified in the prepaid group practice setting and on the physician's adjustments to these role changes. However, none of them have asked how physicians come to practice in such a setting in the first place and thus ignore the issue raised in this thesis.

<sup>17</sup>J. Ben-David, "The Professional Role of the Physician in Bureaucratized Medicine: A Study in Role Conflict," Human Relations, XI (1958), 255-274.

<sup>18</sup>McElrath, ASR, XXVI (1961), 596-609.

<sup>19</sup>Eliot Freidson, Patients' Views of Medical Practice: A Study of Subscribers to a Prepaid Medical Plan (New York: Russell Sage Foundation, 1961).

## II. THEORY

Earlier we discussed some commonly held views on trends in the medical profession in light of the consequences which these trends could have for prepaid group practice. It was suggested that prepaid group plans had overcome problems in recruitment and that the types of physicians entering prepaid group practice had varied over time. The objectives of the present thesis were then defined as an attempt to describe and account for variations in the social characteristics of physicians who have entered prepaid group plans since their inception.

Accordingly, we need a theory capable of generating a set of operationalizable hypotheses concerning changes in the kinds of individuals entering prepaid group health plans over time. As the following paragraphs will show, it was found that structural-functional and social-psychological approaches failed to yield such hypotheses and thus were unable to deal with the problem of this thesis. In contrast, Blau's exchange theory in so far as it is relevant to social mobility and recruitment was found to provide the kinds of hypotheses needed.<sup>20</sup>

<sup>20</sup>Blau, Exchange and Power, pp. 294-301. Peter M. Blau, "The Flow of Occupational Supply and Recruitment," ASR, XXX (1965), 475-490.

Alternative Structural-Functional and  
Social-Psychological Approaches

One example of a structural-functional approach which failed to yield useful hypotheses for this study is the Davis-Moore theory of stratification.<sup>21</sup> According to Davis and Moore, one functional requirement of any society is "placing and motivating individuals in the social structure."<sup>22</sup> The fulfillment of this requirement necessitates the availability of appropriately motivated and qualified individuals to fill any vacant positions in society. However, such a pool of individuals is not formed automatically when positions are not desirable or when they require excessive training. Hence, social stratification, the differential distribution of rewards to positions, occurs to overcome such problems.

In order to determine how the Davis-Moore theory relates to the entrance of physicians into prepaid group health plans, it will be assumed that at one time prepaid health plans were regarded as undesirable places to practice.<sup>23</sup> If one further assumes that a social system's

<sup>21</sup>Kingsley Davis and Wilbert E. Moore, "Some Principles of Stratification," Class, Status, and Power: Social Stratification in Comparative Perspective, ed. Reinhard Bendix and Seymour Martin Lipset (2nd ed.; New York: The Free Press, 1966), pp. 47-53.

<sup>22</sup>Ibid., p. 47.

<sup>23</sup>Supra, p. 1.

functional requirements are being fulfilled (i.e., that the system is functioning perfectly), then the Davis-Moore theory says that by offering rewards not provided by other positions with similar training requirements, prepaid group health plans will be able to attract appropriately qualified and motivated recruits. Alternately, if one assumes that the system is not functioning perfectly, then one would expect that inappropriately trained and motivated individuals would enter prepaid group plans.

However, we need a hypothesis about changes in recruitment over time. One can be generated, of course, provided we can specify how well we expect the social system to function. However, this would be difficult, since the theory provides no hypotheses about changes in the system's functioning. All we know is that its functioning is supposed to be reflected in the supply of recruits to positions. As a result, any hypothesis about changes in the functioning of the system and corresponding changes in recruitment patterns would be tautological. Thus, the Davis-Moore theory of stratification fails to provide the kind of hypothesis needed in the present study.

Merton and Kitt's reference group theory is an example of a social-psychological approach which might be useful for generating hypotheses about the kinds of physicians who enter prepaid group practice.<sup>24</sup> One of the propositions in

<sup>24</sup>Robert K. Merton and Alice S. Kitt, "Contributions to the Theory of Reference Group Behavior," Studies in the

this theory is that mobility is dependent upon the individual's conformity to the norms of the group to which he hopes to gain admittance.<sup>25</sup> In other words, mobility is dependent upon the individual's selecting the members of this group as a reference group. In the case of physicians' entrance into prepaid group practice, one would expect that physicians who conformed to the norms of prepaid group practice would enter prepaid group plans more frequently than those who did not conform.

However, the hypotheses needed for the present study concern variations in recruitment over time. In terms of Merton and Kitt's theory, we need hypotheses about changes over time in the kinds of individuals who select prepaid group practitioners as a reference group. Unfortunately, Merton and Kitt are unable to account for the individual's selection of reference groups. Therefore, this theory, like that of Davis and Moore, is of limited value in dealing with the problem of this thesis.

#### Generation of Hypotheses from Blau's Exchange Theory

In contrast, Blau's exchange theory<sup>26</sup> provides the kinds of hypotheses needed for this study. One of the basic

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Scope and Method of "The American Soldier," ed. Robert K. Merton and Paul F. Lazarsfeld (Glencoe, Illinois: The Free Press, 1950), pp. 40-105.

<sup>25</sup>Ibid., p. 87.

<sup>26</sup>One of the basic propositions of exchange theory is that complex social structures and processes can be

propositions of exchange theory is that individuals and collectivities follow the most profitable courses of action. Profit is defined in terms of the balance between rewards and costs (i.e., resources gained and lost). Rewards can be of two basic types--extrinsic and intrinsic. Blau defines them as follows:

A critical analytical distinction is that between associations that are intrinsically rewarding and those that furnish extrinsic benefits, which are, in principle, detachable from the association itself. . . . The basic difference is between associations that are considered ends-in-themselves by participants and those they consider means for some further ends.<sup>27</sup>

In other words, to gain a particular intrinsic benefit, one must be a member of a particular collectivity; however, to benefit from a given extrinsic reward, it does not matter what collectivity one is in. Examples of intrinsic rewards are social acceptance and the fulfillment of the goals of a given organization. Examples of extrinsic rewards are

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accounted for by simpler processes, namely those of exchange. In Exchange and Power, Blau defines exchange as follows:

Social exchange as here conceived is limited to actions that are contingent on rewarding reactions from others and that cease when these expected reactions are not forthcoming (p. 6).

The basic difference between exchange theory and the other theories which we have considered lies in the particular independent variable emphasized. In the Davis-Moore theory of stratification it was the notion of functional prerequisites of a social system; in the Merton-Kitt theory of reference groups it was the individual's expectations or values held in accord with his reference group. In Blau's exchange theory it is the balance between rewards and costs which a particular course of action would entail.

<sup>27</sup>Blau, Exchange and Power, pp. 35-36.

prestige, power, and money. The differential distribution of extrinsic rewards defines the status, i.e., position in a ranking system, of an individual or collectivity.

Guided by the proposition that individuals and collectivities follow the most profitable courses of action, Blau develops a number of propositions on mobility and recruitment which bear on our question of the kinds of physicians who enter prepaid group practice. We will first discuss propositions on the relationship of extrinsic rewards to recruitment:

Successful competition provides more resources for rewarding members and thus spells further success, since the greater rewards discourage members of the collectivity from defecting from it to others and encourage members of other collectivities to leave them for it.<sup>28</sup>

This proposition states necessary conditions for 1) an increase in the resources allocated to recruitment by a collectivity and 2) the recruitment of new members. These conditions are described as "successful competition."

<sup>28</sup>Ibid., p. 332. The reader may find himself puzzled because in this proposition and those that follow Blau does not explicitly state that he is discussing extrinsic rather than intrinsic rewards. However, if one bears in mind that extrinsic but not intrinsic rewards are basic elements of ranking systems, then it is clear that the notion of extrinsic rather than intrinsic rewards is implicit in these propositions. For example, Blau refers to increases in rewards. This implies that the value of these rewards as incentives varies according to their quantity rather than their quality. However, only in the case of extrinsic rewards is the size of the reward significant, and only by virtue of this fact is it possible for this kind of reward to serve as a basis for ranking systems. Thus, it is clear that Blau is talking about extrinsic rather than intrinsic rewards.

The following statement clarifies the nature of these conditions:

Many groups and organizations also compete for a dominant position in the larger social structure, and success in this competition requires a flexible internal status structure that permits an organized collectivity to attract qualified contributors by rewarding them with superior status.<sup>29</sup>

Here these conditions are described in greater detail as success in the competition for a dominant position in the larger social structure. In other words, successful competition involves an increase in status for a collectivity. The previous proposition can now be restated as follows: as the status of a collectivity increases, the rewards which it offers recruits will also increase.

We turn now to several propositions on the relationship of extrinsic rewards to mobility:

Membership in various collectivities is not equally rewarding, which is one factor that promotes mobility between them. . . . In terms of this factor alone all individuals have equal incentives to move to the most rewarding collectivity in which they can find acceptance.<sup>30</sup>

In other words, Blau suggests that for a given individual mobility is dependent on his having the opportunity to receive higher rewards. These opportunities are dependent on conditions stated in the following propositions:

While inferior status in a collectivity gives members most reason to want to leave it for another, superior status in it creates the greatest

<sup>29</sup>Ibid., p. 292.

<sup>30</sup>Ibid., pp. 295-296.

opportunities and potentialities for moving into another collectivity that promises higher rewards. . . . The middle stratum in a collectivity . . . tends to constitute its solid core of members who neither have much reason for wanting to leave it nor much tempting potential for doing so.<sup>31</sup>

In other words, the opportunity to take advantage of higher rewards depends on the status of the individual before mobility: high status gives an individual a greater opportunity than either middle or low status. The following proposition is suggested: opportunities for higher rewards lead to mobility of high status (rather than low or middle status) individuals.

The following two propositions have been derived from Blau's theory of mobility and recruitment: 1) As the status of a collectivity increases, the rewards which it offers recruits will also increase. 2) Opportunities for higher rewards lead to mobility of high status individuals. With regard to variations over time in the kinds of physicians entering prepaid group plans, the following hypothesis is suggested:

As the status (rank) of prepaid group health plans increases, the status (rank) of physicians entering these plans will increase.

This hypothesis may be further refined by distinguishing the various criteria, i.e., achievement and ascription, which govern the distribution of extrinsic rewards:

<sup>31</sup>Ibid., pp. 296-297.

As the status (rank) of prepaid group health plans increases, a) the achieved status of physicians entering these plans will increase and b) their ascribed status will increase.

Achieved statuses are those which are obtained by virtue of behavioral performances, such as competence. Examples are prestige, income, and power. Ascribed statuses are assigned by virtue of the situation of one's birth: examples are age, sex, race, and territorial location.<sup>32</sup>

It was stated above that extrinsic rewards are basic components of ranking systems.<sup>33</sup> As such, they serve as incentives for mobility. In contrast, intrinsic rewards are not basic elements of ranking systems. Nevertheless, they are associated with any given status, i.e., social position. Thus, intrinsic rewards may also serve as incentives for mobility.

Intrinsic rewards vary in the degree to which they serve as incentives for mobility depending on the experience which an individual has had with these rewards in other positions. Blau states that:

These expectations of social rewards, in turn, are based on the past social experience of individuals. . . . The study of exchange processes in social associations must take into account the ways in which the values of the rewards being exchanged are modified by the expectations of the participants and, ultimately, by the previous distribution of rewards that governs these expectations.<sup>34</sup>

<sup>32</sup>Smelser, p. 8.

<sup>33</sup>Supra, p. 16.

<sup>34</sup>Blau, Exchange and Power, pp. 143-144.

In other words, intrinsic rewards serve as incentives for mobility depending on the status (position) of the individual. Accordingly, one might expect that the kinds of intrinsic rewards received in previous statuses affect the kinds of individuals who are mobile.

However, before we can specify a hypothesis relating mobility to intrinsic rewards, we must consider how intrinsic rewards interact with extrinsic rewards in inducing mobility. The problem is that either extrinsic or intrinsic rewards, or both, may serve as incentives for mobility in any particular situation. Therefore, it is necessary to specify the relationship between them.

According to Blau, extrinsic rewards are the most significant factors affecting mobility.<sup>35</sup> However, they do not account for all instances of mobility. Therefore, one might expect, for example, that the entrance of high status individuals into a collectivity offering few extrinsic rewards could be accounted for in terms of intrinsic rewards, more specifically in terms of the similarity between the intrinsic rewards of the individual's past and present positions. Accordingly, the following hypothesis is suggested:

As the status (rank) of prepaid group health plans increases, high status recruits will less frequently

<sup>35</sup>Blau, "Occupational Supply and Recruitment," ASR, XXX (1965), p. 488.

come from statuses (social positions) with intrinsic rewards similar to those found in prepaid group plans.

Examples of statuses (positions) with intrinsic rewards comparable to those of prepaid group practice are practice within an organizational setting involving the centralization of facilities and positions involving science-oriented rather than practice-oriented activities.

In sum, Blau's exchange theory has enabled us to generate the kinds of hypotheses we need regarding variations in the kinds of physicians who have entered prepaid group practice. They are as follows:

- 1) As the status (rank) of prepaid group health plans increases, the status (rank) of physicians entering these plans will increase.
  - a) The achieved status of these physicians will increase.
  - b) The ascribed status of these physicians will increase.
- 2) As the status (rank) of prepaid group health plans increases, high status recruits will less frequently come from statuses (positions) with intrinsic rewards similar to those found in prepaid group plans.

## CHAPTER II

### METHODOLOGY

#### I. SOURCES OF DATA

Two sources of information on the kinds of physicians who enter prepaid group practice are the personnel records of physicians employed in the Portland Kaiser Foundation Health Plan and the AMA's American Medical Directory. As sources of data for this study, each has its advantages and disadvantages. The Medical Directory would provide for a comparison of physicians entering prepaid group practice with those entering private practice. Such a design would facilitate the interpretation of findings by allowing for controls on some of the factors which might account for the results.

However, there is one serious disadvantage to the data in the Medical Directory: it contains only a few items of information on each physician. In contrast, the personnel records of Kaiser physicians contain information on several possible indicators for each of the variables which have been mentioned so far, namely, the status of Kaiser, the status of physicians, and their past social positions. Therefore, in spite of the fact that the personnel records of Kaiser do not allow a comparison of

private to prepaid group practitioners, these records were chosen as a source of data.

## II. DESIGN

The implications of the choice to use the personnel records of the Portland Kaiser Foundation Health Plan as a source of data are evident in the research design of this study. First, although the hypotheses of this study concern all prepaid group plans, the data cover only one prepaid group plan. In other words, the design involves a case study. As a result, no tests of hypotheses are possible. Second, since the data concern only some prepaid group practitioners but no private practitioners, the design lacks a control group. As a result, the hypotheses of this study are only partially explanatory. Third, the kinds of data which can be extracted from the Kaiser personnel records are for the most part nominal and ordinal data. This sets limitations on the methods which can be used to present and analyze the data.

### Universe

As stated above, although the hypotheses of this study refer to the universe of all prepaid group practitioners, the data cover only the universe of physicians in one prepaid group health plan. More specifically, the universe of the present study includes all physicians who

have practiced as full-time, salaried staff in the Portland Kaiser Foundation Health Plan at any time since World War II.

Such physicians are designated "active staff" within Kaiser and are distinguished from the courtesy and consulting staffs, as well as the preceptees (residents). Furthermore, they include only physicians who practiced in Kaiser after it had been opened to the public in 1945, regardless of whether these physicians entered Kaiser before or after 1945. It does not include physicians who practiced there exclusively during the war years, 1942-45, when the Kaiser Foundation Health Plan was run on a strictly emergency, war-time basis. In light of the difference between the context for practice which Kaiser presented during the war and that which it represented after the war, it seems likely that the characteristics of the latter physicians would be different from those of the former, who practiced in Kaiser after the war.

Since the universe involves only one case of a pre-paid group health plan and since the data in this case span the period of time between its inception and the present, the design of the present research is a longitudinal case study. Strictly speaking, no tests of hypotheses can be made in such a study, since a test investigates the extent to which an hypothesis holds in all the cases of the universe to which the hypothesis refers. As a result, the generality of the conclusions which can be drawn from the

present study is severely limited. The similarity between the Kaiser Health Plan in Portland and other cases of pre-paid group practice will merely be assumed.

### Controls

Since the universe of the present study contains only prepaid group practitioners in Kaiser, the research design lacks a control group of private practitioners. Furthermore, since the controls which are used refer almost exclusively to characteristics of prepaid group practitioners rather than private practitioners, the effects of certain exogenous factors on the findings of this study cannot be ruled out. An example of such an exogenous variable is changes in the composition of the medical profession. This variable, rather than changes in the status of Kaiser, may account for the changing attributes of Kaiser physicians. However, without a control on this exogenous variable, it would be difficult to rule out its effect. As long as important factors remain uncontrolled with respect to the hypothesis of this study, this study can only partially account for the changing characteristics of physicians entering Kaiser.

The controls used in this study involve characteristics of prepaid group practitioners which might have a bearing on their mobility patterns. These controls were chosen according to two criteria. The first control, on

Active/inactive staff status, was chosen because it was a mobility variable which, as such, might have an effect on the mobility of physicians into Kaiser.

Active-inactive staff status indicates whether a physician who entered Kaiser is still practicing there or whether he has since left. It seems plausible that this variable might be related to the kinds of physicians who are responsive to the changes in the extrinsic rewards of Kaiser which presumably accompany changes in Kaiser's status. Two ways in which this might occur are: 1) Inactive staff might represent physicians who both came to and left Kaiser in search of higher extrinsic rewards; active staff might have remained in Kaiser because of its intrinsic rewards. 2) Active staff may have remained in Kaiser because of the increasing extrinsic rewards which it promised, whereas inactive staff may have left because of its unsatisfactory intrinsic rewards.

Other controls used in the present study are achieved and ascribed status. They were chosen because theoretically they represent two aspects of status, or rank, and as such, one would expect them to be interdependent.

The first hypothesis of this study that

as the status of prepaid group health plans increases, a) the achieved status of physicians entering these plans will increase, and b) the ascribed status of these physicians will increase.

is based on the assumption that the achieved and ascribed aspects of status co-vary. However, they may be inversely

related. In any case, because of the supposed interrelation of these variables, controls are necessary. Accordingly, controls on ascribed status were used in the hypothesis on the increase in the achieved status of Kaiser physicians, and conversely, in the hypothesis on their ascribed status, a control on achieved status was used.

