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Robert Neil Horn
LABOR MARKET SEGMENTATION IN
NEW ENGLAND: EMPIRICAL AND CASE STUDIES

BY

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B.S. Hofstra University, 1974
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A DISSERTATION

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in
Economics

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ABSTRACT

LABOR MARKET SEGMENTATION IN
NEW ENGLAND: EMPIRICAL AND CASE STUDIES

by

ROBERT NEIL HORN

This dissertation focuses on factors which may contribute to labor market segmentation in New England. Segmentation or dual labor market theorists divide the labor market into primary and secondary sectors, claiming the nature of occupations within the separate markets differs with respect to the organization of work, remuneration, locus of control and room for promotional opportunity. Employment conditions in the secondary labor market are characterized by low pay, high turnover, minimal skill requirements, arbitrary managerial control and little or no room for in-firm upward mobility. Primary labor market occupations, on the other hand, are characterized by higher pay, greater employment stability and the existence of internal labor markets. Central to the dualists' interpretation of the labor market is the hypothesis that the sector in which a worker begins employment is the sector in which he will remain throughout his entire working career.

The above hypotheses are tested in two ways. First, using data from the 1970 Census Public Use Sample, I have constructed a set of econometric models which analyze (a) the process of wage determination in the primary and secondary labor market, (b) the conditional probability of primary market employment, and (c) the likelihood of upward (secondary to primary)
mobility. The empirical results of each of the models are interpreted in terms of their consistency with the basic postulates of dual labor market theory as well as neoclassical human capital theory.

The second part of the thesis consists of a case study of the structure of the labor market in Manchester, New Hampshire, the state's largest and most industrious city. By means of open ended interviews with white collar and blue collar workers and managerial personnel, the existence of labor market duality in Manchester is directly examined. Employee and management responses are also used to determine the structure of internal labor markets which, according to dual theory, provide institutionally determined avenues of upward mobility, seniority clauses, and pay scales for workers in primary occupations. By combining econometric models with a case study, this dissertation provides a clearer description of the functioning of labor markets than most of the earlier research, which has tended to rely exclusively on empirical model building.

The dissertation also includes an extensive review of the recent literature on labor market segmentation. Particular emphasis is placed on employment conditions in secondary markets and the contributions of radical economists to the study of labor markets. In a separate chapter, several earlier empirical studies of labor market duality are reviewed and critiqued.
CHAPTER I
INTRODUCTION

In recent years, economists have shown increasing concern over the plight of large numbers of the labor force who appear to be confined to low wage labor markets. The apparent failure of government manpower programs to reduce the burdens of economic inequality in the labor market has prompted some economists to advocate policies aimed directly at the structure of labor markets. This represents a marked change from traditional analysis, which stresses increasing education and vocational training programs, i.e., supply side factors, as the means by which disadvantaged workers would be able to gain access to better paying jobs. Advocates of this change in public policy argue that workers in low wage labor markets do have the ability to perform in higher wage sectors, but market imperfections, discrimination, and other institutional constraints function as barriers, severely limiting their access to the better jobs. Policies suggested to alleviate the burdens of disadvantaged workers include stronger emphasis on antidiscriminatory legislation to curb racial imbalance in primary labor markets, programs to stabilize secondary market employment relations, making them more primary-like, and increased use of federal government employment creating programs.

In this dissertation, I examine some factors which may contribute to, or result from, the segmentation of labor markets. The thesis is divided into three main sections. In Chapters II and III, I present a detailed review of the conceptual literature on the segmentation of
labor markets, and several empirical attempts to determine the existence of labor market duality. The literature review begins with a brief discussion of the history of the theory of non-competing groups (John S. Mill and J. Cairnes) and progresses to the work of the institutionalists during the 1950's and the studies of ghetto labor markets during the early 1960's, out of which dual theory developed. I then turn my attention to a thorough discussion of employment conditions and industrial organization in secondary and primary labor markets. The chapter concludes with a summary of radical contributions to labor market theory and public policy implications derived from a dualist approach to labor markets.

In the Empirical Studies Review Chapter, I look at four researchers' attempts to devise econometric models to depict the incidence of segmented labor markets. Special attention is given to the methods used to determine which jobs are classified as primary or secondary. The models are divided into three sections: (1) wage determination, (2) probability of primary market employment, and (3) likelihood of secondary to primary mobility. Within each section, the results of the models are analyzed and criticized in terms of their specification and consistency with the basic postulates of dual labor market theory.

The second section of the thesis consists of the development of a set of linear regression models to determine the extent of segmentation in New England labor markets. In Chapter IV, three empirical models, corresponding to the sections cited in the previous paragraph, are specified. Each of the variables appearing in the equations is discussed in terms of its expected sign and significance according to dual market theory.

In Chapter V, I present the results of testing the models developed
in Chapter IV using a data base consisting of the 1970 Census Public Use Sample for the five New England states. The regression coefficients are carefully scrutinized in order to determine the efficacy of the dualist approach to the study of labor markets. The results are also used to compare the dual approach with the paradigm still adhered to by most mainstream economists: the queue theory.

The third part of the thesis consists of a case study of labor market conditions in Manchester, New Hampshire. By means of interviews with production level workers and managerial personnel in several of the city's largest footwear, textile, and electronics industries, I try to determine whether or not labor market segmentation is suggested by the operation of the labor market from which these industries draw their manpower needs, and the relations of production within the firms. I also document the extent to which internal labor markets serve to institutionalize job progression mechanisms in each of the plants visited.

Although the case study approach has not been as widely used in economics as in the other social sciences, I argue that it is a viable way to acquire detailed information about local industrial and labor market characteristics. In fact, my conclusions suggest that advocates of dual market theory should place increasing emphasis on case studies of local labor markets, so as to develop a data base comprehensive enough to take account of both supply side and demand side conditions in future empirical studies.
CHAPTER II

REVIEW OF THE LITERATURE

Dual labor market theory had what might be called its preorigins in the writings of several economists of the classical school. John S. Mill recognized that the range of occupations available to a worker depended upon the socio-economic status of his father. Mill wrote:

The liberal professions are mostly supplied by the sons of either the professional or the idle classes: the more highly skilled manual employments are filled up from the sons of skilled artisans, or the class of tradesmen who rank with them: the lower classes of employment are in a similar case: and unskilled labourers, with few exceptions, remain from father to son in their pristine condition.

Although Mill acknowledged the remote possibility of interclass mobility, he stated that there is a "hereditary distinction of caste" between different grades of labor, and criticized earlier political economists for failing to take account of such distinctions.

The strongest statements concerning occupational stratification among the working classes can be found in the writings of J.E. Cairnes. Cairnes, after undertaking an extensive study of the process by which workers find employment, concluded that

What we find...is not a whole population competing indiscriminately for all occupations, but a series of industrial layers...within each of which the various candidates for employment possess...power

of selection while those occupying the several strata are, for all purposes of effective competition, practically isolated from each other.\(^3\)

Cairnes was also credited with developing the theory of noncompeting groups, as the following much quoted passage illustrates:

...the average workman, from whatever rank he be taken, finds his power of competition limited to a certain range of occupations...We are thus compelled to recognize the existence of noncompeting industrial groups as a feature of our social economy.\(^4\)

With the rise of marginalism in the latter part of the nineteenth century, and its concomitant shift away from the study of social classes towards individual maximizing behavior, the theory of noncompeting groups was cast aside.\(^5\) It was not until the middle of the present century that the theory was revitalized by the institutionalist school, spearheaded by Clark Kerr's work on institutional and structureless labor markets.

Kerr described the dimensions of institutional markets as being set by formal and informal rules, not by the individual preferences of employers and employees as competitive theory would dictate.\(^6\) According to Kerr:

institutional rules in the labor market...establish boundaries between labor markets and make them more specific and harder to cross. They define the points of competition, the groups which may compete, and the grounds on which they compete.\(^7\)


\(^4\)Ibid.