Due to the small size of the universe of Kaiser physicians ( $N = 148$ ), it was practical to place only one control at a time on any hypothesis. As a result, the interrelationships among the independent, dependent, and more than one control variable could not be determined with any degree of stability in the data. It was also impractical to place any controls on the second hypothesis concerning intrinsic rewards. This hypothesis, involving three variables, in effect already utilized one control variable.

#### Table Setup

The variables which could be obtained from the Kaiser personnel records were mostly ordinal and nominal variables. Accordingly, methods appropriate for these kinds of variables were chosen to present and analyze the data. Cross-tabulation is used to present the findings for the hypotheses and to introduce controls in the analysis of the data. Gamma is used to measure the association between ordinal variables.

The way in which the tables were set up can best be explained step-by-step. The first step was to determine the direction and timing of variations in the independent variable, the status of Kaiser. In other words, the years which could serve as cutting points had to be determined. Because of the small size of the universe of Kaiser physicians, the decision was made to look at variations in the status of Kaiser in terms of low, medium and high status periods, rather than to look at such variations year by year. Three time periods, rather than two, were chosen to avoid losing too much information through collapsing.

The second step was to decide on the sampling of physicians within these time periods. As stated in the hypotheses, the focus of this study is on the changing characteristics of physicians who enter Kaiser rather than on the changing characteristics of the whole Kaiser staff. Therefore, physicians will be sampled according to the year in which they assumed active-staff status in Kaiser, such that three samples will result: physicians who entered Kaiser during the first, second, and third time periods.

The table setup can now be briefly summarized. The independent variable, the status of Kaiser, is broken down into low, medium, and high status periods. The dependent variable may involve any one of a variety of characteristics of physicians indicative of either their status or the intrinsic rewards associated with their past positions.

Physicians are sorted on both independent and dependent variables, e.g., on the status of Kaiser in the year that the physicians entered Kaiser, and on their achieved status.

### III. INDICATORS

As stated above, the problem of this thesis is to account for variations over time in the kinds of physicians recruited into Kaiser. The analysis of this problem focuses both on the status of Kaiser and on the status of physicians who enter Kaiser, i.e., the proportions of physicians with high and low status and the proportions coming from positions with intrinsic rewards similar to and different from those of Kaiser. Thus, the variables for which indicators are needed are the status of Kaiser, the status of physicians, and social positions offering intrinsic rewards similar to those of Kaiser.

#### Status of Physicians

Indicators for the status or rank of physicians include indicators for both their achieved and ascribed statuses. Two ascribed statuses of physicians are nationality and length of practice. Within the context of the present study, the country in which a physician's medical school is located serves as an indicator of his nationality (i.e., nation of birth), since the former variable appeared to be almost perfectly correlated with the

latter. Information on location of medical school and length of practice is reported in the Kaiser personnel records.

One kind of achieved status is prestige. The present study includes three indicators for a physician's prestige: the prestige of his medical school, the prestige of his hospitals of internship and residency, and the prestige of his references.

The theory behind the first two indicators is clearly stated by Wheeler:

Clearly, an important tie [between an organization and a recruit's later career] is the status of the organization in the eyes of the community. . . . Thus, wherever the individual's reputation is at stake, his past membership identities become critical reference points, quite apart from his specific accomplishments or misdeeds while in the organization.<sup>1</sup>

This suggests that measures for the prestige of physicians' medical schools and hospitals of internship and residency can serve as indicators for physicians' prestige.

Two different methods are used in the present study to secure the necessary rankings of medical schools and hospitals. A group of informants was selected to rank medical schools. In theory, this ranking should serve as an indicator for the reputation or prestige of various medical schools within the medical profession.

<sup>1</sup>Stanton Wheeler, "The Structure of Formally Organized Socialization Settings," Socialization After Childhood: Two Essays, Orville G. Brim, Jr. and Stanton Wheeler (New York: John Wiley & Sons, Inc., 1966), p. 96.

Following Ford, the ranking of hospitals of internship and residency is based on the official AMA rating of such hospitals.<sup>2</sup> Accordingly, a high-status hospital is a major teaching hospital, i.e., a major unit in the teaching program of an affiliated school. A middle-status hospital is a minor teaching hospital, which is affiliated with a medical school but which is used only to a limited extent in the school's teaching program.<sup>3</sup> All other hospitals, i.e., non-teaching hospitals, are called low-status hospitals. The data on this rating were secured from the AMA's Directory of Approved Internships and Residencies, and the data on physicians' hospitals of internship and residency and medical schools came from the personnel records of Kaiser.

The third indicator for a physician's status is the prestige of his references. It is based on the assumption that like past organizational affiliations, references serve as symbols for an individual's prestige in situations where more intimate knowledge of the individual's past is unavailable. In other words, the prestige of an individual's reference is used as an indicator for the individual's

<sup>2</sup>Amasa B. Ford et al. The Doctor's Perspective: Physicians View their Patients and Practice (Cleveland: The Press of Case Western Reserve University, 1967), pp. 116-118.

<sup>3</sup>American Medical Association, Directory of Approved Internships and Residencies 1967-68 (Chicago: American Medical Association, 1967), p. 77.

prestige. Accordingly, in the present study the prestige of a physician's references is used as an indicator for his status.

The prestige of a reference was inferred from the prestige of the organization with which he was affiliated during the time he knew the physician whom he recommended. Accordingly, high-status references have affiliations with medical schools or with major teaching hospitals. Middle-status references are affiliated with minor teaching hospitals. All other references are designated low-status references. The sources of data relevant to this indicator were the personnel records of Kaiser and the Directory of Approved Internships and Residencies.

#### Positions Offering Intrinsic Rewards Similar to Kaiser's

Within the context of the present study, direct indicators were lacking for the intrinsic rewards of Kaiser as well as for the similarity of the intrinsic rewards associated with Kaiser and other positions. Therefore, the indicators for physicians' past social positions having intrinsic rewards similar to those of Kaiser are indirect rather than direct.

Data on the intrinsic rewards of prepaid group practice were found in printed statements made by physicians about prepaid group practice. Examples of such intrinsic rewards are the following: the opportunity to practice

more scientifically and the opportunity to further one's education.<sup>4</sup> These printed statements were used because they involved the perceptions and values of physicians concerning prepaid group practice. As such, they should indicate the intrinsic rewards of Kaiser as perceived by potential Kaiser recruits, given the following assumption: lacking experience with the actual rewards of Kaiser, these recruits would be likely to evaluate Kaiser in terms of pro and con statements made by other physicians about prepaid group practice.

Other kinds of intrinsic rewards were identified which, although they may not be recognized as such by physicians, may predispose physicians to enter Kaiser. It was assumed that various aspects of the situation of the Kaiser recruit or staff member are intrinsically rewarding. Examples of such intrinsic rewards are the opportunity for more convenient access to facilities,<sup>5</sup> the opportunity for

<sup>4</sup>G. W. Hunter, M.D., "Joining," The Physician and Group Practice, ed. Edwin P. Jordan, M.D. (Chicago: The Year Book Publishers, Inc., 1958), pp. 41-42.

<sup>5</sup>Ryack also recognizes the advantage of convenient access to facilities in the situation of the prepaid group practitioner:

There are a number of potential advantages to group practice: the pooling of the skills of a number of specialists to serve the special needs of the patient; salutary effects of the doctor being subject to observation by his peers; easy access to the services of specialists at little or no additional costs; lower costs through pooling of capital investment; stabilized income for the doctor as he shares in the total receipts of the group; fuller

a change, and the opportunity to live in the West.

Positions or sets of positions characterized by intrinsic rewards similar to those of Kaiser were identified in the same manner as the above-mentioned rewards of Kaiser. In light of certain aspects of the structure or situation of these positions, it was assumed that they offer rewards similar to Kaiser's. For example, the position of postgraduate student, like that of the Kaiser physician, provides the intrinsic reward of the opportunity for more education. Other examples are listed below (For more detail on these indicators, see Tables XVII-XXVI):

<u>Intrinsic Rewards of Kaiser</u>	<u>Positions Offering Similar Rewards</u>
Opportunity for more education	Postgraduate student Career involving extensive training
Opportunity to provide more scientific care	Specialty or scientific society memberships Previous position emphasizing scientific rather than clinical aspects of care
Opportunity for more convenient access to facilities	Career in bureaucratic context
Opportunity to live in the West	Medical school student in the West
Opportunity for a change	Career of changes in specialties Career of changes in location of practice Career of changes in activities

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use of ancillary personnel and equipment.  
 Elton Rayack, Professional Power and American Medicine: The Economics of the American Medical Association (Cleveland: The World Publishing Company, 1967), p. 150.

### Status of Kaiser

Assumptions behind the Indicators. In the present study there are two indicators for the status of Kaiser. One is the ratio of unaccepted applicants to staff position openings in Kaiser. Another is a comparison of the rates of increase over time in the starting salaries of Kaiser specialists to the rates of increase in the incomes of self-employed physicians under sixty-five in the United States.

The first indicator is based on the following assumptions: 1) As the status of a collectivity increases, the demand for its job openings will likewise increase. 2) The demand for these openings is reflected in the ratio of job applications from individuals who take jobs elsewhere to job openings. 3) In turn, this ratio is reflected in the ratio of discontinued job inquiries to job openings. Since the Kaiser records on discontinued job inquiries were available, it was feasible to use the ratio of unaccepted applicants to staff position openings as an indicator for the status of Kaiser.

The second indicator is based on Blau's theory of mobility and recruitment. According to Blau, changes in the status of a collectivity involve changes in the amount of resources which are used to reward both new and old

members.<sup>6</sup> Starting salaries, which reflect the amount of resources allocated to rewarding new members, can then serve as an indicator for the status of a collectivity. Therefore, in the present study the rate of increase (or decrease) in the starting salaries of Kaiser physicians is used as an indicator for the status of Kaiser.<sup>7</sup>

Since status refers to a position in a ranking system, the status of any given collectivity is relative to the status of private practice as well as to the status of other segments of the medical profession. Therefore, indicators for status, such as the rate of increase in starting salaries and the ratio of unaccepted applicants to staff position openings, should be expressed in relative rather than absolute terms.

However, data on the demand for the position of private practitioner, which might have been used to standardize the data on the demand for positions in Kaiser, were not available, although data on the income of private practitioners were.<sup>8</sup> Therefore, the present study includes one

<sup>6</sup>Supra, pp. 16-17.

<sup>7</sup>Data on the starting salaries of Kaiser physicians were secured from the Financial Division of Kaiser and from the records of personnel advertisements.

<sup>8</sup>The following sources of data on the incomes of private practitioners were used in the present study: Physicians' Earnings and Expenses: A Reprint of Articles Based on "Medical Economics" Continuing Survey, 1960 (Oradell, N. J.: Medical Economics, Inc., 1960); "Results of Medical Economics' First Annual Checkup of Physicians' Economic

absolute and one relative indicator for the status of Kaiser.

In standardizing the data on the starting salaries of Kaiser specialists with respect to comparable data on private practitioners, it would have been desirable to have data on the beginning incomes of specialists in private practice. However, due to the lack of such data, it was necessary to use data on all private practitioners under sixty-five and to assume that within the context of the present study the latter data would be representative of the former data.<sup>9</sup> Accordingly, the second indicator for the status of Kaiser involved a longitudinal comparison of the starting salaries of Kaiser specialists to the incomes of all self-employed physicians under sixty-five.

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Health," Medical Economics, November 2, 1964, pp. 61-107; and Elton Rayack, Professional Power and American Medicine. It should be noted that Rayack had access to unpublished data from the Quadrennial and Continuing Surveys conducted by the journal Medical Economics. The data reported in Physicians' Earnings and Expenses and "Physicians' Economic Health" also come from these surveys.

<sup>9</sup>Actually, the data on all private practitioners may be of just as great utility as that on beginning self-employed specialists. Although the absolute size of the incomes of these two groups of physicians is undoubtedly different (see Table XXVIII, Appendix B), the rates of increase in their incomes may be the same.

Data relevant to this problem show that the rates of increase in the income of specialists as compared to that of all physicians were not identical during two different periods, 1951 to 1959 and 1962 to 1963. During the earlier period specialists' incomes increased less rapidly than those of all physicians (at rates of 5.6 per cent and 8.5 per cent per year, respectively. In contrast, during the later period specialists' incomes increased more rapidly than the incomes of all physicians (at rates of 5.5 per cent and 3.1 per cent, respectively). Nevertheless, the

The method used to make this comparison was first to express the income data in terms of percentage increases. They were then interpreted as follows: If the rate of increase in the starting salary of the Kaiser specialist exceeded the rate of increase in the income of the private practitioner, then it was inferred that the status of Kaiser had increased. Conversely, if the rate of increase in the private practitioner's income exceeded the rate of increase in the Kaiser salary, then it was inferred that the status of Kaiser had decreased.<sup>10</sup>

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possibility remains that the difference between the rates of increase in the incomes of beginning physicians and all physicians might offset the differences between specialists and all physicians. Unfortunately, we have no available data relevant to this possibility.

The source for the 1951-59 rates mentioned above is Physicians' Earnings and Expenses, pp. 9, 48. The 1962-63 rates are found in "Physicians' Economic Health," Medical Economics, November 2, 1964, p. 105.

<sup>10</sup>Another method could have been used to compare the data on starting salaries of Kaiser specialists to the data on incomes of private practitioners. The data could have been expressed as percentage differences. When the percentage difference between the Kaiser salary and the private practitioner's income decreased (given that when the first difference was computed, the Kaiser salary was lower than the private practitioner's income), it would have been inferred that the status of Kaiser had increased. Conversely, when the percentage difference increased, it would have been inferred that Kaiser's status had decreased.

The difference between this alternative and the one chosen can be quickly grasped when expressed in symbols. Let  $s_1, s_2, \dots, s_i$  represent the salary of the Kaiser specialist at successive points in time. Similarly, let  $i_1, i_2, \dots, i_i$  represent the income of the private practitioner at the same points in time. According to the method of comparison chosen for this study, the status of Kaiser is said to increase when

$$\frac{s_2 - s_1}{s_1} > \frac{i_2 - i_1}{i_1} ,$$

Given increases and decreases in the status of Kaiser over time, periods when the status of Kaiser was low, middle, and high were inferred on the following basis: The period when the gap between the rates of increase in the incomes of Kaiser physicians and private practitioners was the greatest was designated a period of either low or high status for Kaiser, depending on whether the rate of increase was higher for Kaiser physicians or for private practitioners. Kaiser was said to have middle status when the gap was the smallest.

Data on First Indicator for Kaiser's Status. The data for the first indicator of the status of Kaiser show that the status of Kaiser has increased over time. Table I gives the ratios of unaccepted applicants to staff position

given that both  $s$  and  $i$  have been steadily increasing over time. According to the alternative method, the status of Kaiser is said to increase when

$$\frac{i_1 - s_1}{s_1} > \frac{i_2 - s_2}{s_2} ,$$

given that  $i_1$  is greater than  $s_1$ .

The second method of comparison was not chosen because it involves the assumption that an increment of, for example, \$1000 in the income of a private practitioner is equal to a \$1000 raise in the salary of a Kaiser specialist. It would have been inappropriate to make such an assumption within the context of the present study because Kaiser physicians receive bonuses and other fringe benefits. Thus, Kaiser salary data do not reflect the absolute size of the income of the Kaiser specialist. As a result, the absolute size of an increment in his salary is not directly comparable to an equal increment in the income of a private practitioner.

For more details on the problems involved in comparing the incomes of salaried and self-employed physicians, see Faltermayer, p. 83 and Physicians' Earnings and Expenses, pp. 52-55.

TABLE I

RATIO OF UNACCEPTED KAISER APPLICANTS TO STAFF OPENINGS, 1943-68.

	Y e a r							
	Before <u>1962</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>
Ratio of Unaccepted Applicants to <u>Staff Openings<sup>a</sup></u>	0	9	14	9	17	34	20	35

<sup>a</sup>The few job inquiries from physicians whose specialties are not represented in Kaiser are not included in these data.

Source: The data on which this table is based are found in Appendix A. The source of these data is Kaiser's records of personnel advertisements (1962-68) and discontinued job inquiries (1959-68).

openings for the period 1943-68. In spite of some inconsistencies, the general trend is toward more applicants who do not accept positions in Kaiser. (Perhaps they take jobs elsewhere or perhaps Kaiser does not want to hire them.)

According to the table, it appears that prior to 1962, Kaiser had no job applicants who did not accept positions in Kaiser and also no advertised staff openings, thus giving the ratio of zero found in the table. However, this statement must be qualified for the following reason. Between 1959 and 1962 Kaiser did receive a few discontinued job inquiries although it did not place any advertisements regarding staff openings in the journals. Strictly speaking, the ratio for this period is infinity rather than zero (since the denominator is zero).

Considering the data on which this ratio is based, one realizes that the ratio lacks meaning as an indicator for the status of Kaiser. However, on the assumption that the data from 1959 to 1962 can be interpreted in the same way as the data prior to 1959, then the ratio based on the data prior to 1959 is a meaningful indicator for the status of Kaiser during the whole period prior to 1962.

The ratio of unaccepted job applicants to job openings before 1959 is zero. On the basis of conversations with Kaiser personnel responsible for record-keeping, it seems safe to assume that before 1959 job inquiries were received only from those physicians who later accepted

positions in Kaiser, whereas none were received from physicians who eventually accepted jobs elsewhere. On the same basis, it can be assumed that no personnel advertisements were made prior to 1962. Thus, we can conclude that prior to 1959 there were no applicants for staff positions other than those who eventually became active staff and also no staff position openings. The ratio of unaccepted job applicants to job openings before 1959 is then zero. Therefore, although the ratio of discontinued job inquiries to job openings for 1959-62 is actually infinity, it seems appropriate to express the ratio covering all the years prior to 1962 as zero.

Having found that the ratios of unaccepted applicants to staff openings have been increasing over time, we have concluded that the status of Kaiser has also been increasing. However, there are two other possible interpretations of these data which must be discussed.

According to the first interpretation, one could argue that the trend in job inquiries reflects changes in Kaiser's methods of recruitment. It appears likely that in the past Kaiser may have exchanged letters only with physicians who were known to be seriously interested in a position in Kaiser and to whom Kaiser was willing to offer jobs. Furthermore, in the past interested physicians were probably discovered differently. They may have been friends or acquaintances of Kaiser physicians or friends of friends,

etc. This would provide an opportunity for an initial informal expression of interest in recruitment and employment. Written communication may have begun later and served only to formalize informally made decisions.

However, in 1962 Kaiser began to place personnel advertisements in the medical journals. Physicians unfamiliar with Kaiser or its staff were thus given the opportunity to write and find out job details. This change in recruitment methods would then explain why Kaiser began to receive job inquiries only recently.

Although this interpretation of the data on job inquiries seems plausible, it is not supported by the data. It cannot account for the inquiries received between 1959 and 1962 before any ads were run in the journals.

A second possible interpretation of the data on job inquiries is that in the profession as a whole, increasing numbers of physicians have been taking salaried positions.<sup>11</sup> Accordingly, the more frequent job inquiries into positions in Kaiser reflect the widespread growing demand for positions not only in prepaid group health plans but also in government, industry, public health, etc.

Unfortunately, we lack data relevant to this interpretation and therefore cannot reject it. As a result, the data on job inquiries do not provide an unambiguous indicator for

<sup>11</sup>Rayack, p. 46.

the increasing status of Kaiser. A comparison of the salary of the Kaiser physician to the income of the private practitioner will. At the very least, such a comparison should make it possible to decide whether or not to reject the interpretation which stresses changes in the medical profession as a whole.

Data on Second Indicator for Kaiser's Status. The second indicator for the status of Kaiser is a comparison of the rate of increase in the starting salaries of Kaiser specialists to the rate of increase in the incomes of self-employed physicians under sixty-five. As stated earlier, it involves a comparison of the incomes of Kaiser physicians to those of private practitioners in order to assure that the indicator reflects the relative status of Kaiser. However, comparable data on beginning specialists in private practice could not be secured. Thus, a potential source of error was introduced into this indicator.

Additional sources of error were introduced by various difficulties encountered in the Kaiser starting salary data. The first shortcoming of these data is that it is not clear whether they are mean or median data, or neither. According to various Kaiser officials, the salaries of physicians in Kaiser vary only by specialty and by American Specialty Board Certification. The salary data provided by the Financial Division are consistent with this point of view. However, during the data-gathering stage of research, a variety

of evidence was revealed indicating that the salaries of Kaiser physicians also vary according to other factors, e.g., a physician's prior experience practicing. Therefore, it is necessary to question the representativeness of these data.

Fortunately, it was possible to cross-check the official data with data from another source, the records of personnel advertisements placed in medical journals. Although the data from the ads cover only the period from 1962 to 1969, a number of comparisons are possible. (See Appendix B, Part II for more details.) There appears to be a close correspondence between the two sets of data in the case of four specialties--internal medicine, pediatrics, radiology, and orthopedic surgery. In the case of obstetrics-gynecology, the official data give lower rates than the data from the ads, whereas in the case of general surgery, the opposite is true. Data for four other specialties were too scant for comparison.

The high degree of correspondence between these two sets of data facilitates their interpretation. It seems reasonable to assume that the data in the ads approximate the median salaries of the various Kaiser specialists: most physicians in a given specialty are probably hired at the advertised rate for that specialty, although some may be given more and others less. It also seems reasonable to equate the official data with that in the ads because of the high degree of agreement found between them. Therefore, we can interpret the more comprehensive official data as representing

the median salaries of the various Kaiser specialists.

The second shortcoming of the starting salary data on Kaiser physicians is that its completeness varies between specialties. Data for specialties which were not represented at Kaiser until recently, such as urology, psychiatry, and otolaryngology, do not begin until the 1960's. In contrast, data on pediatrics as well as three other specialties begin in the late 1940's.

Although this difficulty might have been dealt with by estimating the size of the missing salaries, this procedure was not followed since the ratios between the salaries of different specialties and between the salaries of different years fluctuated too wildly over time. As a result, it was not possible to compute the average starting salary of the Kaiser physician over time from the data on the starting salaries of the various Kaiser specialists.

In place of data on the average starting salary of the Kaiser physician, fairly comprehensive data on the starting salaries of one group of specialists were used. The specialists in this group have identical salary schedules. They include internists, surgeons, obstetrician-gynecologists, and pediatricians (IM-GS-OBG-PD), and they receive the lowest salaries of all Kaiser physicians.

This procedure of using data on the salaries of one group of Kaiser specialists rather than data on the salaries of all specialists may seem highly unsatisfactory. However,

taking into consideration the distribution of Kaiser physicians by specialty, one sees that it may be workable (Table II). Since seventy-one per cent of the physicians at Kaiser in 1969 and an even higher percentage in earlier years were either internists, surgeons, obstetrician-gynecologists, or pediatricians, the data on their salaries are representative of the salaries of most Kaiser physicians. In fact, if we had data on the median starting salary of the Kaiser physician, it would probably be the salary of a physician coming from this group of specialists.

Therefore, in spite of the shortcomings in the salary data which were just outlined, the data on the starting salaries of the IM-GS-OBG-PD group of Kaiser specialists will be interpreted to be representative of the median starting salary of the Kaiser physician. However, the possibility must be noted that this assumption may lead to errors in the use of the salary data as an indicator for changes in the status of Kaiser.

Table III compares the rates of increase in income per year for self-employed physicians under sixty-five and for the IM-GS-IBG-PD group of Kaiser specialists (those most representative of all Kaiser physicians). Around the beginning of the 1950's, we find that the incomes of private practitioners were rising much more rapidly than the salaries of Kaiser physicians. Over the next ten years Kaiser physicians began to catch up with the private practitioners

TABLE II  
DISTRIBUTION OF KAISER PHYSICIANS BY SPECIALTY, 1969  
(Per cent)

	<u>IM, GS</u> <u>ORG, PD<sup>a</sup></u>	<u>R,</u> <u>ORS<sup>b</sup></u>	<u>OTO,</u> <u>OPH<sup>c</sup></u>	<u>A, NS,</u> <u>U, GP<sup>d</sup></u>	<u>TOTAL</u>
<u>Kaiser</u> <u>Physicians</u>	71%	7%	6%	16%	100%

N = 96

<sup>a</sup>Internal medicine, general surgery, obstetrics-gynecology, pediatrics.

<sup>b</sup>Radiology, orthopedic surgery.

<sup>c</sup>Otolaryngology, ophthalmology.

<sup>d</sup>Anesthesiology, neurological surgery, urology, general practice.

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but then slipped behind again. However, we find that by the 1960's the rate of increase in Kaiser salaries exceeds the rate of increase in private practitioners' incomes. In other words, it appears that over the twenty-year period from 1945 to 1965, Kaiser occupied a low, then middle, and finally high status position.<sup>12</sup>

<sup>12</sup>Since data on the beginning incomes of self-employed specialists were not used in this study, our conclusion that the status of Kaiser has increased remains tentative. Nevertheless, consider how our conclusions would be modified if we were using data on self-employed specialists instead of data on all self-employed physicians. Whereas from 1951 to 1959 the incomes of specialists in private practice increased at the rate of 5.6 per cent per year (see n. 9), from 1949 to 1959 the starting salaries of Kaiser specialists increased at a rate of only 3.0 per cent per year. Similarly, from

TABLE III

LONGITUDINAL COMPARISON OF RATES OF INCREASE PER YEAR IN INCOMES OF  
ONE GROUP OF KAISER SPECIALISTS (IM-GS-OBG-PD) AND OF  
SELF-EMPLOYED PHYSICIANS UNDER 65<sup>a</sup>

(Per cent)

<u>Period</u>	<u>Rate of Increase per Year in Salaries of Kaiser Specialists</u>	<u>Period</u>	<u>Rate of Increase per Year in Incomes of Self- Employed Physicians</u>
1948-53	5.7%	1947-51	12.8%
1953-56	3.7	1951-55	5.5
1956-59	3.3	1955-59	9.5
1959-62	7.7	1959-62	3.3
1962-65	10.3	1962-64	8.5

<sup>a</sup>The data on which this table is based are found in Table XXXI, Appendix B.

Having determined the direction of change in the status of Kaiser over the years, we must now decide which years mark the boundaries between Kaiser's low, middle, and high status periods. Although the data on the relative rate of increase in Kaiser salaries seemed sufficiently accurate for the purpose of determining whether or not the status of Kaiser had increased in the long run, it does not follow that they would aid in determining exactly when shifts in the general trend occurred. Therefore, the timing of these shifts will be determined not only on the basis of the data on relative increases presented above but also on the basis of the data showing absolute increases in the starting salaries of Kaiser specialists over time (Figure 1).

Figure 1 is a graph of the starting salaries of three groups of Kaiser specialists, the IM-GS-OBG-PD group, a group which includes radiologists and orthopedic surgeons (R-ORS), and the otolaryngologists (OTO). It includes all specialties for which there are enough data to reveal

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1962 to 1963 the incomes of the former increased 5.5 per cent per year, while between 1961 and 1963 the salaries of the latter increased 4.0 per cent per year.

The conclusion that the status of Kaiser has increased is still supported though less dramatically so: although the rate of increase in Kaiser salaries never exceeds that of the incomes of self-employed specialists, Kaiser appears to be slowly closing the gap between its salaries and those of specialists in private practice. Unfortunately, we cannot make similar comparisons between the incomes of beginning physicians in private practice and in Kaiser. Thus, there is no way to determine the direction of any error which may reside in our findings as a result of this lack of data on the incomes of beginning physicians.

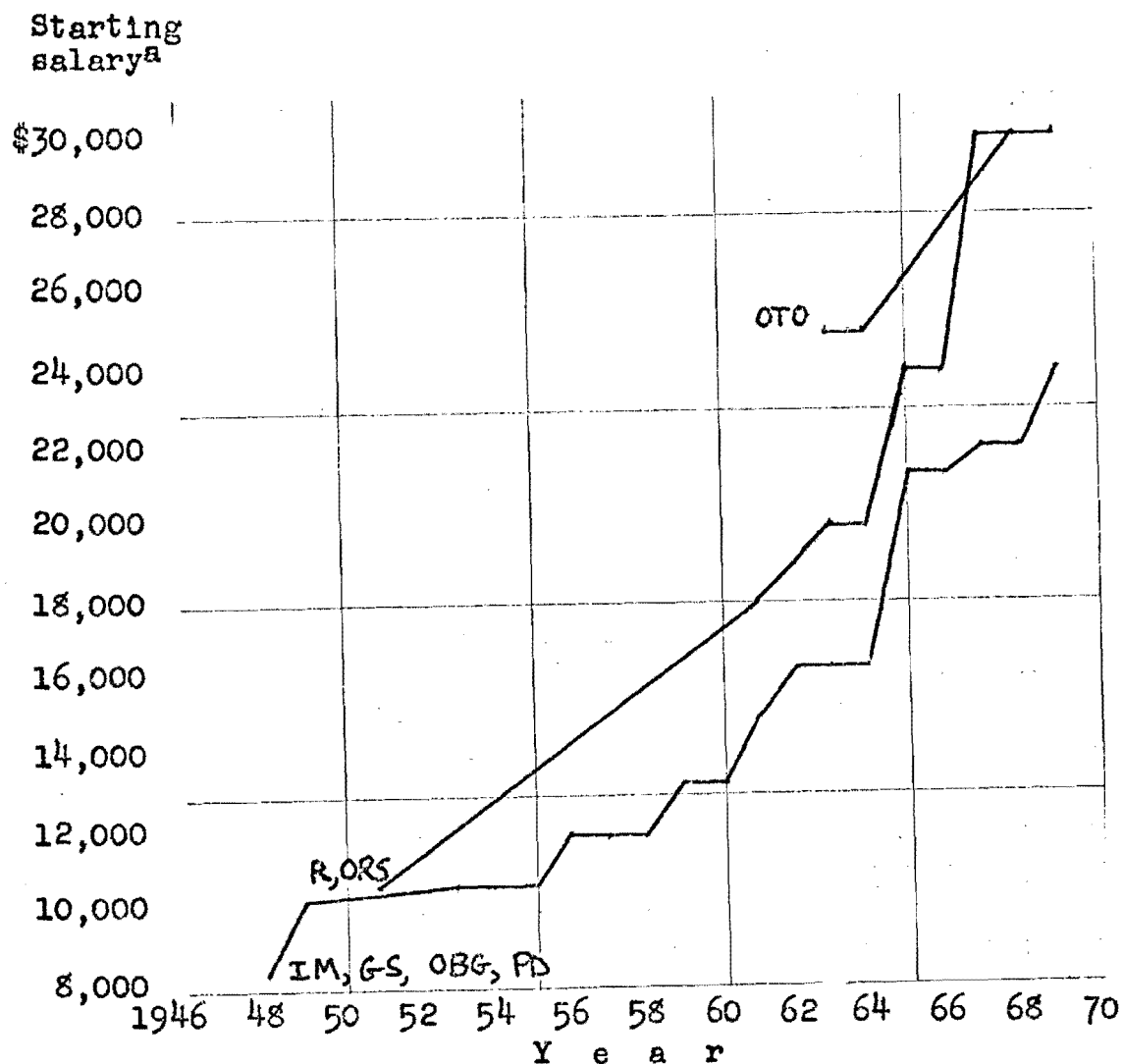


Figure 1. Graph of starting salaries of three groups of Kaiser specialists over time.

<sup>a</sup>These starting salaries are reported at the board-certified level; subtract \$1,200 for nonboard level.

Source: Data on the IM-GS-OBG-PD and OTO groups of Kaiser specialists come from an official starting salary schedule. The salaries of the R-ORS group represent a combination of data from the official starting salary schedule and from records of personnel advertisements (For details, see Appendix B, Part II).

changing trends. One major shift in the trend toward higher salaries is revealed here. It occurs between 1963 and 1964 and marks the beginning of a period of sharply increasing salaries. Similarly, the data on the relative rates of increase in these salaries show one marked change in the trend toward higher salaries (Table III). However, it seems to occur between 1959 and 1960, rather than between 1963 and 1964. In both sets of data a minor shift appears to occur between 1953 and 1954.

By relying more heavily on the absolute salary data than on the relative salary data, the following breakdown for the status of Kaiser was defined: The period when the status of Kaiser was low runs from 1943 through 1953 and thus includes a number of years (1943-47) for which no salary data were available. It is assumed that the variations in salaries during these early years are consistent with the data available in the later years of this time period. The second period, when Kaiser occupied a middle status position, covers the years from 1954 through 1963. Finally, the period of Kaiser's high status runs from 1964 through 1969.

Although this breakdown may not be the only one which can be derived from the salary data, Table IV indicates that it is a valid one. This table presents a rough comparison of the rate of increase in income per year of Kaiser specialists and all private practitioners for the three time periods defined above. The data reveal that during the

TABLE IV

COMPARISON OF RATES OF INCREASE PER YEAR IN INCOMES OF ONE GROUP  
OF KAISER SPECIALISTS (IM-GS-OBG-PD) AND OF SELF-EMPLOYED  
PHYSICIANS UNDER 65 DURING SELECTED PERIODS OF TIME<sup>a</sup>

(Per cent)

<u>Period</u>	<u>Rate of Increase per Year in Salaries of Kaiser Specialists</u>	<u>Period</u>	<u>Rate of Increase per Year in Incomes of Self- Employed Physicians</u>
1948-53	5.7%	1947-51	12.8%
1953-62	5.6	1951-62	7.2
1962-65	10.3	1962-64	8.5

<sup>a</sup>The data on which this table is based are found in Table XXXI, Appendix B.

first period Kaiser salaries were increasing at a much slower rate than the incomes of private practitioners. In the second period the gap between the rates decreased markedly. Finally, in the third period Kaiser salaries were increasing more rapidly than the incomes of private practitioners. We conclude that the status of Kaiser has increased from low to high during the following three periods: 1943-53, 1954-63, and 1964-69.

We have now examined all the data on the second indicator for the status of Kaiser. As in the case of the first indicator, we found that the status of Kaiser has increased over time. However, although earlier we were unable to reject the alternative interpretation that the data merely reflected trends in the medical profession as a whole, we can now do so on the basis of the data on the relative rates of increase in Kaiser salaries.

### CHAPTER III

#### FINDINGS: STATUS OF DOCTORS ENTERING KAISER

This chapter contains the findings for the first hypothesis of this study. Since the data, which include a variety of indicators and controls, in most cases do not support the hypothesis, the hypothesis must be rejected. However, because of weaknesses in the data and design of this study, all conclusions are tentative.

The first hypothesis of this study states that:

As the status (rank) of Kaiser increases, the status (rank) of physicians entering Kaiser will increase.

It was further refined by distinguishing between two components of the dependent variable, the achieved and ascribed aspects of status, and restated as follows:

As the status of Kaiser increases, a) the achieved status of physicians entering Kaiser will increase and b) the ascribed status of these physicians will increase.

The discussion of this chapter will begin with the findings which relate to the achieved status of physicians entering Kaiser. Later we will discuss the findings relating to their ascribed status.

# I. DATA ON HYPOTHESIS ONE WHEN ACHIEVED STATUS IS THE DEPENDENT VARIABLE

Three different indicators for physicians' achieved status were used: prestige of medical school, prestige of references, and prestige of hospitals of internship and residency. We will start with the data involving the first indicator. These findings are of particular importance inasmuch as data for the whole universe of Kaiser physicians were available only for this indicator of achieved status but not for the other two.

## First Indicator for Achieved Status

Findings. Contrary to our hypothesized expectations, the data (Table V) show that as the status of Kaiser has increased, the percentage of high status physicians entering Kaiser has decreased and the percentage of low status physicians has increased. In other words, as the status of Kaiser increased, the status of physicians entering Kaiser decreased. Although a direct relationship was hypothesized between these two variables, the findings show that they are inversely related to some degree. Gamma, a measure of the strength of association between two variables, is  $-0.163$ , which indicates that there is a relatively weak negative association between the status of Kaiser and the status of physicians who have entered Kaiser over time.