\(^5\)See M. Dobb *Theories of Value and Distribution* ch.7, for a discussion of the change in the subject matter of economists during the Marginal Revolution.


\(^7\)Ibid. p.109.
This internally structured type of labor market is contrasted with what Kerr and Lloyd Fisher labeled the "structureless market". The latter is said to possess the following characteristics:

1. No unions with seniority or other rules,
2. The relation between the employee and employer is a transitory, impersonal one,
3. The workers are unskilled,
4. Payment is by unit of product, and
5. Little or no machinery is employed.®

I will show that the distinction between institutional and structureless labor markets formed the basis for the dualist dichotomization of the labor market into primary and secondary sectors. Kerr's description of the mechanisms which govern entry criteria, mobility patterns, wage determination and the role of unions in institutional markets versus the "cash nexus" nature of structureless markets provided an important framework for future labor market analysis. That the dualists have adopted this framework is apparent, as there is direct lineage from the institutional market to the primary labor market and from the structureless market to the secondary labor market. What is missing in Kerr's work is a discussion of socioeconomic factors which result in confinement within structureless markets. Some dualists and, more recently, radical economists have tried to address this issue.

One final comment on what I have labeled "preorigins" of dual labor market analysis concerns the awareness of the institutionalists that the changing structure of American industry has fostered the development of internalized job clusters. Glen Cain pointed out

Dunlop and Kerr view(ed) the growth of large firms and unions as promoting internal (within-firm) labor

®Ibid. p. 95.
markets that are only weakly connected to external (between-firm) labor markets,\(^9\)

while E. R. Livernash stated, "internal promotion has developed with the growing diversification and specialization of jobs."\(^{10}\) Radicals, picking up where the institutionalists left off, have made the dynamics of the monopolization of capital and its affects on labor markets a focal point of much of their work in this area.

**The Development of Dual Labor Market Analysis**

Dual labor theory did not emerge as a continuum in the theoretical progression of labor market analysis cited above. According to David M. Gordon, "dual labor market theory arose out of a series of relatively informal studies of local labor markets and individual establishments."\(^{11}\)

The "informal" nature of these early studies has led some writers to argue that dual theory "is not really a theory but merely a descriptive view of the labor market."\(^{12}\) Nevertheless, a substantial body of literature has developed in recent years, the immediate origins of which can be traced to several independent studies of labor market conditions in inner city areas of New York, Boston and Chicago during the 1960's. Thus, Michael J. Piore, who along with Peter Drucker has been the chief proponent of dual market analysis, describes its intent as


follows:

...dual hypothesis was designed to explain the problems of disadvantaged, particularly black, workers in urban areas, which had previously been attributed to unemployment. It implied that the basic problem was that they were somehow confined to jobs within the secondary sector, and the reported unemployment rates were essentially a symptom of the instability of the jobs and the high rate of labor turnover among the labor force which held them rather than a literal inability to find work.\(^\text{13}\)

The basic postulate of dual or segmented labor market theory is that there is no single labor market from which employers seek workers in accordance with the latter's marginal productivity. Dualists divide or segment the labor market into two or more distinct labor markets, claiming the characteristics of the separate markets differ with respect to the organization of work, remuneration, locus of control, labor supply, and so forth. The major distinction found in the literature is between the secondary labor market and the primary labor market.

I begin the body of this literature review by giving a detailed discussion of the secondary labor market, paying close attention to the relations of production in this sector. I then discuss the primary labor market and its institutionalized internal structure. A discussion of an operational framework for the study of market duality and its implications for public policy follows. The chapter concludes with radical interpretations and extensions of market segmentation theory.

The Secondary Labor Market

Secondary labor market jobs are characterized by low pay, unstable employment and poor working conditions, and are said to be in direct competition with welfare and crime for the attachment of the potential labor force.\(^{14}\) Although the latter part of the preceding statement may somewhat overestimate the transient nature of the secondary labor force, workers confined to this sector do face employment opportunities which tend to promote and even encourage instability. Remuneration is often by hourly wage and/or piecework; workers are subject to arbitrary managerial decision making; and the jobs, once learned, quickly become mere routines leaving virtually no room for individual autonomy and growth. As a result, there appears to be very little reason why any worker should feel any sense of attachment to any particular secondary market job.

Piore and Doeringer cite three kinds of employment situations commonly found within the secondary labor market. The first of these is completely unstructured employment.\(^{15}\) This is closest in context to Fisher's structureless labor market cited above. Next is what they call "secondary" internal markets, which do have some amount of internal structure, but many ports of entry, short mobility clusters and low paying, unpleasant work.\(^{16}\) Last are secondary jobs attached to the bottom end of an "internal labor market in which the remainder of jobs


\(^{16}\) Ibid.
are primary". They are careful to point out that although "attached" to a primary market job sequence, secondary workers do not have access to the better paying, higher status jobs hovering just above their heads.

**Labor Supply and Industrial Organization**

Given Doeringer's and Piore's description of secondary employment situations, it is important to detail factors which characterize the supply of labor in secondary labor markets. Harold Wool points out that the American economy has had little trouble in meeting its low level manpower needs. He goes on to note:

> Employers experience little difficulty in recruiting an adequate supply of workers for (secondary labor market) jobs because of the existence of a large pool of workers who have few other effective choices. Included in this pool are disproportionate numbers of black workers, recent immigrants, and migrants from farm to city, all sharing more or less the handicap of limited education, skills and information.

Karl Marx's concept of the industrial reserve army of the unemployed is quite relevant to Wool's depiction of the secondary work force. Marx saw that the process of capitalist development created a mass of low skilled, undifferentiated labor power, whose numbers swelled the ranks of the unemployed. Because of competition for the existing jobs, their chief function (to the capitalists) was to depress wages down to subsistence levels and prevent the formation of collective agreements by workers which would result in upward pressure on wage rates.

In addition to fitting into the Marxian perspective, the secondary labor market also closely approximates the neoclassical model of a

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17 Ibid.
19 Ibid.
competitive market. Labor power is taken by employers to be a homogeneous commodity, and firms share many of the traits of Marshall's representative firm operating under competitive conditions, i.e., small in relation to the market, little effective control over price, low profit margins etc. Barry Bluestone has done considerable work in describing the characteristics of industries which operate in low wage sectors of the economy. His research suggests that low wages do not result from monopolistic exploitation of labor in order to reap high profits, but from low profit margins in the bulk of low wage industries. He goes on to point out that, "the small 'invisible' firm...often avoids the sharp eye of the government inspector and the acute sensitivities of an aroused public opinion. Consequently, low wages and poor working conditions have a much better chance of survival in the industries of the working poor."  

Given the structure and the minimal training requirements of jobs in the secondary sector, employers, in making their hiring decisions, act as if employees have more or less equal productivities. Furthermore, since the majority of industries operating in this sector are labor intensive, and since there are minimal internal and external institutional constraints, low wages tend to reflect the low marginal productivity of labor. Wage determination is quite simply left up to impersonal market forces. Minimum wage statutes may be considered a constraint, although Bluestone notes many low wage groups have been excluded from

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21 Ibid. p.105.
22 Gordon. p.51.
minimum wage legislation.  

Wage rates are uniformly low throughout the entire secondary labor market. While slight variations in wages may be attributable to market imperfections, Gordon concludes that:

> individual incomes will depend primarily on the number of hours worked, while variations in individual hourly earnings will depend very little on variations in individual "capacities" like aptitude, reasoning and vocational skills.  

Bluestone provides an important summary of the implications of this tie between the process of wage determination in the secondary labor market and competitive theory in the competitive model. He writes:

> It is interesting to note that precisely where the market approaches its theoretical best—in firms furthest from monopoly and closest to laissez faire—the market cannot supply jobs adequate enough to feed a man's family satisfactorily.