Extraneous Uncontrolled Variables. Interpretation of these findings is not clear-cut. They appear to be

TABLE V

PRESTIGE OF PHYSICIANS' MEDICAL SCHOOL BY TIME OF ENTRY INTO KAISER

(Per cent)

Period and Status of Kaiser

<u>Medical School</u>	<u>1943-53</u> <u>(Low Status)</u>	<u>1954-63</u> <u>(Middle Status)</u>	<u>1964-69</u> <u>(High Status)</u>
Low	39%	46%	52%
High	61	54	48
	<hr/>	<hr/>	<hr/>
Total	100	100	100
Number	28	41	79

 $\gamma = -0.163$

contrary to theory. However, this conclusion can be stated only tentatively since the design of this study includes neither a control group of private practitioners nor a control on changes in the composition of the medical profession as a whole. Thus, it is possible that the finding of a decrease in the status of Kaiser physicians might be the effect of changes in the composition of the medical profession as a whole.

For instance, over the past twenty-five years the percentage of physicians graduating from low prestige medical schools may have increased relative to the percentage coming from high prestige schools. In other words, the distribution of medical students among high and low status schools may have changed. If such a change has occurred, then it would be likely that prepaid group practitioners as well as private practitioners now more frequently come from low status schools than they did in the past.

Another kind of change in the composition of the medical profession might also have influenced the findings of this study. Rayack argues that relative to the demand for medical services, the size of the medical profession has been decreasing.<sup>1</sup> According to him, the resulting shortage of physicians has led, for instance, to increases in the

<sup>1</sup>Elton Rayack, Professional Power and American Medicine: The Economics of the American Medical Association (Cleveland: The World Publishing Company, 1967), pp. 107-121.

recruitment of interns, residents, and graduates of foreign medical schools by hospitals. This shortage could conceivably lead as well to changes in the distribution of high and low status graduates among the various sectors of the medical profession. For example, perhaps the percentage of physicians from low status medical schools entering both private and prepaid group practice has increased relative to the percentage going into research or teaching.

However, if we could eliminate the effect of this variable (the composition of the medical profession) from our findings, we might find that the status of physicians entering Kaiser has increased. Suppose we could eliminate the effect of changes in the distribution of medical students among high and low status schools. We then might find that the ratio of low status graduates entering Kaiser to the total number of low status graduates had decreased over time. We would conclude that the status of Kaiser recruits had increased over time.

Similarly, suppose we could eliminate the effect of changes in the distribution of high and low status graduates among various sectors of the medical profession. We might find that the proportion of low status graduates among all physicians entering Kaiser had increased less rapidly than the proportion of low status graduates among all physicians entering private specialty practice. Again we would conclude that the status of Kaiser recruits had increased over time.

In addition to the composition of the medical profession, there is one other extraneous uncontrolled variable which may have an effect on the findings of this study, namely, changes in the recruitment policy of Kaiser. A number of such changes appear to have occurred over the years: 1) an increase in the range of specialties represented by Kaiser physicians, 2) expansion of existing specialty groups, 3) variations in the size of the preceptorship (residency) program, and 4) the first employment of general practitioners (GP's) in the emergency room of Bess Kaiser Hospital in 1969.

Each of these changes could conceivably have contributed to the increasing percentage of low status physicians entering Kaiser.<sup>2</sup> In fact, the last change appears to have had such an effect: five of the seven GP's (seventy-one per cent) graduated from low prestige medical schools, whereas less than forty-eight per cent of the specialists entering Kaiser from 1964 to 1969 graduated from such schools. In other words, the proportion of low status GP's entering Kaiser is much higher than the proportion of low status

<sup>2</sup>For instance, the increase in the range of specialty services could have led to an increase in recruitment from Kaiser's courtesy and consulting staffs. The physicians who had formerly provided specialty care for Kaiser patients on a part-time basis would have been given full-time, active staff positions. As a result, the percentage of physicians entering Kaiser who were already a part of the Portland medical community would probably have increased. This could conceivably have led to an increase in the recruitment of physicians from the University of Oregon, a low prestige school.

specialists.

Furthermore, four of the seven GP's graduated from the University of Oregon Medical School, a school with low prestige. This figure becomes more significant when we realize that all except one of the GP's (the exception was a former preceptee at Kaiser) had some connection with the University of Oregon as a medical student, intern, or resident. To the extent that the University serves as the main source of GP recruitment, it is likely that the status of GP's recruited will be affected. To the extent that taking the emergency room position is compatible with concurrent medical training, the near-by University of Oregon Medical School is likely to continue to be a source for at least some of the recruits for the position of emergency room GP.

As the discussion of GP recruitment shows, changes in recruitment policy may lead to changes in the status of physicians entering Kaiser. If we could control this factor, we might find that the hypothesized relation between the status of Kaiser and the status of its recruits would emerge. For instance, if we made a longitudinal comparison of the status only of those recruits from specialties which have been represented at Kaiser since 1943, we might find that the status of these physicians had increased over time. Unfortunately, without a more comprehensive indicator for changes in recruitment policy, there is no way to place a control on this variable.

Since we have no controls for these two seemingly important extraneous variables, this study can provide only a tentative interpretation of the finding that as the status of Kaiser has increased, the status of physicians entering Kaiser has decreased. However, other important extraneous variables can be controlled.

Controls. Four controls were placed on hypothesis one. Following a brief introduction of these controls and our expectations concerning them, the relevant data will be presented.

The first control was in-state/out-of-state location of medical school. Since there is only one AMA-approved medical school in Oregon, in-state schools refer exclusively to the University of Oregon Medical School in Portland. Out-of-state schools refer to all other schools of Kaiser recruits. This control, unlike the others, was not introduced on theoretical grounds; it was not part of the original research design. Rather, it was introduced later during the analysis of the data on the hunch that it might be inter-related with the status of physicians entering Kaiser.

The second and third controls introduced into the relationship between the status of Kaiser and the achieved status of its recruits were nationality and length of previous practice, two types of ascribed status. The indicator for nationality was the foreign versus domestic location of physicians' medical schools. A U. S. school indicates high

ascribed status, and a foreign school indicates low ascribed status. Similarly, in the case of length of previous practice, one or more years' experience in practice is presumed to indicate a higher ascribed status than no experience in practice.

Achievement and ascription represent two criteria according to which the extrinsic rewards defining an individual's status, or rank, are distributed. In other words, status, or rank, is made up of two interdependent factors, achieved and ascribed status. Since achieved and ascribed status are interdependent, controls on ascribed status were introduced into the relationship between the status of Kaiser and the achieved status of its recruits.

Active/inactive staff status was the fourth and final control placed on hypothesis one. Active/inactive staff status, i.e., whether a physician remains in Kaiser or leaves to go elsewhere, represents the same kind of mobility factor as a physician's entrance into Kaiser. Accordingly, one would expect them to be interdependent in some way. Furthermore, as suggested earlier,<sup>3</sup> one would expect that the introduction of this control would refine the original relationship between the status of Kaiser and the status of its recruits by revealing its limiting conditions, such that the original hypothesis would hold true only among active or only among inactive staff.

<sup>3</sup>Supra, p. 26.

The introduction of the first control into the relationship between the status of Kaiser and the status of its recruits resulted in the findings presented in Tables VI and VII. These findings show that the original inverse relationship found between the status of Kaiser and the status of its recruits remains among both in-state and out-of-state graduates. Table VI reveals that among physicians from out-of-state medical schools, the original relationship remains although it is much weaker. It involves a shift of only four percentage points as compared to a shift of thirteen in the original correlation. From Table VII it is evident that recruitment from the low status University of Oregon has steadily increased over the years. In sum, we find that the percentage of low status physicians from both in-state and out-of-state medical schools has increased over time.

In order to clarify the nature of the interrelationship among the status of Kaiser, the status of its recruits, and the location of their medical schools, one can ask whether the control factor serves to refine, expand, or explain the original correlation. These alternative interrelationships which independent, dependent, and control variables may take are defined by Zeisel as follows:<sup>4</sup> Refinement involves the introduction of a third factor into a correlation such that

<sup>4</sup>Hans Zeisel, Say It With Figures (4th ed., rev.; New York: Harper & Row, Publishers, 1957).

TABLE VI

PRESTIGE OF MEDICAL SCHOOL BY TIME OF ENTRY INTO KAISER AMONG  
PHYSICIANS FROM OUT-OF-STATE MEDICAL SCHOOLS

(Per cent)

<u>Prestige of Medical School</u>	<u>Period and Status of Kaiser</u>		
	<u>1943-53 (Low Status)</u>	<u>1954-63 (Middle Status)</u>	<u>1964-69 (High Status)</u>
Low	37%	39%	41%
High	63	61	59
Total	100	100	100
Number	27	36	64

TABLE VII

PHYSICIANS FROM IN-STATE MEDICAL SCHOOLS BY TIME OF ENTRY INTO KAISER

	<u>Period and Status of Kaiser</u>		
	<u>1943-53 (Low Status)</u>	<u>1954-63 (Middle Status)</u>	<u>1964-69 (High Status)</u>
<u>Physicians from In-State Medical Schools</u>	1	5	15

the original relationship is changed under the new conditions of the third factor.<sup>5</sup> Expansion involves the introduction of third factors which "have an independent influence upon the factor considered as the 'effect' in the original correlation" but which do not modify the original relationship.<sup>6</sup> Explanation involves the introduction of third factors which are not only correlated with the effect in the original relation but "also related to the factor considered as causal in the original correlation."<sup>7</sup> In neither refinement nor expansion is the third factor related to the causal factor in the original relation.

Applying these distinctions to the data in Tables VI and VII, we find that introducing the control on location of medical school does not refine the original correlation: the original inverse relationship between the status of Kaiser and the status of its recruits remains among both out-of-state and in-state recruits.

Table VIII presents data on the relationship between the independent and control variables, the status of Kaiser and the location of recruits' medical schools. The two variables are only slightly correlated: a shift of only fifteen percentage points is involved. Since the correlation is so small, the third factor does not explain the original

<sup>5</sup>Ibid., pp. 189, 190.

<sup>6</sup>Ibid., p. 187.

<sup>7</sup>Ibid., pp. 190-191.

TABLE VIII

## LOCATION OF PHYSICIANS' MEDICAL SCHOOL BY TIME OF ENTRY INTO KAISER

(Per cent)

<u>Location of Medical School</u>	<u>Period and Status of Kaiser</u>		
	<u>1943-53 (Low Status)</u>	<u>1954-63 (Middle Status)</u>	<u>1964-69 (High Status)</u>
Out-of-state	96%	88%	81%
In-state	4	12	19
	<hr/>	<hr/>	<hr/>
Total	100	100	100
Number	28	41	79

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relationship.<sup>8</sup> Instead, medical school location expands the original hypothesis, exerting an independent influence on the dependent variable, the status of physicians entering Kaiser.

Although this control on location of a physician's medical school was not introduced on theoretical grounds, it proved to be important within the context of the present study. Should this variable then be incorporated into future hypotheses about the mobility of physicians into pre-paid group practice? Should it be used in tests of such hypotheses? It should not be, if its importance in the present study represents the exception rather than the rule. The medical school situation of Oregon is atypical, there being only one AMA-approved medical school, which has low status. Therefore, one would expect the significance of this control to be limited to the situation of the Kaiser Foundation Health Plan in Oregon.

Nationality, one type of ascribed status, was the second control introduced into the relationship between the

<sup>8</sup>Whether a control variable serves to expand or explain a relationship depends on the magnitude of the correlation between independent and control variables. The ideal case of explanation would be characterized by a perfect correlation between these variables; the ideal case of expansion would involve a zero correlation. Thus, the weak correlation found between the status of Kaiser and the in-state/out-of-state location of recruits' medical schools indicates that, strictly speaking, the control variable neither explains nor expands the original correlation. However, recognizing that the distinction between expansion and explanation is relative, one would describe the effect of this control variable as expansion rather than explanation.

status of Kaiser and the achieved status of physicians entering Kaiser. Table IX shows that among recruits from U. S. medical schools (i.e., recruits with high ascribed status), the original inverse relationship between the status of Kaiser and the achieved status of its recruits remains, although it is slightly weaker. In contrast, the relationship does not appear to hold among recruits from foreign schools (who have low ascribed status). The achieved status of the latter physicians seems first to increase and then to decrease.

However, because of the small number of cases of foreign graduates ( $N = 24$ ), the percentage figures may be misleading. If we disregard the figures for the first time period which are based on only two cases, then we find that the trend between the second and third periods is consistent with the original correlation: the achieved status of foreign physicians entering Kaiser has decreased.

Another way to look at the data on foreign graduates is to use the total number of foreign graduates as the percentage base rather than the total entering Kaiser in any given time period. This serves to eliminate the effects of variations in the total number of low and high achieved status recruits to enter Kaiser in any given time period. When this method of percentaging is used (Table X), we see that the percentage of foreign graduates with low achieved status entering Kaiser has increased more rapidly than the

TABLE IX  
PRESTIGE OF PHYSICIANS' MEDICAL SCHOOL BY TIME OF ENTRY  
INTO KAISER AND NATIONALITY

(Per cent)

<u>Prestige of Medical School</u>	<u>1943-53</u> <u>(Low Status)</u>		<u>1954-63</u> <u>(Middle Status)</u>		<u>1964-69</u> <u>(High Status)</u>	
	<u>Foreign</u>	<u>U.S.</u>	<u>Foreign</u>	<u>U.S.</u>	<u>Foreign</u>	<u>U.S.</u>
Low	100.0%	34.6%	50.0%	45.7%	75.0%	46.0%
High	0.0	65.4	50.0	54.3	25.0	54.0
Total	100	100	100	100	100	100
Number	2	26	6	35	16	63

TABLE X

PRESTIGE OF MEDICAL SCHOOL BY TIME OF ENTRY INTO KAISER  
AMONG PHYSICIANS OF FOREIGN BIRTH

(Per cent)

<u>Prestige of Medical School</u>	<u>Period and Status of Kaiser</u>		
	<u>1943-53 (Low Status)</u>	<u>1954-63 (Middle Status)</u>	<u>1964-69 (High Status)</u>
Low	4%	13%	52%
High	0	13	18

N = 23

percentage of foreign graduates with high achieved status.

If the small number of foreign graduates is taken into account, it seems reasonable to conclude that among foreign graduates, as among U. S. graduates (i.e., graduates with both high and low ascribed status), the achieved status of physicians entering Kaiser has decreased, while the status of Kaiser has increased. Thus, since the original correlation continues to hold among both U. S. and foreign medical school graduates, it is not refined by the introduction of this control on ascribed status.

Table XI shows that as the status of Kaiser increases, the percentage of physicians entering Kaiser from foreign medical schools increases, while the percentage from U. S. schools decreases. However, since these two variables are only slightly correlated, the control on nationality cannot be said to explain the original relationship between the status of Kaiser and the status of its recruits. Rather, this control on ascribed status appears to have an independent effect on the dependent variable, the achieved status of physicians entering Kaiser.

The third control placed on the first hypothesis was length of previous practice, which represents another type of ascribed status (Table XII). This control refines the original hypothesis by revealing one of its limiting conditions. Among physicians who have not engaged in practice before coming to Kaiser (who have low ascribed status), the

TABLE XI

## NATIONALITY BY TIME OF ENTRY INTO KAISER

(Per cent)

<u>Nationality</u>	<u>Period and Status of Kaiser</u>		
	<u>1943-53</u> <u>(Low Status)</u>	<u>1954-63</u> <u>(Middle Status)</u>	<u>1964-69</u> <u>(High Status)</u>
Foreign	7%	15%	20%
U. S.	93	85	80
	<hr/>	<hr/>	<hr/>
Total	100	100	100
Number	28	41	79

gamma = -0.327

TABLE XII

PRESTIGE OF PHYSICIANS' MEDICAL SCHOOL BY TIME OF ENTRY INTO  
KAISER AND LENGTH OF PREVIOUS PRACTICE

(Per cent)

<u>Prestige of Medical School</u>	<u>1943-53 (Low Status)</u>		<u>1954-63 (Middle Status)</u>		<u>1964-69 (High Status)</u>	
	<u>0 Yr. Practice</u>	<u>1+Yr. Practice</u>	<u>0 Yr. Practice</u>	<u>1+ Yr. Practice</u>	<u>0 Yr. Practice</u>	<u>1+ Yr. Practice</u>
Low	44%	44%	54%	43%	65%	45%
High	56	56	46	57	35	55
Total	100	100	100	100	100	100
Number	9	9	11	30	26	53

n.a. = 10

relationship between the status of Kaiser and the achieved status of its recruits is strengthened, although it disappears among physicians who have practiced one or more years (who have high ascribed status).

As hypothesized, both controls on ascribed status (nationality and length of previous practice) are inter-related with physicians' achieved status. In the case of length of previous practice, when a recruit lacks this kind of ascribed status, the likelihood of his recruitment varies over time with his achieved status. However, when the recruit has this kind of ascribed status, the likelihood of his recruitment does not vary over time depending on his achieved status--in all three time periods he is slightly more likely to enter Kaiser if he has high achieved status than if he has low achieved status. In other words, the introduction of this third factor refines the original relationship between the status of Kaiser and the achieved status of its recruits by revealing one of its limiting conditions.

In the case of nationality, the relationship among the variables is different. Over time, whether a physician has low or high ascribed status (i.e., foreign or U. S. nationality), the likelihood of his recruitment depends on his achieved status. The third factor of nationality has an independent effect on the dependent variable of achieved status in the original relationship.

The active/inactive staff status of physicians who have entered Kaiser is the fourth control which was placed on hypothesis one. This control serves to refine the original inverse correlation found between the status of Kaiser and the status of its recruits. Table XIII shows that whereas this inverse relationship is strengthened among active staff, it disappears among inactive staff. Thus, as hypothesized, this control refines the original relationship by revealing one of its limiting conditions: Among active staff, but not among inactive staff, the status of physicians entering Kaiser decreases as the status of Kaiser increases.

Conclusions. A major part of the findings for the first hypothesis has now been summarized. In these findings prestige of medical school is used as an indicator for a physician's achieved status. With one exception they are based on the whole universe of physicians who have practiced in Kaiser since World War II.

Contrary to expectation, the findings do not support the hypothesis that as the status of Kaiser increased, the achieved status of physicians entering Kaiser also increased. Instead, it has been found that as the status of Kaiser increased, the achieved status of its recruits decreased. In other words, these variables are inversely rather than directly related.

TABLE XIII

PRESTIGE OF PHYSICIANS' MEDICAL SCHOOL BY TIME OF ENTRY INTO  
KAISER AND ACTIVE/INACTIVE STAFF STATUS

(Per cent)

<u>Prestige of Medical School</u>	<u>1943-53 (Low Status)</u>		<u>1954-63 (Middle Status)</u>		<u>1964-69 (High Status)</u>	
	<u>Active</u>	<u>Inactive</u>	<u>Active</u>	<u>Inactive</u>	<u>Active</u>	<u>Inactive</u>
Low	25%	42%	36%	67%	53%	47%
High	75	58	64	33	47	53
Total	100	100	100	100	100	100
Number	8	19	28	12	60	19

The four controls placed on this hypothesis also support the negative findings. The introduction of two of the controls, length of practice and active/inactive staff status, led to the refinement of the original inverse relation between the status of Kaiser and the achieved status of its recruits by revealing its limiting conditions. In other words, the original relation held only among active staff and physicians with no previous experience practicing but not among inactive staff and physicians with such experience. The other two, nationality and in-state/out-of-state location of medical school, were found to have an independent effect on the achieved status of physicians entering Kaiser. In other words, the original relation held among both foreign and U. S. physicians and among both in-state and out-of-state graduates.

These findings are tentative for two reasons. First, potentially important extraneous variables could not be controlled. Second, indicators used may be weak. Therefore, although it is possible that further evidence would not alter the conclusions which we have drawn from our data, it is also possible that such evidence would lead to other interpretations of the data.

If additional evidence providing for more controls were available, then any of the following alternative interpretations of our data might be called for. First, if all important extraneous variables could have been controlled,

the hypothesized relationship between the status of Kaiser and the status of its recruits might have been revealed. In this case, we would have found that the status of Kaiser physicians had in fact increased as the status of Kaiser increased. Our first hypothesis would then have been supported. Second, more adequate controls might have led to the explanation of the unexpected relationship which was found between the status of Kaiser and the status of its recruits. In this case, we would have discovered an intervening variable between the independent and dependent variables of our hypothesis. We would then have modified our hypothesis accordingly. Third, such controls might have revealed the spurious nature of the unexpected relationship which was found between the status of Kaiser and the status of its recruits. In this case, we would have found a control variable which accounted for both the status of Kaiser and the status of its recruits. As a result, it would have been necessary to reject our hypothesis.

If better indicators for the achieved status of physicians were available, the findings might support the first hypothesis. This possibility will be discussed below following the presentation of findings using indicators other than the prestige of a physician's medical school.

#### Second Indicator for Achieved Status

The second indicator for a physician's achieved status used in the present study was the prestige of his references.

Unfortunately, due to problems of missing information, the findings using these indicators do not apply to the whole universe of Kaiser physicians. (For more detail on these problems, see Appendix C.)

Findings. Table XIV shows that the status of physicians entering Kaiser has increased as the status of Kaiser has increased. In contrast to the data where prestige of medical school serves as an indicator for achieved status, these findings confirm our hypothesis. In other words, these data reveal a direct, rather than an inverse, relationship between the status of Kaiser and the status of its recruits. Furthermore, the association is strong; gamma is 0.554.

Because of the large number of cases for which data on references were missing, a high degree of confidence cannot be placed in this finding. There are twenty-nine cases missing, twenty from the earliest time period, 1943-53, and nine from the period 1954-63. Since the period 1943-53 contains data on only eight cases, the possibility arises that they may not be representative of all the physicians who entered Kaiser at that time.

The following data suggest that, in fact, the findings for the time period 1943-53 are not representative. The accompanying diagram (Figure 2) shows the prestige of the medical schools of all physicians who entered Kaiser during 1943-53, according to whether or not they are still

TABLE XIV

## PRESTIGE OF PHYSICIANS' REFERENCES BY TIME OF ENTRY INTO KAISER

(Per cent)

Period and Status of Kaiser

<u>Prestige of References</u>	<u>1943-53 (Low Status)</u>	<u>1954-63 (Middle Status)</u>	<u>1964-69 (High Status)</u>
Low	100%	44%	22%
Medium	0	31	35
High	0	25	43
	<hr/>	<hr/>	<hr/>
Total	100	100	100
Number	8	32	79

n.a. = 29  
gamma = 0.554

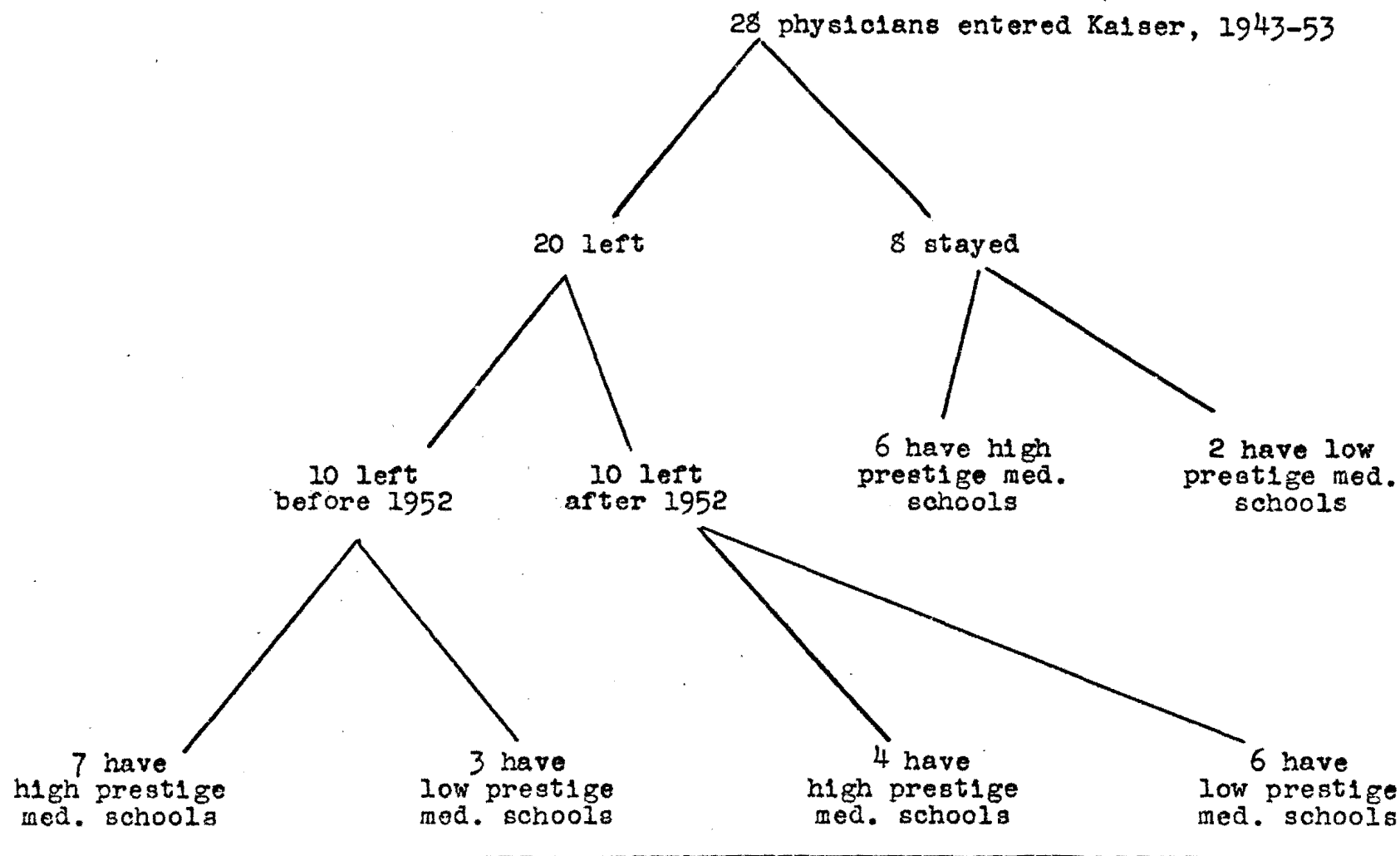


Figure 2. Distribution of cohort of physicians entering Kaiser during 1943-53 by active/inactive staff status, year of resignation, and prestige of medical school.

practicing in Kaiser and if not, according to whether they left Kaiser before or after 1952. Estimating that data are missing for all physicians who left Kaiser before 1952, three-quarters of those who left after 1952, and one-quarter of those who did not leave (see Appendix C), then one sees that the prestige of the medical schools of physicians for whom data are missing is higher than that of physicians for whom data are present. If the two indicators, prestige of references and prestige of medical school, are correlated to some extent, then it is likely that the 1943-53 data in Table XIV are biased in favor of low status recruits. If the 1943-53 data are biased, then finding an increase in the status of physicians entering Kaiser over time is probably an artifact of the unrepresentativeness of the data which use prestige of references as an indicator for the status of physicians entering Kaiser.

Extraneous Uncontrolled Variables. The finding of a direct relationship between the status of Kaiser and the status of its recruits (when indicated by the prestige of their references) may be misleading because the generality of this relationship may be limited. As discussed earlier,<sup>9</sup> physicians who have been affiliated with the University of Oregon Medical School at one or more points in their careers have been entering Kaiser in greater numbers. Thus, if a control on University of Oregon references versus other

<sup>9</sup>Supra, Table VII, p. 65, and p. 61.

references were placed on the first hypothesis, then it is likely that we would find the following: 1) Among physicians with non-University of Oregon references there has been a decrease in the status of physicians entering Kaiser. 2) The frequency of physicians with University of Oregon references, i.e., high status references (by virtue of their medical school affiliation) has increased over time. If a direct relationship between the status of Kaiser and the status of its recruits is found only among physicians with University of Oregon references, then the generality of this relationship is severely limited. Consequently, it would not lead us to question the validity of the inverse relationship found earlier when prestige of medical school was the indicator for a physician's status.

### Third Indicator for Achieved Status

Findings. The third indicator for a physician's achieved status used in the present study was the prestige of his hospitals of internship and residency. Using this indicator, we find that the first hypothesis is supported (Table XV): as the status of Kaiser increases, the status of its recruits also increases. (The correlation is fairly strong;  $\gamma = 0.382$ .) Data for only fourteen cases are missing. Although eleven of them come from the first time period, data on seventeen cases are present for this period. Thus, although the accuracy of the previous findings which use prestige of references as an indicator seems highly

TABLE XV

PRESTIGE OF PHYSICIANS' HOSPITALS OF INTERNSHIP AND  
RESIDENCY BY TIME OF ENTRY INTO KAISER

(Per cent)

Period and Status of Kaiser

<u>Prestige of Hospi- tals of Internship and Residency</u>	<u>1943-53 (Low Status)</u>	<u>1954-63 (Middle Status)</u>	<u>1964-69 (High Status)</u>
Low	53%	18%	9%
Medium	41	40	48
High	6	42	43
	<hr/>	<hr/>	<hr/>
Total	100	100	100
Number	17	40	77

n.a. = 14

gamma = 0.382

questionable, there are fewer reasons to doubt the accuracy of the present findings.

A Valid Indicator? Assuming that these findings are representative of the universe of Kaiser physicians, then it is necessary to account for the discrepancy found between these findings and those where prestige of medical school serves as an indicator for the achieved status of physicians. Perhaps it arose because one of the indicators for achieved status is better than the other, or perhaps neither indicator is adequate by itself. We will discuss these two possibilities below.

The discrepancy between these two sets of findings may have arisen because the indicators prestige of medical school and prestige of hospitals of internship and residency are inversely correlated. If so, physicians from low prestige medical schools would have high prestige hospitals of internship and residency. They would have entered Kaiser after experiencing upward mobility during their training (i.e., each stage of training was taken at a more prestigious center of learning). Although each indicator would be tapping similar aspects of status, neither would be adequate by itself as an indicator for the achieved status of physicians entering Kaiser. Therefore, they would have to be combined to form an index of status.

The discrepancy between the two sets of findings might also have arisen because the indicators for achieved status

were not correlated. If this were the case, then it would be possible that one indicator for achieved status is better than the other in the context of physicians' job opportunities.

As suggested by several informants, the prestige of a physician's medical school may not be an important factor in physicians' job opportunities. Instead, as one informant claimed, the prestige of the specialty program in which a physician receives his residency training as well as the prestige of the specialist under whom he studies during his residency may be more important. In this case, even the indicator used in the present study, the prestige of hospitals of internship and residency, would not be a sufficiently sensitive indicator of a recruit's status because it leads to a ranking of hospitals rather than of programs and professors within hospitals. Unfortunately, it is beyond the scope of the present study to answer these questions regarding the validity of various indicators for achieved status. Nevertheless, the questions must be kept in mind in interpreting the results of this study.

#### Summary of Data on Achieved Status of Physicians

In sum, the findings for the first variant of the first hypothesis--as the status of Kaiser increases, the achieved status of physicians entering Kaiser will increase--are not conclusive. The reasons are diverse: 1) Data on the whole universe of Kaiser physicians were available for only one

indicator of achieved status. 2) Different indicators yielded contradictory results. 3) Important extraneous variables could not be controlled.

Although it can be definitely concluded that the status of Kaiser is associated with the status of physicians entering Kaiser, the direction of the relationship is uncertain. When prestige of medical schools serves as an indicator for achieved status, we find that the status of physicians entering Kaiser has decreased over time. In contrast, when prestige of hospitals of internship and residency is the indicator, we find that their status has increased, as hypothesized. Thus, we cannot definitely reject this hypothesis.

As hypothesized, nationality, length of previous practice, and active/inactive staff status were found to be important controls with respect to the first hypothesis. The importance of the in-state/out-of-state location of medical school was discovered during the analysis of the data. Nationality and the in-state/out-of-state location of a recruit's medical school were found to have an independent effect on the achieved status of physicians entering Kaiser. Length of previous practice and active/inactive staff status refined the original inverse correlation found between the status of Kaiser and the status of its recruits.

The detailed findings which use prestige of medical school, of hospitals of internship and residency, and of

references as indicators for the achieved status of physicians entering Kaiser are listed below:

1. As the status of Kaiser increased over time, the prestige of the medical schools of physicians entering Kaiser decreased.

- a. Controls on nationality (as an indicator for ascribed status) and on the in-state/out-of-state location of a recruit's medical school had an independent effect on the prestige of recruits' medical schools. In other words, among both foreign and domestic physicians and among both in-state and out-of-state graduates, the achieved status of physicians entering Kaiser decreased over time.

- b. Controls on both active/inactive staff status and length of previous practice (as an indicator for ascribed status) refined the inverse correlation between the status of Kaiser and the status of its recruits by revealing its limiting conditions. In other words, the relationship held only among active staff and among physicians who had no previous experience practicing.

2. As the status of Kaiser increased over time, the prestige of the references of physicians entering Kaiser increased. (The validity of these findings is doubtful.)

3. As the status of Kaiser increased over time, the prestige of the hospitals of internship and residency of physicians entering Kaiser increased.

## II. DATA ON HYPOTHESIS ONE WHEN ASCRIBED STATUS IS THE DEPENDENT VARIABLE

The second variant of the first hypothesis states that:

As the status of Kaiser increases, the ascribed status of physicians entering Kaiser will increase.

The following two indicators for ascribed status were used in the present study: nationality and length of previous practice. As stated earlier, foreign nationality indicates low status; U. S. nationality indicates high status. Similarly, the lack of any experience in practice indicates low status;

one or more years experience indicates high status. We will begin our discussion of the ascribed status of physicians entering Kaiser with the findings which use the first indicator.

#### First Indicator for Ascribed Status

The findings in Table XI, when nationality is the indicator for ascribed status, are opposite to those hypothesized: as the status of Kaiser has increased, the percentage of physicians with high ascribed status (U. S. nationality) entering Kaiser has decreased while the percentage with low ascribed status (foreign nationality) has increased. In other words, as the status of Kaiser has increased, the ascribed status of physicians entering Kaiser has decreased ( $\gamma = -0.327$ ). Instead of a direct relationship as hypothesized, we find an inverse relationship between the status of Kaiser and the status of its recruits.

Without proper controls, the conclusion that the ascribed status of Kaiser recruits has decreased is tentative. Data found in Rayack illustrate how critical a control on the changing composition of the medical profession is for the interpretation of data involving graduates of foreign medical schools:

The impact of immigration is also shown in medical licensure data. Between 1940 [1950] and 1959 foreign graduates receiving licensure as a percentage of the total licenses granted rose from 5.1 to

19.7, almost a fourfold increase.<sup>10</sup>

In the present study data on the percentage increase in foreign graduates who became specialists in private practice would be needed in order to conclude definitely that the twofold increase in foreign graduates entering Kaiser between 1943 and 1963 represents a decrease in the status of Kaiser recruits.

#### Second Indicator for Ascribed Status

Table XVI reveals an inconsistent correlation between the status of Kaiser and the ascribed status of its recruits as measured by length of previous practice ( $\gamma = 0.089$ ). Although the ascribed status of physicians entering Kaiser decreases between the second and third time periods, it increases between the first and second periods. (No previous practice indicates low status; one or more years of practice indicates high status.)

The accuracy of this finding must be questioned. Since data are missing for ten cases in the first time period, this period includes data on only eighteen cases. However, this problem can be dealt with by introducing a control on active/inactive staff status. This will allow us to isolate the ten missing cases among inactive staff; the data on active staff

<sup>10</sup>Rayack, p. 123. The data on which this statement was based (p. 124) reveal that it is in error. Rayack should have been describing the period from 1959 to 1959 rather than the period 1940-59.

TABLE XVI

LENTGH OF PREVIOUS PRACTICE BY TIME OF ENTRY INTO KAISER  
(Per cent)

Period and Status of Kaiser

<u>Previous Practice</u>	<u>1943-53 (Low Status)</u>	<u>1954-63 (Middle Status)</u>	<u>1964-69 (High Status)</u>
0 Yr.	50%	27%	33%
1 or More Yr.	50	73	67
<u>Total</u>	<u>100</u>	<u>100</u>	<u>100</u>
Number	18	41	79

n.a. = 10

gamma = 0.089

will then be complete.<sup>11</sup>

Table XVII shows that the introduction of a control on active/inactive staff status reveals the interrelation between the status of Kaiser and the ascribed status of its recruits. Among active staff, as the status of Kaiser has increased, the ascribed status of its recruits has decreased. However, among inactive staff, the relationship between Kaiser's status and the ascribed status of physicians entering Kaiser is inconsistent, as it was in the original correlation before the control was introduced (Table XVI).