### Employment Conditions

Doeringer, Piore, and others have argued that employment instability is a common feature within the secondary labor market. Turnover rates are high largely because neither the employer nor the employee has any vested interest in promoting stable employment relationships. From the employer's point of view, the short learning curves common to secondary jobs and the existence of a large pool of substitute workers renders turnover inexpensive and not a cause for concern. From the workers'
perspective, the very nature of the jobs, i.e., low wages, poor working conditions, seasonality etc., encourages a high rate of turnover.

It is important to realize that turnover within the secondary market is largely confined to "bouncing around" from one low level job to another, whereas in primary markets an individual usually leaves his job for a better one. Stephan Thernstrom gives an excellent illustration of the type of "mobility" common to secondary market workers. He states:

the clerk who becomes a salesman, the menial hospital employee who becomes a short order cook...these are men who have not discernably gained (or lost) in the process of changing jobs. They may have been drawn into the new post by slightly higher wages...or they may have been fired...and forced to accept somewhat lower wages...in order to find work at all. In either case...(one)...would classify their movement as horizontal, not vertical.  

Central to the notion of employment instability within the secondary sector is the position held by some dualists that unstable jobs lead to unstable lifestyles, which tend to reinforce behavioral patterns which are antagonistic to stable employment. Doeringer asserts that these patterns are passed on to succeeding generations.  

As a result, the conditions which gave rise to secondary labor markets also act to insure their reproduction and continued existence. As Glen Cain so aptly puts it:


factors that start workers off in the secondary sector can shape tastes in an antiwork direction and thereby reinforce the disadvantaged position of low wage workers. The (segmentation) model has an aspect of the "viscious circle" or "self-fulfilling prophecy" to it. 30

This position is given further support by Bennett Harrison who claims that "by acclimating themselves to local work arrangements, workers find it psychologically as well as technically difficult to move from one stratum of the economy to another." 31

The Culture of Poverty

This social class reproduction schema bears a close resemblance to the socioanthropological studies of Oscar Lewis on what he has labeled the culture of poverty. Lewis' criteria for the existence of a culture of poverty parallels those offered by segmentation theorists for the existence and functioning of secondary labor markets. His relevant criteria specify an organization of production characterized by:

(1) A cash economy, wage labor and production for profit,
(2) Persistently high rate of unemployment and underemployment for unskilled labor,
(3) Low wages,
(4) The existence in the dominant class of a set of values that stresses the accumulation of wealth and property, the possibility of upward mobility...and that explains low economic status as the result of personal inadequacy or inferiority. 32

Lewis maintains that "the culture of poverty is both an adoption and a

30Cain. p.1223.
reaction of the poor to their marginal position in a class stratified, highly individuated, capitalistic society." Descriptions of "street corner lifestyles" in urban slum areas, such as those given by Elliot Leibow in Tally's Corner, show that once one is immersed into a culture of poverty, he is almost certain to remain there, not only for his lifetime, but in all likelihood, for his offspring's as well.

The above views on the intergenerational transmission of unstable life/work patterns are not wholly acceptable to many segmentation theorists. They tend to make barriers between secondary and primary labor markets insurpassable. We shall see below that this is not necessarily so. Even more important is the notion that workers become psychologically conditioned to their work environment and are not able to function outside of it. Numerous studies have shown that the "hard core" unemployed living in urban slum areas can develop stable working habits, given that the organization which locates in the area provides an environment conducive to the development of such traits. Sar Levitan, commenting on the results of I.B.M.'s decision to locate a plant in the Bedford-Stuyvesant section of Brooklyn, New York, noted that vandalism, arson, and theft have not been problems, the workers appear motivated and responsible and high rates of absenteeism and labor

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33 Ibid. p. 188.
35 See Peter B. Doeringer, editor Programs to Employ the Disadvantaged, for a series of case studies detailing the experiences of several companies which opened plants or set up training schools in black inner city slum areas.
turnover have not been encountered. In short, it is not psychological conditioning, but a lack of effective opportunities for choice which results in secondary entrapment.

The role of secondary labor markets in the larger macroeconomy will be discussed after I present the characteristics and functioning of primary labor markets. It is to the primary labor market that we now turn our attention.

**The Primary Labor Market**

The primary labor market can be considered the diametric opposite of the secondary market. Primary occupations are relatively high paying, stable, have good working conditions, changes for advancement and equitable administration of work rules. Although opportunities for advancement exist, the range of occupations which usually lie in the primary sector is quite diverse. Some occupations are marked by a substantial amount of autonomy, i.e., the worker has considerable control over his job, while others lack autonomy. This questions of degree of autonomy has led some dualists to propose a subdivision of the primary sector into upper and lower tiers according to the "amount of personal participation in the production of the final good or service." Nevertheless, primary occupations are considered to embody the basic characteristics outlined above.


37 Piore, "On-the-Job..." p.102.

Entry Conditions

As we shall see, the internal administration of work rules in this sector departs considerably from the traditional neoclassical analysis of the operation of competitive markets. Only at ports of entry into primary jobs slots do market forces come into play. Here too "non-economic" tastes and preferences of employers (and unions) act to limit entry possibilities. Clark Kerr writes:

the process of selection is also the process of rejection. Decisions are made in favor of certain individuals but at the same time against others. The individuals which control these ports of entry greatly affect the distribution of opportunities in economic society. The rules that they follow determine how equitably opportunity is spread and the characteristics for which men are rewarded and for which they are penalized.39

Unlike the secondary market wherein labor power is perceived as a homogenous commodity, primary employers are aware of differences among prospective employees, whether they be skin color, sex, or educational status.

Primary market employers tend to rely quite heavily on educational credentials in making their hiring decisions. By using the high school diploma as a prerequisite for employment, employers have a "quick and allegedly inexpensive device for screening out...undesirable individuals."40 Bennett Harrison points out that the result of this practice is to "screen out" minority workers who may well be capable of performing the requisite job tasks.41 Since minorities, on the average, tend to have

39 Kerr. p.102.
41 Ibid.
less education than white males, credentialism effectively serves to maintain racial imbalance in primary labor markets.

The work of Bowles and Gintis on the functions of the educational system under monopoly capitalism transcends the discriminatory aspects cited above. They argue that the major function of the educational system is to replicate the existing social relations of production, thereby ensuring all levels of capital a continuous source of labor power. Of importance to employers is that schools teach future workers how to behave, i.e., punctuality, submission to authority, etc. This provides a convenient rationale for educational credentialism by primary employers, in that screening out those with low levels of education ensures them a labor force that will show up on time, follow directions and value material incentives.

The entry process into primary market positions can be looked at in terms of the queue theory of the labor market. Workers are arrayed along a continuum in order of their desirability to employers. Employers, given their tastes and preferences, choose their workers from as far up the queue as possible. According to the human capital school, those prospective workers with the largest amounts of human capital investment will occupy the top positions along the queue. Employers are thus acting quite rationally in selecting those workers who will make the largest

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42See Sam Bowles and H. Gintis, Schooling in Capitalist America for an historical look at the development of educational institutions as capitalism moved from its competitive to monopoly stages.
45Ibid.
net contributions to output. Since wage rates are determined by labor's marginal productivity, the income differential between jobs in the secondary sector and entry level primary positions can be explained, in part, by the former's relatively lower marginal productivity.

The Internal Labor Market

After initial port of entry hiring decisions are made, the internal labor market replaces the competitive external market. Doeringer and Piore define internal labor markets as "administrative units within which the pricing and allocation of labor are governed by a set of administrative rules and procedures." Once in an internal labor market, the worker is largely protected from external forces. Pay increases, promotions, seniority, dismissal and job grading are not subject to market forces, but are determined through collective bargaining agreements and/or historically determined institutionalized mechanisms. Work rules and procedures are clearly spelled out, providing guidelines for both employees and management. As a result, workers are protected from arbitrary managerial decision making and have established grievance procedures in the event of alleged abuses.