Again, the findings fail to support the first hypothesis. Among active staff, the status of Kaiser and the ascribed status of its recruits (as measured by length of previous practice) are inversely rather than directly related. Likewise, in the previous findings where nationality served as an indicator for ascribed status, these variables were inversely related.

#### Summary of Data on Ascribed Status of Physicians

Contrary to expectation, we have found that as the status of Kaiser increased, the ascribed status of physicians

<sup>11</sup>Actually one case is still missing from the active staff data. Comparison of the number of cases missing from Table XVI and Table XVII shows that whereas 10 cases are missing from Table XVI, 12 cases are missing from Table XVII. As intended, the introduction of the control on active/inactive staff status allowed us to isolate the 10 cases originally missing from Table XVI. In Table XVII these cases appear in the data on inactive staff but not in the data on active staff. However, in the process two additional cases turned up missing. Since one of these is

TABLE XVII

LENGTH OF PREVIOUS PRACTICE BY TIME OF ENTRY INTO KAISER  
AND ACTIVE/INACTIVE STAFF STATUS

(Per cent)

<u>Previous Practice</u>	<u>1943-53 (Low Status)</u>		<u>1954-63 (Middle Status)</u>		<u>1964-69 (High Status)</u>	
	<u>Active</u>	<u>Inactive</u>	<u>Active</u>	<u>Inactive</u>	<u>Active</u>	<u>Inactive</u>
0 Yr.	12%	89%	25%	33%	30%	42%
1 or More Yr.	88	11	75	67	70	58
Total	100	100	100	100	100	100
Number	8	9	28	12	60	19

n.a. = 12

entering Kaiser decreased. The detailed findings are listed below:

1. As the status of Kaiser has increased, the percentage of domestic recruits (who have high ascribed status) has decreased, while the percentage of foreign recruits (who have low ascribed status) has increased.

2. Among active staff, as the status of Kaiser has increased, the percentage of Kaiser recruits who have been in practice one or more years (i.e., who have high ascribed status) has decreased, while the percentage of physicians who have never been in practice (i.e., who have low ascribed status) has increased.

### III. SUMMARY: HYPOTHESIS ONE

Earlier, in summarizing the first part of the findings on hypothesis one (in which the dependent variable is the achieved status of physicians entering Kaiser), we noted that the findings were inconsistent and inconclusive. When prestige of medical school was used as an indicator for achieved status, an inverse relationship was found between the status of Kaiser and the status of its recruits. However, when prestige of hospitals of internship and residency was used, a direct relationship was found.

In contrast, the findings on the second part of hypothesis one (where ascribed status is the dependent variable) are consistent. They show that as the status of Kaiser has increased, the ascribed status of physicians entering Kaiser has decreased. In other words, these variables appear to be

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missing from the data on active staff, these data are not quite complete.

inversely rather than directly related. On the whole, a variety of evidence has been presented supporting the conclusion that the status of physicians entering Kaiser has decreased while the status of Kaiser has increased. This includes data which use three diverse indicators for the status of physicians: prestige of medical school (which was based on an informant ranking), nationality, and length of practice. It also includes data where four different controls are placed on the first hypothesis.

In contrast, there is little evidence showing that the status of physicians entering Kaiser has increased. It involves two indicators for status, prestige of references and prestige of hospitals of internship and residency, which are essentially similar in that they are both based on the AMA rating of teaching hospitals.

Whereas the findings against the first hypothesis are based on three diverse indicators for status, the findings for the first hypothesis are based on only one kind of indicator. In other words, the former set of data is more heterogeneous than the latter set of data. Therefore, it appears that the first hypothesis of this study should be rejected.

## CHAPTER IV

### FINDINGS: POSITIONS OCCUPIED BY DOCTORS PRIOR TO ENTERING KAISER

In this chapter data on the second hypothesis of this study will be presented and discussed. We will discover that there are slightly more findings against this hypothesis than for it and that there is no discernable pattern to the positive and negative findings. As a result, we will find it difficult to draw any general conclusions about the circumstances, if any, under which this hypothesis is successful. It will also be difficult to draw any definite conclusions as to why the findings are so highly inconsistent. Perhaps some of the indicators were poor; perhaps it would have helped to use controls. In the last section of this chapter, we will discuss each of these conjectures.

The second hypothesis of this study is as follows:

As the status (rank) of Kaiser increases, high status recruits will less frequently come from statuses (positions) with intrinsic rewards similar to those found in Kaiser.

Indicators were needed for the status of Kaiser, the status of physicians, and positions offering intrinsic rewards similar to those found in Kaiser. The indicators for the

status of Kaiser have already been discussed.<sup>1</sup> Prestige of medical school was chosen as an indicator for the status of physicians instead of prestige of references or prestige of hospitals of internship and residency. As discussed earlier, the data on the first indicator are more complete than the data on either of the other two indicators.<sup>2</sup>

Before indicators for positions with intrinsic rewards similar to Kaiser's could be chosen, the intrinsic rewards associated with an active staff position in Kaiser had to be identified. Five such rewards are the opportunities for 1) a more scientific practice, 2) a change, 3) more education, 4) easier access to facilities, and 5) living in the West. Given these intrinsic rewards of Kaiser, it was possible to generate five predictions from the second hypothesis. Each of these predictions is distinguished by its dependent variable, which consists of one of five types of positions defined by the intrinsic reward of each.

Indicators were then sought for five types of positions with intrinsic rewards similar to Kaiser's. Two indicators were found for positions offering the opportunity for a more scientific practice; two indicators were also found for positions offering the opportunity for more education. Three were found for positions offering the opportunity for a change. One indicator was found for positions offering easier access to facilities; one was also found for a

<sup>1</sup>Supra, pp. 35-39.

<sup>2</sup>Supra, pp. 56, 80, 84.

position offering the opportunity to live in the West.

Thus, although only five predictions were generated from the second hypothesis, nine indicators were identified for its independent variable.

Discussion will begin with the findings which support the second hypothesis. These findings concern two out of the five predictions which were generated from this hypothesis. These two predictions pertain to physicians who entered Kaiser from positions offering the opportunity for a more scientific practice and from positions offering the opportunity for a change.

It must be noted that in all but one of the tables in this chapter at least seven cases are missing from the first time period because relevant data on these physicians were not available. In some tables the total number of cases missing is higher. This occurs either because information is missing on many physicians or because the categories in the table do not apply to the entire universe of Kaiser physicians.

## I. DATA FOR HYPOTHESIS TWO

### Positions Offering the Opportunity for a More Scientific Practice

First Indicator. One of the intrinsic rewards of Kaiser is the opportunity to provide more scientific care. The first indicator for a position providing similar rewards

is previous position emphasizing the scientific rather than clinical aspects of care. Table XVIII shows that as the status of Kaiser has increased, high status recruits have less frequently come from positions with scientific and mixed scientific-clinical orientations, while they have more frequently come from positions with clinical orientations. As hypothesized, high status recruits have decreasingly come from positions with intrinsic rewards similar to Kaiser's.

Second Indicator. The second indicator for positions offering the opportunity to practice more scientifically is specialty or scientific society memberships. Again, the findings support the second hypothesis (Table XIX). As the status of Kaiser has increased, the percentage of high status physicians entering Kaiser with one or more specialty or scientific society memberships has decreased, while the percentage without any such memberships has increased. In other words, the percentage of high status recruits who have occupied positions with intrinsic rewards similar to Kaiser's has decreased over time. In sum, the second hypothesis is supported by findings involving both indicators for positions which, like Kaiser, offer the opportunity for a more scientific practice.

#### Positions Offering the Opportunity for a Change

First Indicator. Entrance into Kaiser involves the intrinsic reward opportunity for a change. A series of positions characterized by the same reward is a career of

TABLE XVIII

SCIENTIFIC/CLINICAL ORIENTATION OF PREVIOUS POSITION  
BY TIME OF ENTRY INTO KAISER AMONG  
HIGH STATUS PHYSICIANS

(Per cent)

Period and Status of Kaiser

<u>Orientation of Previous Position</u>	<u>1943-53 (Low Status)</u>	<u>1954-63 (Middle Status)</u>	<u>1964-69 (High Status)</u>
Clinical <sup>a</sup>	10%	18%	24%
Scientific- Clinical <sup>b</sup>	80	64	60
Scientific <sup>c</sup>	10	18	16
	<hr/>	<hr/>	<hr/>
Total	100	100	100
Number	10	22	38

n.a. = 7

<sup>a</sup>Previous positions with clinical orientations to care include the G.P., military doctor, public health physician, physician in industrial or insurance medicine, and the administrator.

<sup>b</sup>Previous positions with scientific-clinical orientations to care include the specialist in private practice, hospital practitioner, private assistant, intern, resident, and post-graduate student studying clinical practice.

<sup>c</sup>Previous positions with scientific orientations to care include the group practitioner, teacher, researcher, and the post-graduate student doing research.

TABLE XIX

SCIENTIFIC AND SPECIALTY SOCIETY MEMBERSHIPS BY TIME OF ENTRY  
INTO KAISER AMONG HIGH STATUS PHYSICIANS

(Per cent)

Period and Status of Kaiser

<u>Scientific<sup>a</sup> and Specialty Society Memberships</u>	<u>1943-53 (Low Status)</u>	<u>1954-63 (Middle Status)</u>	<u>1964-69 (High Status)</u>
0	33%	45%	45%
1 or More	67	55	55
	<hr/>	<hr/>	<hr/>
Total	100	100	100
Number	12	20	29

n.a. = 16

<sup>a</sup>Examples of scientific professional societies are the following: the American Association for the Advancement of Science, American Society for Clinical Research, and the Mayo Foundation for Medical Education and Research.

changes in location of practice. Table XX summarizes the findings relevant to this indicator for positions offering the opportunity for a change. As the status of Kaiser increases, the percentage of high status recruits who have changed the location of their practice one or more times decreases; in contrast the percentage who have never moved their practices increases. In other words, high status physicians are less frequently entering Kaiser from careers involving intrinsic rewards similar to Kaiser's.

Second Indicator. Another indicator for positions offering the opportunity for a change is a career involving one or more changes in specialty. Table XXI reveals that as the status of Kaiser has increased, the percentage of high status recruits who have changed their specialties one or more times has decreased, while the percentage who have never made such a change has increased. Thus, high status recruits have less frequently come from careers involving intrinsic rewards similar to Kaiser's.

Third Indicator. A career characterized by changes in activities is yet another indicator for positions offering the opportunity for a change. In contrast to the first two indicators for such positions, this one yielded negative findings. Table XXII reveals that as the status of Kaiser has increased, the percentage of high status physicians entering Kaiser who have engaged in two or more different types of activity since completion of their residency

TABLE XX

CHANGES IN LOCATION OF PRACTICE BY TIME OF ENTRY INTO  
KAISER AMONG HIGH STATUS PHYSICIANS

(Per cent)

Period and Status of Kaiser

<u>Changes in Location of Practice</u>	<u>1943-53 (Low Status)</u>	<u>1954-63 (Middle Status)</u>	<u>1964-69 (High Status)</u>
0	8%	50%	50%
1 or More	92	50	50
	<hr/>	<hr/>	<hr/>
Total	100	100	100
Number	12	16	28

n.a. = 21<sup>a</sup>

<sup>a</sup>The cases of no information are high not only because of missing information but also because some physicians enter Kaiser who have not yet begun to practice and as a consequence have never had the opportunity to change the location of their practice.

TABLE XXI  
CHANGES IN SPECIALTY BY TIME OF ENTRY INTO  
KAISER AMONG HIGH STATUS PHYSICIANS

(Per cent)

Changes in Specialty	<u>Period and Status of Kaiser</u>		
	1943-53 (Low Status)	1954-63 (Middle Status)	1964-69 (High Status)
0	60.0%	68.2%	68.4%
1 or More	40.0	31.8	31.6
Total	100.0	100.0	100.0
Number	10	22	38
	n.a. = 7		

TABLE XXII  
CHANGES IN ACTIVITIES BY TIME OF ENTRY INTO  
KAISER AMONG HIGH STATUS PHYSICIANS

(Per cent)

Changes in Activities <sup>a</sup>	<u>Period and Status of Kaiser</u>		
	1943-53 (Low Status)	1954-63 (Middle Status)	1964-69 (High Status)
0	70%	46%	47%
1 or More	30	54	53
Total	100	100	100
Number	10	22	38
	n.a. = 7		

<sup>a</sup>Different kinds of activity include the following: private practice, group practice, hospital practice, practice in the public health service or Veterans Administration, practice in the armed forces, teaching, research, postgraduate training, practice as a private assistant, and administrative medicine.

training has increased, while the percentage who have engaged in only one type of activity since their residency has decreased. Contrary to expectation, high status physicians have more frequently entered Kaiser from careers involving intrinsic rewards similar to Kaiser's.

In sum, we find that the second hypothesis is supported by two out of three indicators for positions or sets of positions which, like Kaiser, offer the opportunity for a change. On the balance, we conclude that these findings support the second hypothesis.

#### Summary

The findings which support the second hypothesis are listed below. They include both indicators for positions offering the opportunity for a more scientific practice but only two of the three indicators for positions offering the opportunity for a change.

1) As the status of Kaiser increased over time, high status physicians less frequently entered Kaiser from positions emphasizing the scientific and scientific-clinical aspects of care; they more frequently entered Kaiser from positions emphasizing the clinical aspects of care.

2) As the status of Kaiser has increased, the percentage of high status recruits with memberships in scientific or specialty societies has decreased, while the percentage without such memberships has increased.

3) As the status of Kaiser has increased, high status physicians who have changed the location of their practice have less frequently entered Kaiser; those who have never made such a change have more frequently entered Kaiser.

4) As the status of Kaiser increased, the percentage of high status recruits who had changed their specialty decreased, while the percentage of recruits who had never made such a change increased.

In general, as the status of Kaiser increased, high status physicians less frequently entered Kaiser from positions and careers which, like Kaiser, offer opportunities for change and scientific practice. The findings confirm two of the five predictions which were generated from the second hypothesis.

## II. DATA AGAINST HYPOTHESIS TWO

The findings which fail to support the second hypothesis concern predictions about physicians who entered Kaiser from positions offering opportunities for more education, for easier access to facilities, and for living in the West. All of the indicators for these positions consistently yielded negative findings. These findings are summarized below:

1) As the status of Kaiser has increased, high status physicians with postgraduate training have more frequently entered Kaiser, while physicians without such training have less frequently entered Kaiser (Table XXIII).

2) As the status of Kaiser has increased, the percentage of high status recruits who have had five or more years of training has increased, while the percentage who have had less training has decreased (Table XXIV).

3) As the status of Kaiser has increased, high status physicians have more frequently entered Kaiser from careers in bureaucratic contexts; they have less frequently come from careers in private practice (Table XXV).

TABLE XXIII  
POSTGRADUATE TRAINING BY TIME OF ENTRY INTO  
KAISER AMONG HIGH STATUS PHYSICIANS

(Per cent)

<u>Postgraduate Training<sup>a</sup></u>	<u>Period and Status of Kaiser</u>		
	<u>1943-53 (Low Status)</u>	<u>1954-63 (Middle Status)</u>	<u>1964-69 (High Status)</u>
0 Yr.	90%	62%	68%
1 or More Yr.	10	38	32
	<hr/>	<hr/>	<hr/>
Total	100	100	100
Number	10	21	38

n.a. = 8

<sup>a</sup>Postgraduate training refers to medical training, excluding medical school, internship, and residency training.

TABLE XXIV

LENGTH OF TRAINING BY TIME OF ENTRY INTO KAISER AMONG HIGH  
STATUS PHYSICIANS

(Per cent)

<u>Length of Training<sup>a</sup></u>	<u>Period and Status of Kaiser</u>		
	<u>1943-53 (Low Status)</u>	<u>1954-63 (Middle Status)</u>	<u>1964-69 (High Status)</u>
0-4 Yrs.	70%	54%	55%
5 or More Yrs.	30	46	45
	<hr/>	<hr/>	<hr/>
Total	100	100	100
Number	10	22	38

n.a. = 7

<sup>a</sup>Length of training refers to the total number of years spent in internship, residency, and postgraduate training.

TABLE XXV

BUREAUCRATIC/NONBUREAUCRATIC CONTEXT OF CAREER BY TIME OF ENTRY  
INTO KAISER AMONG HIGH STATUS PHYSICIANS

(Per cent)

<u>Context of Career</u>	<u>Period and Status of Kaiser</u>		
	<u>1943-53</u> (Low Status)	<u>1954-63</u> (Middle Status)	<u>1964-69</u> (High Status)
Nonbureaucratic <sup>a</sup>	60%	47%	28%
Bureaucratic <sup>b</sup>	40	53	72
Total	100	100	100
Number	5	15	25

n.a. = 32<sup>c</sup>

<sup>a</sup>Careers in nonbureaucratic contexts refer to careers in private practice.

<sup>b</sup>Careers in bureaucratic contexts refer to careers spent in one or more positions where facilities are centralized and income is received in the form of a salary. Training and military service are not considered to be part of a physician's career.

<sup>c</sup>There is a high number of cases of no information because they include 25 physicians who entered Kaiser just after completing their training and military service.

4) As the status of Kaiser has increased, high status recruits have more frequently come from medical schools in the North Central and Western states, whereas they have less frequently come from schools in the Northeast. The percentage coming from the South has varied inconsistently over time. In sum, although in the last time period most high status recruits came from North Central schools, over time the location of recruits' schools has varied from East to West (Table XXVI).

In sum, as the status of Kaiser has increased, high status physicians have more frequently entered Kaiser from positions and careers which, like Kaiser, offer opportunities for more education, for easier access to facilities, and for living in the West. These findings fail to support three of the five predictions which were generated from the second hypothesis.

### III. DISCUSSION

The findings both for and against the second hypothesis have now been presented in full. The evidence confirms two of the predictions which were generated from this hypothesis, but fails to confirm three others. In other words, the findings are inconsistent.

Furthermore, we have not been able to discern any pattern to the positive and negative findings, which would allow us to account for the success of certain predictions and the lack of success of others. Although a variety of conclusions might have been drawn from the data, we lack the evidence which would be needed to choose among them. Thus, we do not know whether to accept all the findings as valid or

TABLE XXVI

REGIONAL LOCATION OF MEDICAL SCHOOL BY TIME OF ENTRY  
INTO KAISER AMONG HIGH STATUS PHYSICIANS

(Per cent)

Location of Medical School <sup>a</sup>	Period and Status of Kaiser		
	1943-53 (Low Status)	1954-63 (Middle Status)	1964-69 (High Status)
Northeast	59%	37%	20%
South	6	16	6
North Central	29	31	62
West	6	16	12
Total	100	100	100
Number	17	19	34

n.a. = 7<sup>b</sup>

<sup>a</sup>This regional breakdown of the United States comes from the following source: U. S. Bureau of the Census, U. S. Census of the Population, 1960: Characteristics of the Population, "Pt. A, Number of Inhabitants" (Washington, D. C.: U. S. Government Printing Office, 1961), I, s2.

<sup>b</sup>The seven cases of missing information represent high status physicians from foreign medical schools.

only some of them, that is, only the positive or only the negative findings. In other words, the findings are inconclusive.

Although we are unable to draw any general conclusions as to why the findings are inconsistent, we can offer suggestions about particular cases of negative findings. In

the following discussion, we will speculate about ways to account for some of the findings against the second hypothesis. Two possible sources of error will be discussed:

1) the validity of indicators used in certain predictions and 2) the absence of controls on exogenous factors which might be interrelated with the variables used in certain predictions.

#### Is the Opportunity for More Education an Intrinsic Reward of Kaiser?

Both indicators for positions offering the opportunity for more education, i.e., postgraduate student and a career involving extensive training, yielded negative findings. One reason may be that the opportunity for more education is an incentive for mobility for only certain kinds of physicians.

Two types of situations can be suggested in which the incentive value of this reward would vary. First, the opportunity for more education may be an important intrinsic reward only for physicians who want to take their American Specialty Board Exams in order to obtain certification but who first need to do additional study. Second, it may be important only to low status physicians entering Kaiser but not to high status physicians. For any given set of physicians, it may be important to see the opportunity for more education provided by Kaiser as one of a set of alternatives. For instance, although Kaiser may be able to offer better

educational opportunities than private practice, it probably offers poorer opportunities than teaching or research. Suppose that many high status physicians who apply for positions in Kaiser have a choice between practicing in Kaiser and teaching or doing research. Then the opportunity for more education would not be a significant intrinsic reward of Kaiser from their point of view, although it might be from the point of view of a low status recruit.

In sum, it has been suggested that the opportunity for more education is an incentive for mobility for only certain kinds of physicians. If this assertion is correct, then it may account for the negative findings which were based on the assumption that the opportunity for more education is an intrinsic reward for all physicians.

#### The Changing Specialty Composition of Kaiser: A Needed Control?

The prediction concerning physicians who enter Kaiser from positions offering the opportunity for more education may have yielded negative findings because important exogenous variables were not controlled. Rayack states that, "The average length of training for doctors after completion of medical school has increased from about two years in 1940 to about three-and-one-half years in 1959."<sup>3</sup> Furthermore,

<sup>3</sup>Elton Rayack, Professional Power and American Medicine: The Economics of the American Medical Association (Cleveland: The World Publishing Company, 1967), p. 112.

he argues that this increase is a product of the trend toward specialization. If his analysis is correct, then it indicates the need for a control on the changing specialty composition of Kaiser over time.

Perhaps the high status physicians entering Kaiser have increasingly been specialists in specialties where the average length of training is long. This would indicate that the increase in Kaiser recruits with extensive training is due to changes in the specialty composition of Kaiser. Thus, a control on this exogenous variable is needed to find out whether within each group of specialists (each group being defined by the average length of training of physicians within it) high status physicians have more frequently entered Kaiser with more or less training.

The Changing Composition of Positions in the  
Medical Profession: A Needed Control?

The prediction concerning physicians who enter Kaiser from positions offering easier access to facilities yielded negative findings. The indicator for such positions was a career in a bureaucratic context. A possible reason for these negative findings is that no controls were placed on the changing composition of positions in the medical profession.

Data found in Rayack reveal the necessity for such a control. Rayack documents what he calls the "organizational revolution in medical practice." He states that, "As a

result of these developments, the doctor has become an organization man,"<sup>4</sup> and cites the growth of both group and hospital practice as evidence. His data reveal the increasing employment of physicians in other kinds of bureaucratic contexts as well: While the percentage of physicians who were interns, residents, or full-time hospital staff increased from 6.2 per cent in 1931 to 16.5 per cent in 1962, the percentage in teaching, administration, industry, government service, and retirement increased from 7.9 to 19.0 per cent.<sup>5</sup>

In sum, it appears that the availability of positions in bureaucratic contexts has increased and thus that the composition of positions in the medical profession has changed. The finding that the percentage of high status physicians entering Kaiser from careers in bureaucratic contexts has increased over time may be an effect of the changing composition of positions in the medical profession. Therefore, a control is needed on this exogenous variable.

The changing composition of positions in the medical profession may have affected another finding in the present study. The finding is that of an increase in the percentage of high status physicians entering Kaiser who have changed activities one or more times since completing their residency training. A change in activity involves either a

<sup>4</sup>Ibid., pp. 39-40.

<sup>5</sup>Ibid., p. 46.

change between different bureaucratic contexts of activity, such as from teaching to group practice, or a change between bureaucratic and nonbureaucratic contexts, such as from private to hospital practice. (See Table XXII for more detail.) If the availability of positions in bureaucratic contexts has increased, then it is likely that there has been a concomitant increase in the opportunity to change activities. Accordingly, the increase in the percentage of high status physicians entering Kaiser who have changed activities one or more times may reflect this increased opportunity for change rather than a difference in the kind of physician who enters Kaiser. Again, a control on the changing composition of positions in the medical profession is needed.

### Summary

Since no overall pattern could be discerned in the findings for and against the second hypothesis, it remains unclear why certain predictions generated from this hypothesis were successful and others were not. Therefore, our discussion of the findings involved speculation about particular cases rather than a general interpretation. Problems of invalid indicators and extraneous uncontrolled variables were focused upon. Suggestions were made as to the ways in which they could have influenced some of the findings against the second hypothesis.

## CHAPTER V

### CONCLUSIONS

In retrospect, the nature of the present study can best be described as exploratory research. The literature of medical sociology served as a basis for defining a problem concerning prepaid group practice which, although worthy of sociological investigation, had never been studied before. A theory was then selected to deal with this problem, hypotheses were generated, a design was chosen, and data were collected.

However, prior to data collection, no preliminary examination was made of data relevant to the problem. Accordingly, it is not surprising that by the time the study had been completed, many new ideas for a better research design and for alternative hypotheses had emerged. Thus, the fruits of the present study underline the need for exploratory research. The present study with its generally inconclusive and negative findings is of value only insofar as it can be used to design an alternative study of prepaid group health plans.

## I. SUMMARY OF THE STUDY

### Problem

As a result of the AMA's opposition to prepaid group health plans, it is likely that these plans experienced difficulties in recruitment after they were established. As opposition was relaxed, these difficulties probably disappeared. Assuming that changes in the social characteristics of physicians entering prepaid group health plans reflected changes in recruitment problems, then it is likely that the kinds of physicians who enter these plans have systematically varied over time.

Such variation presents a problem for research, namely, to inquire into the direction of and reasons for the variation. The task of the present thesis was to "solve" this problem.

### Conceptualization of the Problem

Although previous studies had not done so, the entrance of physicians into prepaid group health plans was conceptualized as mobility between different contexts of work (e.g., solo practice, prepaid group practice, medical schools, hospitals, the public health service, etc.). The theoretical justification for this conceptualization was that the definition of mobility, "movement of persons . . . through the

social structure,"<sup>1</sup> was broad enough to include movement between different contexts of work.

The empirical justification came from a study by Wilensky. His factor analysis of mobility showed that the change between self-employment and working for an employer (or vice versa) represented one dimension of mobility.<sup>2</sup> These findings suggested that the movement of physicians into solo versus prepaid group practice involves one dimension of mobility. For these reasons, it appeared legitimate to conceptualize the entrance of physicians into prepaid group health plans in terms of mobility.

### Theory and Hypotheses

The topic of this study was the longitudinal variation in the social characteristics of physicians entering prepaid group health plans. Given this topic, the research objectives were to generate a set of hypotheses to describe and partially account for changes in the types of physicians who have entered prepaid group health plans over time. Blau's exchange theory, particularly those sections on mobility and recruitment, proved to be the most fruitful source of

<sup>1</sup>"Social Structure, Mobility, and Development," Social Structure and Mobility in Economic Development, ed. by Neil J. Smelser and Seymour Martin Lipset (Chicago: Aldine Publishing Company, 1966), p. 2.

<sup>2</sup>Harold L. Wilensky, "Measures and Effects of Mobility," Social Structure and Mobility, ed. Smelser and Lipset, pp. 110-111.

hypotheses for this study.<sup>3</sup>

One of the basic propositions of exchange theory is that individuals and collectivities follow the most profitable courses of action. Profit is defined in terms of the balance between rewards and costs (i.e., resources gained and lost). Rewards can be of two basic types--extrinsic and intrinsic. Extrinsic rewards, e.g., money, can be used in any situation; the benefits of intrinsic rewards, e.g., social acceptance, can be gained in only one given situation. The extrinsic rewards associated with a given position or collectivity define the status, or rank, of that position or collectivity.

The first hypothesis of this study was based on two propositions which were generated from Blau's discussion of the relationship of extrinsic rewards to mobility and recruitment. Blau states that for a given individual mobility is dependent on his having the opportunity to receive higher rewards. Such opportunities depend on the status of the individual before mobility: high status gives an individual a greater opportunity than either middle or low status. The following proposition is suggested: Opportunities for higher rewards lead to mobility of high status individuals.

<sup>3</sup>Peter M. Blau, Exchange and Power in Social Life (New York: John Wiley & Sons, Inc., 1964), pp. 294-301. Peter M. Blau, "The Flow of Occupational Supply and Recruitment," ASR, XXX (1965), 475-490.

Blau also states that for a given collectivity the allocation of more resources to recruitment depends on successful competition. Since successful competition involves an increase in status for a collectivity, the following proposition is suggested: As the status of a collectivity increases, the rewards which it offers recruits will also increase.

This proposition together with the preceding one suggested the following hypothesis:

As the status (rank) of prepaid group health plans increases, the status (rank) of physicians entering these plans will increase.

This hypothesis was refined by distinguishing the various criteria, i.e., achievement and ascription, which govern the distribution of extrinsic rewards:

As the status (rank) of prepaid group plans increases, a) the achieved status of physicians entering these plans will increase and b) the ascribed status of these physicians will increase.

Intrinsic as well as extrinsic rewards may serve as incentives for mobility. According to Blau, intrinsic rewards vary in the degree to which they serve as incentives for mobility, depending on the experience which an individual has had with these rewards in previous statuses (positions). Accordingly, one might expect that the kinds of intrinsic rewards received in previous statuses affect the kinds of individuals who are mobile. Assuming that both intrinsic and extrinsic rewards interact in influencing mobility, the following hypothesis is suggested:

As the status (rank) of prepaid group health plans increases, high status recruits will less frequently come from statuses (social positions) with intrinsic rewards similar to those found in prepaid group plans.

### Source of Data and Design

The main source of data for the present study was the personnel records of the Portland Kaiser Foundation Health Plan. These records included applications for staff membership, a few letters of reference, copies of personnel advertisements which were placed in the medical journals, job inquiries, and an official schedule of starting salaries by specialty. Two minor sources of data used to supplement the information in the records were the AMA'S American Medical Directory and Directory of Approved Internships and Residencies.

The design for this research was a longitudinal case study. Data were presented on the universe of physicians who had practiced as full-time, salaried staff in Kaiser at any time since 1945 when Kaiser was first opened to the public. This included a few physicians who entered Kaiser before 1945 when the Health Plan was being run on a strictly war-time basis, and this excluded physicians who practiced in Kaiser only during the war years. Since the kinds of variables which could be extracted from the records were nominal and ordinal variables, cross-tabulation was used in the presentation and analysis of the findings, and gamma was used as a measure of association between ordinal variables.

### Indicators

Indicators were needed for four variables: the status of Kaiser, the achieved status of physicians, the ascribed status of physicians, and positions with intrinsic rewards similar to those of Kaiser. Because of the small size of the universe of Kaiser physicians ( $N = 148$ ), it seemed practical to look at variations in the status of Kaiser in terms of low, medium, and high status periods. Thus, indicators were needed to show not only the direction but also the timing of changes in the status of Kaiser.

Two indicators were used to determine the direction of changes in the status of Kaiser over time: 1) the ratio of unaccepted applicants to staff position openings in Kaiser and 2) a comparison of the rates of increase in the starting salaries of Kaiser specialists to the rates of increase in the incomes of self-employed physicians under sixty-five. The data on both revealed that the status of Kaiser had increased over time. The timing of the changes in the status of Kaiser was evident only from the second indicator since data on the first indicator were limited to the period from 1959 to 1969. Accordingly, it was found that during the period from 1943 through 1953 Kaiser had low status; 1954-63 was a period of middle status; from 1964 through 1969 the status of Kaiser was high.

Two indicators were used for the ascribed status of physicians and three were used for their achieved status.

The prestige of physicians' medical schools, of their hospitals of internship and residency, and of their references were used as indicators for achieved status. The prestige of medical schools was determined from informant ratings of the schools. An official AMA rating of hospitals found in the Directory of Approved Internships and Residencies was used as a measure for the prestige of hospitals of internship and residency. The prestige of references was inferred from the prestige of their organizational affiliations. Again, the AMA rating of hospitals was used as a basis for determining the prestige of these organizations.

Indicators for positions with intrinsic rewards similar to those of Kaiser were found by first identifying intrinsic rewards associated with a position in Kaiser and then by identifying positions offering similar rewards. Accordingly, the following indicators were selected:

<u>Intrinsic Rewards of Kaiser</u>	<u>Positions Offering Similar Rewards</u>
Opportunity for more education	Postgraduate student Career involving extensive training
Opportunity to provide more scientific care	Specialty or scientific society memberships Previous position emphasizing scientific rather than clinical aspects of care
Opportunity for more convenient access to facilities	Career in bureaucratic context
Opportunity to live in the West	Medical school student in the West

Intrinsic Rewards  
of Kaiser

Opportunity for a change

Positions Offering  
Similar Rewards

Career of changes in special-  
ties  
Career of changes in location  
of practice  
Career of changes in activ-  
ities

Findings

The evidence for the first hypothesis was generally negative. It indicated that although the status of Kaiser had increased over the years, the status of physicians entering Kaiser had decreased. This conclusion was reached on the basis of findings using prestige of medical school as an indicator for achieved status as well as findings using nationality and length of practice as indicators for ascribed status. It was further supported when active/inactive staff status and length of practice were introduced as third factors. Both these controls served to reveal the limiting conditions of the original relationship. In revealing an independent effect on the status of Kaiser recruits, controls on nationality and in-state/out-of-state location of medical school also supported the original finding.

The findings using prestige of hospitals of internship and residency and prestige of references as indicators for achieved status showed that the status of physicians entering Kaiser had increased over the years. However, there are a number of reasons for questioning the validity of these findings: 1) None of these data apply to the whole universe

of Kaiser physicians--from forty to seventy per cent of the cases from the first time period are missing. 2) The discrepancy between these findings and those just described may reflect the different methods used to rank medical schools and hospitals. 3) Based on three diverse types of indicators for status, the findings against the first hypothesis appear more persuasive than the findings for the first hypothesis, which are based on only one kind of indicator.

The evidence for the second hypothesis was inconclusive: it indicated that as the status of Kaiser increased, the percentage of high status recruits from certain positions with intrinsic rewards similar to Kaiser's decreased, whereas the percentage from other positions increased. High status physicians have less frequently entered Kaiser a) having held positions emphasizing the scientific aspects of care, b) having memberships in scientific or specialty societies, c) having changed the location of their practice, and d) having changed their specialty. They have more frequently entered Kaiser a) having had postgraduate training, b) having had at least five years of training, c) having held jobs in bureaucratic contexts, d) having graduated from medical schools in the North Central and Western states, and e) having engaged in two or more different types of activities.

The only discernable pattern in these data is that among multiple indicators for positions offering a given

intrinsic reward, the findings are generally consistent. Nevertheless, no pattern which would allow us to account for the success and lack of success of indicators related to certain intrinsic rewards is apparent in the positive and negative findings. There appears to be no reason to suspect that either the positive or the negative findings are invalid. Furthermore, assuming that all the findings are valid, no theoretical explanation is evident for these seemingly contradictory results. In sum, the findings for the second hypothesis are inconclusive, and they will not be discussed further. However, some suggestions will be made as to the theoretical significance of the findings pertaining to the first hypothesis.

## II. DISCUSSION

It has become evident that the first hypothesis of this study must be rejected. However, it does not necessarily follow that Blau's theory of mobility must be abandoned. Perhaps the lack of success of this hypothesis is due not to inadequacies in Blau's theory but to the following factors. First, the hypotheses of this study represent much simplified versions of Blau's theory. They poorly reflect the interrelationship of the factors which in theory influence mobility. Second, the empirical problem with which this study deals, i.e., variations over time in the types of physicians entering prepaid group practice,

might have been poorly conceptualized. In light of these two potential sources of error, the conclusion is not warranted that the use of exchange theory in the context of mobility between different work contexts is inappropriate. The findings of this study do not necessarily call for the rejection of Blau's theory of mobility.

If Blau's theory of mobility need not be rejected, then perhaps exchange theory can be used to suggest a factor explaining the unexpected relationship found between the status of Kaiser and the status of its recruits. It will be argued that such an explanatory factor is the intrinsic reward involving the opportunity to participate in an innovative form of medical practice.

It was stated earlier that in general Blau considers extrinsic rewards to be more important incentives for mobility than intrinsic rewards. However, this implies that in certain situations intrinsic rewards are more important. Perhaps such a situation was the opening of the Kaiser Health Plan in Portland, inasmuch as Kaiser was one of the first prepaid group health plans in the United States and claimed to be an innovative form of medical practice.