Michael Wachter describes the growth of internal labor markets and their isolation from external labor market forces as follows:

...complex employment relationship(s) (have) developed...because of the elaboration of tasks that are specific to a job and hence require specific training. Because of institutional realities the competitive model's description

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of a labor market based on demand and supply for each job does not apply. Most jobs are unique and lack an external market. New workers are used principally to fill entry jobs while most higher-level positions are filled by promotion from within. Workers already in a firm enjoy a degree of monopoly over their jobs.\textsuperscript{47}

That training in internal markets is specific goes a long way in explaining why turnover is lower in primary than secondary labor markets.

Gary Becker points out that employees with specific training have less incentive to quit (they are earning more than they could elsewhere), and firms have less incentive to fire them (the firm bore the cost of training) than employees with no training or general training.\textsuperscript{48}

In addition to holding a degree of monopoly over their current jobs, workers in an internal market have a monopoly over the jobs on the next rung of the internal job ladder. Michael Piore has done considerable research on worker mobility patterns in what he calls "an attempt to formalize the intuitive notion that socioeconomic movement in our society is not random but tends to occur in more or less regular channels."\textsuperscript{49}

He distinguishes points along these mobility chains stations, claiming a particular station includes not only a job, but other points of social and economic significance.

Piore is quick to note that mobility chains are found only in primary internal labor markets. In fact,


\textsuperscript{49} Piore, "Notes..." p.128.
...the distinction between the primary and the secondary sectors is that the mobility chains in the former constitute some kind of ladder along which there is progress towards higher paying and higher status jobs. In the secondary sector... jobs do not fall into any progression of this kind: they are held in a more or less random fashion. Most segmentation theorists would agree with Piore that the existence and functioning of an internal labor market is the major distinction between primary and secondary labor markets.

This concludes my descriptive review of the primary and secondary labor market. I will now present an operational framework for the analysis of labor market duality. This will enable us to see what a dual labor market would look like if we could observe one in operation, and provide a lead in for discussing macro-policy implications stemming from the dualist approach to the study of labor markets.

An Operational Framework for the Study of Labor Market Duality

The existence of labor market duality in the macroeconomy is an empirical issue which forms the base for the next three chapters of this dissertation. As a conceptual issue, however, the question is: Would a cross sectional picture of the occupational structure, whether confined to a local labor market or on a national scale, indicate the presence of labor market duality? Glen Cain provides an illustration as to how such a test should proceed:

Assume that we could agree upon a unidimensional scale to measure the quality... of occupations... Let this measure of job quality be measured on the horizontal axis and the number of workers on the vertical axis. The simplest test of duality is whether the resulting frequency distribution is bimodal.51

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50 Ibid. p.130.
51 Cain. p.1231.
If we assume that most jobs reside in primary labor markets, then the resulting frequency distribution would appear as follows:

Jobs falling in the lower mode would be designated secondary, while those further out from the origin on the horizontal axis would be primary labor market jobs.

David Gordon makes an attempt at developing such a test in his Ph.D. dissertation. Gordon devises what he called a "dual labor market factor" and finds it to be an important explicator of the variance in his data on occupations in two ghetto labor markets. A ranking of jobs by their scores on this factor was bimodally distributed, permitting a separation of the jobs into primary and secondary clusters, with job characteristics corresponding roughly to the hypothesized characteristics in the two markets. Gordon's results indicate the viability of Cain's conceptual approach to the study of labor market duality.

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The Extent of Secondary to Primary Mobility

Of equal, if not greater, importance is the degree to which the barriers which separate the secondary from the primary labor market prevent intermarket mobility. Robert Flanagan goes as far as to state, "the crux of any theory of labor market segmentation is the mechanism or institutional barriers which truncate competition by precluding mobility between the various labor market segments." A strict interpretation of the dual theory would hold that mobility between sectors is virtually nonexistent; the sector in which a worker initially finds employment will be the sector in which he will remain his entire working career. A less strict, and perhaps more tenable, interpretation would be that mobility (primarily upward) can occur, but the reasons for such mobility are external to the individual worker.

Since nonwhite workers are over represented in secondary sector jobs, dual labor theory takes on aspects of being an economic theory of discrimination. If primary employers only hire white males, then blacks, regardless of their education or level of competence, will be excluded from the more attractive primary job slots and forced to accept degrading secondary sector employment. Flanagan points out:

it is not the inaccessibility of education that is stressed by the dualists but the barriers emphasized include the culture of the ghetto...and overt discrimination by white employers and labor unions.  

Even when nonwhites gain access to primary market occupations, discriminatory policies act to channel them into mobility chains (internal labor markets) which differ substantially in terms of promotional

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54 Ibid. p.262.
opportunities from those reserved for white male employees. In internal labor markets where white and nonwhite workers appear to move up the ranks together, there may exist job ceilings for the latter, effectively restricting supervisory and managerial positions to the domain of the white workers.

Besides the discriminatory aspects, mobility out of the secondary labor market is also restricted, due to the very nature of the social relations of production in the low wage sectors of the economy. Since employment is usually transitory, on-the-job training is often absent, and experience does not serve to increase productivity since performance levels plateau after a very short time. Howard Birnbaum sums up the dualists' position on the effects of career origins by stating:

...once career origin is determined, opportunities for future job movement can narrow because of discrimination, limited opportunities for training, certification, promotion, and the differential development of "affec­tive" personality traits.55

Hence, in the context of economic discrimination, most dualists would argue that barriers separating the primary from the secondary labor market can be reduced if government authorities strengthen the enforcement of existing civil rights legislation. Human resource development programs aimed at increasing the human capital of minority workers will not enable them to escape the confines of the secondary labor market unless primary employers and unions can be forced to change their hiring policies.

Critics of dual theory have argued that mobility from secondary to primary labor markets occurs to an extent that cannot be reconciled with

the institutional barriers that dualists claim restrict mobility. What is oftentimes overlooked is that such mobility is temporary in nature and tends to coincide with expansionary periods of the business cycle. Primary employers may be willing to relax their hiring criteria when labor markets for educated white males tighten, thereby granting "temporary" primary status to secondary sector workers. As soon as the expansion peaks and the contraction stage of the cycle sets in, these workers are let go and find themselves either unemployed or back in low wage sector jobs. Thus, the very structure of primary labor markets serves to support and propagate hierarchical distinctions within the working class.

Dual Labor Markets and Macro-Policy

While the incidence of intersector mobility is primarily an empirical issue, on a conceptual level, the more strict interpretation of dual labor theory provides a viable explanation for understanding why a mature capitalist economy can experience rising levels of inflation in the midst of high rates of unemployment. Traditional Keynesian analysis holds that inflationary pressures come into being as aggregate demand surges above full employment levels. When aggregate demand falls short of aggregate supply, producers cut back production and unemployment results. Since the Keynesian approach to unemployment is quite similar to the queue theory, if government macro-policies stimulated expansion then almost everyone in the line would be absorbed.

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56 For a fuller discussion of traditional macro-policy and its short-comings, see Howard Sherman's Stagflation A Radical Theory of Unemployment and Inflation.

Due to excess capacity, prices would remain stable until the expansion approached full employment levels of output. Thus, Keynesian policy can explain inflation or unemployment, not inflation and unemployment.

If the labor market is viewed as consisting of primary and secondary sectors, then, given the structural barriers which limit mobility, an explanation of unemployment and inflation becomes straightforward. The effects of expansionary fiscal and/or monetary policies are only felt in primary labor markets. As aggregate demand expands, labor supply in primary labor markets tightens. Since primary employers are reluctant to alter their hiring practices, the expansion results in upward pressure on wages and prices.

The secondary labor market, on the other hand, remains largely unaffected by expansionary macro-policy. The chronically high rates of unemployment and instability which characterize this sector persist, despite the attempts of policy makers to reduce unemployment. What we end up with is a worsening of the unemployment inflation dilemma; there is more inflation yet no reduction in unemployment. In other words, traditional policy results in outward shifts in the Phillips curve, even though this was not what the policy makers had in mind.