Assume that the opportunity to participate in an innovative form of medical practice was the most important incentive for mobility initially offered by Kaiser. Then the following question arises: what kinds of experiences in

other positions would lead physicians to find the opportunity to innovate rewarding? Perhaps, as Homans argues, it is the experience of high status.<sup>4</sup> If so, then the early importance of the opportunity to innovate in the history of Kaiser would account for the high percentage of high status physicians who entered Kaiser from 1943 through 1953.

Like the extrinsic rewards offered by Kaiser, the intrinsic rewards of Kaiser may have changed over the years. If at one time Kaiser ceased to provide the opportunity to innovate, then this would account for the decreasing status of physicians entering Kaiser after 1953.

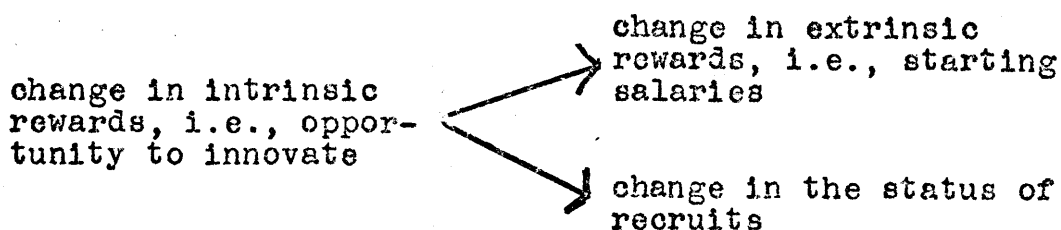
Up to this point we have argued that changes in the intrinsic rewards of Kaiser are related to changes in the status of physicians entering Kaiser. It also seems plausible to argue that certain intrinsic rewards, namely, those involved in the fulfillment of the goals of an organization, are related to the extrinsic rewards offered by the organization. For instance, if the primary operating goal of Kaiser were low cost medical care for the patient, then it is likely that profits made by the organization would be used to cut the patient's medical expenses. However, if the goal were to make the income of Health Plan physicians

<sup>4</sup>George Caspar Homans, Social Behavior: Its Elementary Forms (New York: Harcourt, Brace & World, Inc., 1961), p. 352.

competitive with those of private practitioners, then profits would probably be used to increase physicians' salaries and bonuses.

From this example it is clear that intrinsic rewards associated with the fulfillment of the goals of an organization may be interrelated with the extrinsic rewards offered by the organization. If the opportunity to innovate involved the opportunity to place the interest of the patient above the interest of the physician, then it seems reasonable to suggest the following hypothesis: As the intrinsic rewards of Kaiser changed, the extrinsic rewards also changed such that the starting salaries offered recruits were raised.

In sum, the following interrelationship among the intrinsic rewards of Kaiser, its status, and the status of its recruits has been suggested:



In other words, by revealing the spuriousness of the inverse relationship found between the status of Kaiser and the status of its recruits, the factor of intrinsic rewards may serve to explain this relationship.

### III. SUGGESTIONS FOR FUTURE RESEARCH

Because of the negative, inconclusive findings of the present study, further research into the problem of changes in the types of physicians who enter prepaid group practice is needed. If future research into this problem is to be more successful than the present study, the following suggestions must be heeded:

- 1) The design of such a study should include a control group of private practitioners. The findings of such a study would then be less tentative than the findings of the present study.
- 2) Multiple sources of data on physicians should be used. For instance, curricula vitae, letters of reference, notes from telephone conversations, as well as application forms could be used to gain information on physicians in prepaid group health plans. This would lead to the discovery of the errors which are likely to be found in any given source of data and allow the researcher to deal with them.
- 3) Alternative indicators for physicians' achieved status should be tried out, e.g., the prestige of a physician's preceptor, an index reflecting the average prestige of a physicians' changing organizational affiliations, and an index based not only on the prestige of the institution where a Kaiser applicant and his reference were colleagues but also on the rating given the applicant by his reference. In light of the contradictory results which were obtained from the variety of indicators used in the present study, it seems that the alternative indicators suggested here might be more useful.
- 4) New hypotheses should be formulated, perhaps using intrinsic rewards as an independent variable. Hopefully, they would be supported by the evidence.

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# APPENDIX A

## DATA ON JOB INQUIRIES AND JOB OPENINGS IN KAISER

TABLE XXVII

DISTRIBUTION OF DISCONTINUED JOB INQUIRIES AND ADVERTISED JOB  
OPENINGS IN KAISER OVER TIME

	<u>1959</u>	<u>1960</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>
<u>Job</u> <u>Inquiries</u>	4	3	9	27	43	102	184	136	163	104
<u>Job</u> <u>Openings</u>	0	0	0	3	3	11	11	4	8	3

Source: The source of these data is Kaiser's records of personnel advertisements and discontinued job inquiries.

## APPENDIX B

### INCOME DATA

#### I. INCOME OF SELECTED GROUPS OF PRIVATE PRACTITIONERS

TABLE XXVIII

MEDIAN NET INCOMES OF SELECTED GROUPS OF  
SELF-EMPLOYED PHYSICIANS UNDER  
SIXTY-FIVE, 1959 AND 1963

<u>Physician Group</u>	<u>1959</u>	<u>Physician Group</u>	<u>1963</u>
Specialists	\$24,800	Physicians, under 5 Years of Practice	\$17,450
Specialists, under 10 Years of Practice	22,300	Physicians, 5-10 Years of Practice	25,950
All Physicians	22,100	All Physicians	25,050

Source: The 1959 income data come from Physicians' Earnings and Expenses: A Reprint of Articles Based on "Medical Economics" Continuing Survey, 1960 (Oradell, N.J.: Medical Economics, Inc., 1960), pp. 9, 10, 14. The 1963 data are from "Results of Medical Economics' First Annual Checkup of Physicians' Economic Health," Medical Economics, November 2, 1964, pp. 104, 106.

II. COMPARISON OF TWO SOURCES OF DATA ON KAISER  
SALARIES AND INFERENCES ABOUT MISSING  
SALARY DATA

TABLE XXIX

LONGITUDINAL COMPARISON OF STARTING SALARIES<sup>a</sup>  
OF KAISER RADIOLOGISTS (R) AND ORTHOPEDIC  
SURGEONS (ORS) AS REPORTED IN TWO  
SOURCES OF DATA

<u>Year</u>	<u>Official Salary Schedule</u>		<u>Personnel Ads in Medical Journals</u>	
	<u>R</u>	<u>ORS</u>	<u>R</u>	<u>ORS</u>
1951	\$10,800	\$10,800		
1961		18,000		
1963			\$20,000	
1964	20,000			\$20,000
1965	21,200	24,000	24,000	24,000
1966				24,000
1967			30,000	30,000
1968	30,000	30,000		
1969	30,000	30,000		

<sup>a</sup>These starting salary figures are reported at the  
board-certified level.

TABLE XXX

STARTING SALARIES OF KAISER RADIOLOGISTS AND ORTHOPEDIC  
SURGEONS OVER TIME BASED ON COMBINATION OF DATA  
FROM OFFICIAL SALARY SCHEDULE AND RECORDS OF  
PERSONNEL ADVERTISEMENTS

<u>Year</u>	<u>Starting Salaries of R and ORS<sup>a</sup></u>
1951	\$10,800
1961	18,000
1963	20,000
1964	20,000
1965	24,000
1966	24,000
1967	30,000
1968	30,000
1969	30,000

<sup>a</sup>It is assumed that these figures approximate the median salaries of radiologists and orthopedic surgeons at Kaiser (See the discussion on pp. 45-46). The salaries of radiologists and orthopedic surgeons are close to those of the most highly paid specialists at Kaiser.

Source: Data from an official schedule of Kaiser salaries and from records of personnel advertisements were compared (Table XXIX). Because of the many instances of identical information in the two sets of data and because of the high degree of consistency between them, (there was only one discrepancy), it seemed feasible to combine them. Thereby, more comprehensive salary data were obtained. Furthermore, because of the high agreement between the schedules for radiologists and orthopedic surgeons within both sets of data, it seemed reasonable to assume that these two specialties had identical salary schedules. Accordingly, the data on these specialties were also combined.

### III. ABSOLUTE COMPARISON OF INCOMES OF KAISER SPECIALISTS AND PRIVATE PRACTITIONERS

TABLE XXXI

LONGITUDINAL COMPARISON OF STARTING SALARIES OF ONE GROUP OF KAISER SPECIALISTS (IM-GS-OBG-PD) TO MEDIAN NET INCOMES OF SELF-EMPLOYED PHYSICIANS UNDER SIXTY-FIVE

<u>Year<sup>a</sup></u>	<u>Starting Salary of Kaiser Specialist<sup>b</sup></u>	<u>Year<sup>a</sup></u>	<u>Income of Self-Employed Physician</u>
1948	\$ 8,400	1947	\$ 8,744
1953	10,800	1951	13,150
1956	12,000	1955	16,017
1959	13,200	1959	22,100
1962	16,200	1962	24,300
1965	21,200	1964	28,380

<sup>a</sup>It will be noted that the years from which each set of income data come are not identical. The years for which the Kaiser data are reported were chosen not only to correspond to the data on self-employed physicians but also to compensate for the Kaiser policy of interspersing periodic large salary increases with periods of no salary increases.

<sup>b</sup>For reasons explained in the text (pp. 45-47), these starting salary figures for the IM-GS-OBG-PD group of Kaiser specialists are interpreted to be representative of the median starting salary of the Kaiser physician.

Source: The Kaiser data came from an official schedule of starting salaries. The 1947-62 data on self-employed physicians came from "Physicians' Economic Health," Medical Economics, November 2, 1964, pp. 64-65; the 1964 data came from Elton Rayack, Professional Power and American Medicine: The Economics of the American Medical Association (Cleveland: The World Publishing Company, 1967), p. 110.

## APPENDIX C

### UNANTICIPATED PROBLEMS

The main source of data on Kaiser physicians used in the present study was the application for staff membership, a standardized form filled out by all Kaiser physicians. It was chosen instead of physicians' curricula vitae on the assumption that it would provide more systematic and complete information on each physician than the curricula. However, as shown by the data, this assumption was false. In retrospect, it appears that the decision to use the application forms as a source of data was not sound.<sup>1</sup>

In the following discussion three problems which the use of the application forms raised will be described. Two questions will be posed with reference to each problem: 1) Did it lead to systematic or random variation in the completeness of the data? 2) Did it lead to systematic or random errors in the data? In this way we will assess the

<sup>1</sup>From the standpoint of research strategy, it is important to understand how this situation arose. Two factors seem primary: the researcher's lack of experience in working with different sources of data and the necessity of working through an intermediary in order to gain access to the data. As a result, the researcher never went directly to the various sources of data. Lacking the opportunity to determine the information in and the merits of each, the researcher never gained experience with the sources until after the decision to use one of them had already been made.

extent to which these problems affect the validity of the findings of the present study.

## I. FIRST PROBLEM

The first problem which was discovered concerned the bureaucratic use of the application forms. The so-called "applications for staff membership" are not used as applications for active staff status in Kaiser, since the physicians do not fill them out until after they have already assumed active staff status. Instead, the curricula vitae are used as application forms. During the time that personnel decisions are being made, the latter provide written information about the physicians. After the physicians have already become Kaiser staff members they fill out the "application for staff membership," which seems to represent a bureaucratic procedure for information storage and retrieval.

The bureaucratic use of application forms for information storage and retrieval presented a problem for this study: it appeared that information was missing from the forms as a result of the use to which the forms were put. This became apparent from the instances when the curricula vitae were found with the application forms. In comparison to the application forms, the curricula provided more complete and systematic information on the physicians. Thus, it appeared that the curricula, in serving as applications, are filled out with more care than the application forms, whose

only purpose is record-keeping.

Unfortunately, it is not known whether this problem introduces systematic or random variation into the completeness of the data for this study, as in only a few instances was comparison of the application forms and current curricula vitae possible. No evidence of systematic variation was discovered in the course of data gathering. In other words, it did not appear that either the kind or the extent of information missing for each physician was correlated with his status (rank) or with any other variable used in this study. However, the limited evidence available allows no general conclusion about any variation which might have been introduced into the completeness of the data.

Nevertheless, it is likely that the use of the application forms as a source of data for this study introduced coding errors into the data. Comparison of the curricula vitae to the application forms showed that interpretations of the data which were based on both these sources of data were different from those based on only a single source. However, since the curricula vitae were generally unavailable, it was impossible to compare the curriculum of each physician to his application form in order to eliminate the coding errors which would result from the use of the application forms alone as a source of data. Consequently, the use of the application forms as a source of data probably led to errors in the data of this study.

Since it is not known whether cases of missing information are randomly or systematically distributed within the universe of Kaiser physicians, it is also unknown whether the coding errors which result from the missing information are randomly or systematically distributed within the universe. Therefore, there is no way to assess the degree to which the validity of the results of this study is affected by the problems of missing information which arise from the bureaucratic use of the application forms.

## II. SECOND PROBLEM

The second problem which was discovered involved bureaucratic changes in the format of the application forms. The various forms which were used over the years call for different types and amounts of information on each physician.<sup>2</sup> As a result, some items of information are missing for physicians who filled out certain types of application forms.

<sup>2</sup>The earliest source of information discovered for any physician was not even a form but merely a typed sheet of information covering training, professional societies, and certification. The first application form asked for training, practice, certification, and military service. Neither of these two sources of data were dated.

Over the years, two other application forms were used, each of which asked for the same kinds of information. One was put into use about 1955 and seems to have been filled out annually until 1959. In that year the Bess Kaiser Hospital in Portland was opened to replace the Vancouver, Washington hospital, and the application form which is in current use was introduced. The staff who transferred from Vancouver to Portland filled it out once. After 1959, new staff also filled it out only once upon entry into Kaiser.

The problem of bureaucratic changes in the format of the application forms clearly introduced a systematic bias into the completeness of the data for this study. Comparison of the information in the most recently introduced forms (1959) reveals that physicians who entered Kaiser after 1959 filled them out much more completely than physicians who entered Kaiser before 1959 and who filled out the forms in 1959 upon transfer to the Bess Kaiser Hospital in Portland from the hospital in Vancouver. With regard to the forms used before the current type of application form was instituted (i.e., before 1955), the more recent forms contain more information than the older forms; furthermore, all these forms contain less information than the current type of form.

These comparisons show that the earlier a physician entered Kaiser, the higher the probability that data on him are not complete. In other words, the completeness of the data on any physician varies according to the time he entered Kaiser. Since both the status of Kaiser and the status of its recruits also vary over time, it is likely that these variations in the completeness of the data on physicians are systematically correlated with either the status of Kaiser or the status of its recruits, or both. Thus, it is clear that bureaucratic changes in the format of the application forms introduced a systematic bias into the completeness of the data for the present study.

However, it is unlikely that this bias in the completeness of the data led to systematic coding errors. Since all the application forms which had been used over the years were available, the variety of forms which had frequently been filled out by a given physician could be compared. Instances of information missing on any given form could be identified and thus many potential coding errors avoided.<sup>3</sup>

For example, the 1959 application form of physicians who entered Kaiser between 1955 and 1959 was compared to the form which was used between 1955 and 1959. Although the 1959 form was generally incomplete, it was usually possible to find a complete form by locating the first form which had been filled out by these physicians. Similarly, several forms could be compared for physicians who left Kaiser between 1952 and 1955. Thus, the inadequacy of any particular form could be compensated for to some extent.

Although these comparisons eliminated many potential coding errors, some errors probably could not be avoided. The information called for on both forms which were used prior to 1955 is less extensive than that on the forms used after 1955. Therefore, the information on physicians who

<sup>3</sup>Actually, the necessity for comparing and making inferences from different forms may have led to some coding errors. The complexity and length of some of the physicians' careers plus the great amount of information to be compared before inferences could be made inevitably resulted in some errors.

filled out the former forms is probably less complete than the information on physicians who filled out the latter forms. In sum, bureaucratic changes in the format of the application forms have probably led to a slight systematic bias in the completeness of the data for this study.

### III. THIRD PROBLEM

The third problem which was discovered involved the missing personnel records of the ten physicians who left Kaiser before 1952.<sup>4</sup> As a result of this problem, the present study contains almost no data on these physicians.

These missing personnel records systematically bias the completeness of the data for this study. All the missing records come from the period 1943 to 1953 when Kaiser had low status. In other words, the missing records are correlated with the status of Kaiser. As a result, the completeness of the data for this study is systematically biased.

<sup>4</sup>Although it is possible that records were not kept during the first years of Kaiser's operation, there is evidence which indicates that records were kept and that the records on the physicians who left Kaiser before 1952 disappeared. First, complete information, including curricula vitae, letters of reference, and various early application forms, was found for one physician who applied to and entered Kaiser around the end of 1945. This suggests that written records of some kind were kept even on the earliest Kaiser physicians. Second, an informant reported that many years ago all the records on the Kaiser staff disappeared and that later only those of the active staff reappeared. The records of physicians who became inactive prior to 1952 were missing.

The only readily available alternative source of data on these physicians, the American Medical Directory, contained only one item of relevant information on each physician, namely, his medical school. Consequently, there was no way to compensate for the lack of data on these physicians in the Kaiser personnel records. Therefore, many of our conclusions concerning physicians who entered Kaiser between 1943 and 1953 may be in error.

#### IV. CONCLUSION

The three problems which were raised by the use of the staff applications as a source of data for this study have now been described in full. With regard to the first problem, which concerned the bureaucratic use of the application forms, it was not possible to determine definitely 1) whether it had led to systematic or random variation in the completeness of the data and 2) whether it had led to systematic or random errors in the coding of the data.

In contrast, it was clear that the second and third problems, which involved bureaucratic changes in the format of the forms and ten missing personnel records, had produced systematic variation in the completeness of the data. However, only the missing personnel records may have led to errors in the data. In particular, some of our conclusions concerning the physicians who entered Kaiser from 1943 to 1953 may be false. We conclude that the validity of some of

the results of this study is questionable.

As a result of our discovery that the application forms did not provide systematic and complete information on each Kaiser physician, the soundness of the decision to use these forms as a source of data for this study must be questioned. If the present study could be done over again, the staff applications would not be chosen as the sole source of data. Rather, multiple sources of data, e.g., the application forms as well as curricula vitae, letters of reference, etc., would be used. The disadvantages of any particular source of data could then be identified and dealt with.

Typed by

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