There are several implications for public policy which follow from this approach. Piore argues that expansion must entail more than just the creation of new jobs. He states, "the added jobs must be primary and secondary workers must be hired to perform them." Fiscal policies should be aimed directly at the secondary work force, whether they be in the form of incentives for private industry to locate in depressed areas, or the expansion of public employment. If the latter is structured

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58 Piore, "On-the-Job..." p.123.
in such a way as to provide a viable alternative to secondary private employment, competitive pressure may force low wage industries to upgrade and take on primary market characteristics. This, along with antidiscrimination policies to open up primary markets, will, according to most dualists, reduce unemployment rates without contributing to inflationary pressures in the economy.

**Radical Interpretations**

The most important contribution of radical economists to dual labor theory has centered around their attempt to integrate the process of market segmentation into the dynamics of monopoly capitalism. Reich, Gordon, and Edwards define labor market segmentation as the:

> historical process whereby political-economic forces encourage the division of the labor market into separate submarkets, or segments, distinguished by different labor market characteristics and behavior rules.  

Although some radicals claim the labor market is divided into numerous noncompeting sectors, most radicals would have little trouble with the dualist dichotomization of the labor market into primary and secondary sectors discussed above.

What the radicals emphasize are the ramifications of market segmentation on the ability of the working class to develop a unified consciousness and awareness of their position as a class in opposition to capital.

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60 See Barry Bluestone, et. al., Low Wages and the Working Poor, Ch.2.

61 See Stanley Aronowitz False Promises for a useful discussion of the barriers to the formation of class consciousness.
According to Howard Wachtel, "fragmentation of the working class...has eroded and negated the tendency toward the consolidation of a working class." Fostering divisions within the working classes has historically served the interests of capital. Radicals point out that discriminatory hiring policies, differential job ladders and market segmentation create a stratified working class in which the more privileged workers seek to isolate and protect their advantages. Thus, labor market segmentation, by dividing workers, aids in the reproduction of capitalist hegemony.

Capitalist Development and the Segmentation of Labor Markets

Marx's description of the general laws of capitalist development provides a starting point for most radical analyses of labor market stratification. Marx was aware that over time, competitive capital would give way to increasing concentration of capital. It was during this transition from competitive to monopoly capital that segmentation of the labor market arose. Although this may sound similar to the institutionalists cited earlier, radicals add that segmentation of the labor force was a response by capital to the homogenization of the work force and the increasing removal of individual skills which may have encouraged worker solidarity as a class. This is quite different from the institutionalist's view that internal job structures developed with the "growing diversification and specialization of jobs."

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63 Reich. p.364.
64 Reich. p.360.
Katherine Stone, in an excellent review of the development of internal labor markets in the steel industry, concludes that "the development of hierarchy in the labor force was not in response to the increased complexity of jobs, but rather a device to counter the increased simplicity and homogeneity of jobs." Stone notes that the institution of the job ladder served the interests of capital in two ways:

First, it gave workers a sense of vertical mobility ... and was an incentive to work harder... (Second) was that it gave employers more leverage in which to maintain discipline. The system pitted each worker against all others in rivalry for advancement and undercut any feeling of unity which might develop among them.

The important thing to realize is that at the same time the internal market developed, the fragmentation and simplification of individual jobs reached its highest level.

Stone's findings for the steel industry can be generalized to account for the widespread development of internalized labor structures. Reich, Gordon, and Edwards argue that the increasing oligopolization of industry was threatened by the proletarianized work force which, in the competitive era, became a homogeneous commodity. In order to combat the increasing social nature of large scale production, capital embarked on a tactic to divide the work force. The results of this were the institution of new managerial techniques, internal job ladders, and hierarchical and bureaucratic organization of production.

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66 Ibid. pp. 46-47.
67 Ibid. p. 362.
68 Ibid.
Radicals do not offer much in the way of public policy. Basically, the radical view is that since a segmented labor force is functional to capitalist hegemony and since the state exists to serve the interests of capitalists, it is unreasonable to expect any significant policies to aid disadvantaged secondary workers.

Conclusions

The purpose of this literature review was to provide an analytic description of the primary and secondary labor market and to indicate the major trends of thought relating to labor market segmentation. The brief historical review of noncompeting groups showed dual theory has had considerable precedence in the annals of economic thought. What distinguishes the dual approach from earlier theories is its growing acceptance among economists and its applicability to such important contemporary issues as the perpetuation of low-wage sectors of the economy, the plight of disadvantaged workers, and the co-existence of rising rates of inflation and high levels of unemployment. Although neoclassical theory remains the dominant view of most establishment economists, segmented labor market theories have won wide appeal to many younger, left leaning economists. There is no doubt that this acceptance reflects the increasing problems of neoclassical theory in trying to explain an objective reality characterized by monopoly capitalism, discrimination, and other institutional constraints.

In the following chapter, I review several attempts at constructing empirical models of labor markets in order to determine the existence of duality. Some of the problems encountered in going from a conceptual to empirical framework will be discussed, especially how one defines occupations as residing in the primary or secondary labor market. I hope
that by combining the detailed conceptual description of the secondary and primary sectors with the presentation of the results of econometric models depicting market duality, I will give the reader a thorough background in segmentation theory. I will then be in a position to discuss my own contributions to this field.
CHAPTER III

EMPIRICAL STUDIES REVIEW

In recent years, a small but growing number of economists have tried to substantiate or refute the existence of labor market segmentation by means of empirical models. The purpose of this chapter is to review several of the more important econometric studies of labor market duality, in order to determine the extent to which the models reflect the conceptual hypothesis of dual theory, to assess the strengths and weaknesses of the models, and to pinpoint areas where additional research is needed. The chapter begins with a brief discussion of the "truncation problem", followed by a review of the ways in which researchers have classified occupations as primary and secondary. I then discuss three basic types of regression models which have appeared in the literature: (1) wage and earnings models, (2) probability of primary employment models, and (3) mobility models. The chapter concludes with my suggestions as to where further research is warranted and what I plan to do to advance the state of knowledge of dual labor markets.

A serious methodological issue has been levied against empirical studies of labor market segmentation. This is the so-called truncation problem. Glen G. Cain, in a lengthy critique of segmentation theory, asserts:

...tests almost invariably suffer from a methodological flaw - that of fitting the regression to a sample that is truncated on the values of the dependent variable - with the result that the estimated coefficients (effects) that the independent
variables are biased.\textsuperscript{1}

What Cain is claiming is that if we demarcate secondary jobs according to low educational levels, skill requirements, income, and so forth, and then run regressions using these variables to explain income differentials, the coefficients of the independent variables will be biased downward, leading to conclusions that human capital variables do not influence earnings in the secondary labor market. The flaw lies in that we have previously defined secondary jobs as those requiring minimal human capital endowments, so that we have assumed the existence of the relationship we are actually trying to test for.

Cain presents the truncation problem diagramatically as follows: Suppose we take an earnings/education profile for all workers, and estimate the relation between the two factors. We may end up with the profile given in the diagram below, where line 'a' is the best fitting line for the entire sample.\textsuperscript{2}

\begin{figure}
\centering
\includegraphics[width=0.5\textwidth]{diagram.png}
\caption{Diagram of earnings and educational attainment.}
\end{figure}

If we truncate the sample at \( E_1 \), and label jobs with earnings \( OE_1 \) secondary, and fit a regression on this subsample (line 'b'), we "guarantee

\begin{itemize}
\item \textsuperscript{2}Ibid. p.1247.
\end{itemize}
that the simple regression relation between education and earnings will be lessened (or even) approach zero." What Cain acknowledges, but delegates to a footnote, is that the downward bias is only guaranteed if the model tested is of the form:

\[ \text{Earn} = \alpha_0 + \alpha_1 \text{Educ} + \mu \]

When multiple regression is used, there is no longer any guarantee of a downward bias. 4

Since all the segmentation models discussed here, as well as the ones to be developed in future chapters, use multiple regression analysis, Cain's claim of guaranteed bias leading to results favorable to dual theory is called into question. I am not saying there is no chance of downwardly biased regression coefficients - only that such results are not internally guaranteed given the specification of the models. Since the problem has its origins in the formulation of primary-secondary classification schemes, it seems fitting to begin our discussion of empirical studies by looking at the various ways researchers have classified occupations.

Classification Systems

In his Ph.D. thesis, Paul Andrisani devises a classification system based on 1960 Census reported median earnings of the male labor force for three digit occupational and industrial codes. Based on these earnings, Andrisani claims that occupations and industries may be hierarchically ranked, and cut-off points determined, for defining jobs as primary

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3 Ibid. p.1246.

4 Arthur Goldberger, "Linear Regression in Truncated Samples" cited in Cain op. cit., p.1246.
or secondary. The cut-off points he establishes are such that jobs are considered primary if:

1) the occupation is one with median earnings greater than or equal to the median of the entire male labor force and the industry is one with median earnings of at least $4303, or

2) the industry is one with median earnings greater than or equal to the median of the entire male labor force and the occupation is one with median earnings of at least $4187.

Jobs were deemed secondary if:

1) occupation is one with median earnings below $4187 and the industry is one with median earnings below the median of the entire male labor force, or

2) the industry is one with median earnings below $4303 and the occupation is one with median earnings below the median of the entire male labor force.

The cut-off points of $4303 and $4187 were selected on the grounds that industries (occupations) with median earnings below $4303 ($4187) employed one-third of the total male labor force in 1959.

In an appendix to his thesis, Andrisani attempts to justify his classification criteria by means of factor analysis, and by comparing his results with the responses of a panel of eleven knowledgeable labor market analysts who were asked to rank occupations as secondary, intermediate, primary or uncertain. He does not give us any numerical breakdowns as to the number of secondary (primary) occupations, or cite examples of secondary jobs so that we can see the "results" of classifying occupations in this manner. Furthermore, he states that there are

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6 Ibid. p.36.
7 Ibid.
8 Ibid.
some jobs which are considered neither primary nor secondary, but again we are not told how many, or which jobs fall into this "intermediate" category.

A more basic criticism that can be levied against classifying occupations in terms of income levels is that such a system does not take into account the nature of jobs. While earnings figure predominantly in demarcating occupations as primary or secondary, other factors also have to be taken into account. These include the issues of control and worker autonomy, status, preparation, i.e., educational and/or vocational, and stability of employment. While these may be highly correlated with earnings, it is by no means inherently safe to assume so. On the other hand, trying to incorporate these types of characteristics increases the subjectivity of one's classification system.

Paul Osterman, in an article entitled, "An Empirical Study of Labor Market Segmentation", divides census occupations into three groups: Secondary jobs, lower tier primary and upper tier primary occupations. Secondary sector jobs are demarcated according to the usual characteristics of these jobs, i.e., low wages, instability of employment, etc., while the distinction between upper and lower tier primary occupations is based on the "degree of autonomy and personal participation enjoyed by workers in that occupation." After acknowledging the inherent subjectivity involved in any attempt to segment occupations, Osterman states, "the author's judgement was used to place each occupation in its proper segment." 

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11 Ibid.
The resulting classification system, given in the appendix to his study, shows that, "there is a high degree of correspondence between the upper tier (of the primary labor market) and the top segment of the Duncan (Socio-economic Index) scale\(^{12}\) and between the secondary sector and the lower tail of the Duncan scale".\(^{13}\) Since the Duncan index depends, in part, on educational and income levels, occupations in Osterman's upper tier are, for the most part, high income and education occupations, while those in the secondary sector are low income, low education jobs.

One of the most comprehensive attempts to devise a primary/secondary classification system can be found in Samuel Rosenberg's Ph.D. thesis, "The Dual Labor Market: Its Existence and Consequences". Rosenberg makes use of a dissertation by Robert E.B. Lucas, "Working Conditions, Wage Rates and Human Capital: A Hedonic Study", which "links the Dictionary of Occupational Titles job classification system with that of the Bureau of the Census."\(^{14}\) This gives detailed job characteristics of the more broadly defined census occupation classifications. Since Rosenberg classifies census occupations as primary or secondary, this "link up" with D.O.T. information permitted in-depth analysis of the content of occupations prior to primary/secondary specification.

Rosenberg starts by noting five basic characteristics of secondary jobs:

1. Low pay,
2. Poor working conditions,
3. High labor turnover,

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\(^{13}\) Osterman, p.513.

Little chance for advancement,
Arbitrary and capricious supervision.  

His procedure may be summarized as follows: Secondary jobs skill requirements should not be determined by educational levels because of artificially imposed credentialism, but by the level of Specific Vocational Preparation (SVP) and General Educational Development (GED) required for their performance. He argues that if a Census occupation has a 0.6 probability of an SVP level of less than three (job takes less than 3 months to learn), the occupation may be a secondary one. A similar argument is posed for GED levels. Also included is a "variable which measures whether a job involves doing tasks only under specific instructions allowing little or no room for independent action or judgement in working out problems." If a Census occupation displays a strong probability of having this trait, it may be a secondary job. Since income is an important determinant, Rosenberg uses the BLS minimum budget for a family of four as a cut-off point. He accurately points out that there are some job characteristics (supervising, instructing, planning activities of others) in addition to high wages, which in and of themselves warrant the occupation a primary classification.  

If, using Rosenberg's terminology, we demarcate SVP, GED, instruction and low wages to be secondary job criteria, and the remainder (supervising, high wages, etc.) to be primary job criteria, then:

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15 Ibid. p.37.
16 Ibid. p.40.
17 Ibid. p.43.
18 Ibid. p.51.
A job is said to be secondary if it qualifies for secondary employment on (a) all four criteria and is not eliminated by the other criteria, (b) on three criteria and is not eliminated by the other criteria or (c) on SVP and hour wages and is not eliminated by the other criteria.\textsuperscript{19}

Rosenberg admits that a certain amount of personal judgement enters the analysis, insofar as some jobs which turned out to be secondary were respecified simply because he felt they better belonged in the primary sector. Nevertheless, I judge this approach to be superior to any of the other classification systems I have had at my disposal. This system accounts for the nature of secondary jobs far for thoroughly than Andrisani's income determination schema, and is obviously more scientific than simply using one's own personal judgement, as was the case with Osterman. It is for these reasons that I have decided to use Rosenberg's occupational classification system as the basis for demarcating jobs as primary or secondary in the models I develop in the ensuing chapters.

Wage and Earnings Models

Andrisani's wage determination model produces results only mildly supportive of dual labor theory. He does find that within the primary sector, for white workers, educational attainment, age, and status (Duncan Index) of first job were directly related to rates of pay.\textsuperscript{20} This is obviously consistent with the dualist view that within the primary market, human capital factors systematically affect earnings. It is interesting to note that educational attainment, measured in either continuous form or in terms of high school graduation, increases primary,

\textsuperscript{19}Ibid. p. 55.
\textsuperscript{20}Andrisani, p. 79.
nonwhite earnings significantly more than for primary whites. On the other hand, age, used as a proxy for experience, is not significant for blacks. Andrisani concludes that, "among blacks in primary jobs...the data do not suggest as systematic a screening process as is observed among the whites."\(^{21}\)

The results most at odds with the dual theory are those for secondary sector whites and blacks. According to the dualists, human capital factors should not serve to predict earnings, nor should employers exercise any systematic preference functions in their hiring practices in secondary labor markets. These basic propositions are not substantiated in the Andrisani model, in that for secondary whites, educational attainment (continuous and discrete), age and marital status are all significant and important explicators of wages rates; while for blacks, graduation and marital status prove significant.\(^{22}\) Hence, Andrisani questions the widely held dualist view that variations in wages should be unrelated to levels of human capital. He points out that "even in the secondary labor market employers...appear to differentiate between blacks with high school degrees and those with lesser amounts of education."\(^{23}\)

Using the triparte classification system discussed earlier, Osterman ran a series of earnings determination regression models in order to determine whether or not the wage setting process differs between the primary (upper and lower tier) and the secondary labor market. His

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\(^{21}\) Andrisani. p.79.
\(^{22}\) Andrisani. pp.78, 82.
\(^{23}\) Andrisani. p.81.
results are highly favorable to segmentation theory in that,
in the secondary labor market earnings (depended)
only on the amount of time worked. Experience did
not contribute to earnings, nor did education (or
race).24

In addition, his findings reveal these same variables to be significant
explicators of earnings in both the upper and lower tier of the primary
market. Osterman's interpretation of his results suggests that the
human capital model explains earnings determination only in the primary
market. Secondary employers do not differentiate among workers, while
primary employers stress factors such as race, age and education in their
hiring decisions.

He concludes by noting that the failure of manpower programs can be
attributed in part to the realization that these programs are not
"attuned to the realities of the labor market" since "policies designed
to augment the human capital of secondary workers are not likely to
improve their earnings."25

William Kruse, in a recent comment on Osterman's model, claims the
favorable (from a dualist perspective) results stem from the way Osterman
classifies occupations producing a downward bias on the coefficients of
the human capital variables for secondary worker earning function.26
He further criticizes Osterman's use of a cross sectional earnings func­
tion to generate policy recommendations which require longitudinal data.
According to Kruse,

the implications of labor market segmentation that
have relevance for public policy are derived from
the alleged restrictions of a certain group of
individuals to 'dead end' or secondary jobs...(This)

26 William J. Kruse, "An Empirical Model of Labor Market Segmentation:
Comment" in Industrial and Labor Relations Review (Vol.30, No.7, Jan.1977),
p.223.
cannot be tested via the estimation of separate cross sectional earnings functions...need longi­tudinal (studies)...27

Thus, Kruse stresses the mobility aspects of policy programs within the dualist context. It is not surprising to find that education and/or training fail to increase secondary earnings. The intention of human investment programs, he argues, "is to enable participants to move into nonsecondary jobs."28 Since Osterman uses only cross sectional data, his results cannot be considered damaging to the "efficacy of human capital investment programs."

Osterman's reply to Kruse's critique is several fold. First, he claims his classification system does not result in truncating the sample along the dependent variable.29 As we saw earlier, Osterman tries to incorporate such factors as autonomy, working conditions and job stability in deciding into which segment an occupation belongs. However, the close parallel between his system and the Duncan index does indicate earnings are an important factor in determining which occupations are primary and secondary.

Osterman's response to Kruse's claim that longitudinal data are necessary to determine the efficacy of human investment programs is not overly convincing. Basically, he states that his intention was to discover whether the relationship between earnings and several key variables differs in different segments of the labor market, and whether the differences conform to those predicted by dual labor market theory.30

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27 Ibid. p.220.
28 Ibid.
30 Ibid. p.222.
Finding that conformity exists does strengthen the dual theory, but his failure to examine the mobility issue tempers viability of his policy recommendations. The policy implications Osterman derives from his study are consistent with dual labor theory, namely that policies should be aimed at changing labor demand conditions, as opposed to improving the human capital (supply side) of secondary workers. What remains subject to controversy is whether or not this recommendation logically follows from the results of his model. Hopefully, the models discussed in the following chapter which include mobility aspects will shed some light on this issue.

Probability of Primary Employment Models

Andrisani has devised a model which examines the likelihood of a worker's first job being in the primary labor market. The rationale for such a model lies in the dualist contention that a worker will remain in the sector in which he first finds employment. Andrisani's results indicate that educational attainment, measured either in years completed or in terms of graduation status, significantly increases the probability of primary employment for whites. Among blacks, however, "educational attainment appears of little consequence and black dropouts fare no worse than graduates." 31

In order to account for the fact that within his sample workers began their careers under different phases of the business cycle, Andrisani includes a variable to measure labor market conditions at the time of initial entry into the work force. Specifically, a dummy variable was used such that if first job occurred prior to 1964, a zero was assigned, 

31Andrisani. p.61.
while if first job occurred between 1964 and 1966, a one was assigned. 32

His finding that for whites the probability of a primary first job is higher when labor markets are tight, while for blacks labor market conditions do not make much difference, 33 supports segmentation theory, since blacks, as a result of their over representation in the secondary sector, do not stand to benefit from expansionary aggregate demand policies which are confined to mainstream labor markets.

Socioeconomic origins are statistically significant for both color groups. Although this result supports dual and radical interpretations of the labor process, severe multicollinearity among the regressors in his model dampens the viability of his results.

Samuel Rosenberg has developed a two-equation model which, in addition to observing the effects of human capital variables on a worker's current labor market status, addresses itself to the influence that a worker's first job has on the probability of current employment in the primary labor market. Since I use a similar model, a more detailed discussion of the format of this type of model can be found in the following chapter. Here it will be sufficient to discuss some of Rosenberg's more important findings.

His data indicate that a worker who began his career in the primary market is quite likely to be currently employed in a primary sector occupation. In fact, a primary first job was found to increase the probability of primary current job by at least 20 percent. 34

With respect to the influence of educational levels on the probability

32Andrisani. p.44.
33Andrisani. p.65.
34Rosenberg. p.128.
of primary employment, the results are somewhat surprising. College attendance, as expected, increased the probability of primary employment, but there was no significant difference between completion of 9-11 years of schooling and high school graduation in terms of increasing the likelihood of primary employment. Thus, Rosenberg states:

> There does not seem to be a credential effect in terms of finishing high school leading to a great increase in the conditional probability of holding a primary job over the completion of just 9-11 years of schooling.\(^35\)

For some groups, participation in a vocational training program significantly increased the likelihood of primary employment, while for other groups no significant relationship was found.\(^36\) Finally, his data suggest that experience (years in the labor force) does not increase the probability of current employment in the primary sector. He correctly points out that this result is consistent with the expectations of dual labor market theory which argues that increased labor force experience does not necessarily lead to greater probability of primary employment for it depends on whether this experience is in the primary or secondary labor market.\(^37\)

**Mobility Models**

Several empirical studies have included a model to determine the likelihood of upward, secondary to primary, mobility. Basically, these models examine the incidence of mobility for workers in the secondary sector in time period \(t\), who at a later date \((t + m)\) have either remained

\(^{35}\) Rosenberg. p.123.

\(^{36}\) There was little uniformity as to which color groups benefited from vocational training. In some cities, vocational training was significant for blacks, in others whites, and in one both benefited.

\(^{37}\) Rosenberg. p.127.
in the secondary market or have moved into primary market occupations. A vector of explanatory variables is postulated and regression analysis is performed, in order to determine which, if any, variables act to systematically affect the probability of mobility.

Andrisani includes such a model in his thesis. He finds neither educational attainment nor vocational training to increase the likelihood of upward mobility. Even after respecifying his model by including a dummy variable to differentiate between high school graduates and dropouts, his data indicate, "there is no evidence that graduates are more likely to advance to primary jobs than dropouts." Moreover, the results of his model lead Andrisani to conclude:

...manpower policies aimed at moving disadvantaged youths from secondary to primary jobs by investing in their human capital (education and training)...can draw no support from these findings.

For whites, the only important explanatory variable was marital status, while for blacks, region of the country (1 if not South, 0 if South) was significant and important. After running the basic model in a slightly different form, age was found to increase the likelihood of secondary to primary mobility for white workers. Thus, Andrisani concludes, "secondary sector confinement...seems to result (in part) from insufficient labor market exposure." This conclusion warrants comment, because dual theory would be expected to be opposite—continuous exposure in the secondary labor market reduces the likelihood of upward mobility. Andrisani does not attempt to provide an explanation for this

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38 Andrisani. p.73.
39 Andrisani. p.69.
40 Andrisani. p.76.
result. The question of the relation between age (experience) and labor market status will be reexamined and treated at greater length in the chapter where I develop several labor market models.

Samuel Rosenberg's upward mobility model focuses mainly on education and training as factors which affect the probability of moving from the secondary to the primary labor market. The model was used to examine the likelihood of mobility for whites and blacks in Brooklyn, Cleveland, Detroit, and San Francisco. Since the relative importance of education and training in explaining mobility differed widely not only between whites and blacks, but also within color cohorts in different cities, it is difficult to provide a general summary of his results. Nevertheless, several patterns are apparent. Vocational training, whether acquired while in school or in an institutional program, did not prove significant in increasing the probability of upward mobility.

Years in the labor force do not significantly increase the likelihood of upward mobility. Whereas a significant negative relation between years in the labor force and the probability of mobility would have been highly supportive of dual labor theory, Rosenberg accurately points out that his results are "consistent with the dual labor market hypothesis which argues that increased experience in the secondary labor market would not necessarily lead to upward mobility."

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41 For Brooklyn and San Francisco, separate regressions were also run for Spanish workers.
42 Rosenberg, p.151.
43 The sole exception was San Francisco blacks.
44 Rosenberg, p.152.
45 Rosenberg's findings concerning experience and mobility differ from Andrisani in that the latter argued confinement in the secondary sector resulted from a lack of labor market exposure.
The most serious problem lies in trying to ascertain a distinct pattern with regard to the role of education in the mobility process. For whites in Brooklyn, and San Francisco, and Detroit blacks, "the education variables are significant...and the pattern shows that the more education one has, the greater the...probability of upward mobility." For Cleveland whites and Brooklyn and San Francisco blacks, however, virtually none of the educational variables proved significant. The former results tend to substantiate the "human capital approach to mobility", while the latter suggest that mobility, when it occurs, is in essence a random occurrence. This leads Rosenberg to conclude:

> the education results are such that all that can be said is that increasing years of education may increase a person's chances of upward mobility.  

In a recent article in *The Journal of Human Resources*, Duane E. Leigh presents a model which measures occupational mobility in such a way as to make preassigning occupations primary or secondary unnecessary. Using 1970 Census and N.L.S. data, Leigh examines the determinants of occupational change for males in several age race cohort groupings. Instead of demarcating mobility in terms of movement from the secondary to the primary labor market, he measures occupational upgrading or downgrading on the basis of the change in the median income of the respondent's occupational classification system occupation in 1970, compared with his O.C.S. median income.

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46 Rosenberg. p.150.
47 Rosenberg. p.150.
Leigh incorporates this methodology into the dualist perspective by denoting two propositions of dual theory:

1. Secondary jobs are characterized by a lack of occupational upgrading, and
2. Black workers are disproportionately confined to the secondary sector,

and two testable hypotheses:

1. Large and systematic racial distinctions exist in the effect of interfirm mobility on occupational advancement, and
2. Large and systematic racial differentials in intrafirm occupational advancement exist for workers of equivalent endowments. 49

Given Leigh's interpretation of dual labor theory, his empirical results indicate that there are no major differences in employment stability between whites and blacks in comparable age cohorts. Furthermore, "the impact of interfirm and interindustry shifts on occupational advancement does not appear to be systematically larger for whites than for blacks." 50 This leads him to reject his first hypothesis. Additional results, according to Leigh, call for the rejection of the second hypothesis as well. Both rejections are interpreted as providing support for neo-classical labor market theory.

Leigh's analysis and methodology invite criticism on several counts. First, even the most cursory reading of dualist literature indicates that there are nonwage factors which must be considered when ranking occupations. Coincident with this is the realization that the secondary sector is not perfectly competitive; wage rates, although low throughout, are not entirely uniform. It is possible for a worker to move from one

49 Ibid. p.156.
50 Ibid. p.169.
low wage job to another not quite so low wage job. This would tend to show up as an improvement in the present context, even though the worker may well have remained in the secondary sector. Finally, nowhere is the reader given any indication of the explanatory power of Leigh's models. Since using median occupational income rather than reported individual income can inject rather large errors into his dependent variables, it would not be surprising to find that Leigh's models have very little explanatory power.

Conclusions

The empirical models discussed in this chapter indicate that there is considerable diversification of opinion concerning the existence and functioning of dual labor markets. Based upon their empirical results, conclusions regarding the existence of segmented labor markets range from outright rejection of their existence (Leigh) to strong acceptance (Osterman). While it is my feeling that no econometric model can unequivocally prove the existence of labor market segmentation, previous research does indicate serious deficiencies in the traditional human capital queue theory approach to the labor market. The dual theory provides a viable alternative explanation of the labor process.

Numerous problems remain which the earlier research has not been able to come to terms with. Although Rosenberg's classification system constitutes a marked advance over Andrisani's, there remains a need for a generally agreed upon dichotomization of occupations into primary and secondary sectors. Additional evidence concerning the functioning of labor markets in diverse geographic locales, such as predominantly non-urban labor markets, has been absent from the current literature. Such information is needed in order to make dual labor theory a more general theory of the labor process. Finally, it would be desirable to see a
shift in research methodology away from the over-reliance upon econometric model building towards case studies of the structure of labor markets from which firms draw their manpower needs.

The following chapters constitute my attempt to improve and advance the state of knowledge of dual labor market theory. Two of the problems stated above will be directly addressed, namely the use of a sample which is largely composed on nonurban labor markets, and the inclusion of a case study of a local New Hampshire labor market. By combining econometric models with a case study, I hope to present a lucid description of New England labor markets, thereby gaining additional insight into the viability of dual labor market theory.
CHAPTER IV

EMPIRICAL MODELS

The Data Base

The purpose of this chapter is to discuss the econometric models which will be used in subsequent chapters to test for labor market segmentation in New England. I begin by noting the data source and its appropriateness for examining dual labor theory. Next, I look at some of the limitations in the data base, specifically the numerical insignificance of nonwhite respondents. Finally, the three models are specified and the variables and their expected coefficients are discussed in the context of dual labor market theory.

The source of data used to test the segmentation models is the 1970 Census of Population Public Use Sample tapes. In addition to personal and household characteristics such as marital status, age, education, occupation, etc., the Census in 1970, for the first time, included questions concerning the type of occupation the respondent was employed at five years earlier, i.e., in 1965. By classifying the 1965 and 1970 occupations as primary or secondary, we can use the data to ascertain the importance of the previous sector of employment on current labor market standing. Furthermore, knowledge of labor market status five years ago is necessary in order to determine the probability of intersectoral, secondary to primary, mobility.

The limitations encountered in using the Census data are twofold. First, for several New England states, the Census data does not specify whether or not the respondent resided in an S.M.S.A. or in an urban or rural area. Thus, it is not possible to include a variable demarcating area of residence within a state. Given that there are relatively few urban areas in Northern New England, the segmentation models will not be confined to urban labor markets, as has been the case with most earlier studies, but will test for the existence of, and factors contributing to, duality in an area which contains rural labor markets as well as urban markets.

The second limitation is more endemic to the population mix in New England than to the Census data for the U.S. as a whole. It turns out that there are too few nonwhite observations to warrant either the inclusion of race as a variable or to run separate regressions dividing the sample by race. The exclusion of a race variable may make for a rather severe test of labor market duality, since racial distinctions have consistently been a major facet of the theory and related policy prescriptions. It must be remembered, however, that segmentation theory is not just an economic theory of discrimination. Low wage secondary jobs are sometimes manned by whites, indicating that the factors which may be attributed to the segmentation process operate across racial boundaries.

Specification of the Models: Earnings Determination

The first model I plan to test is a set of earnings equations similar to those used by neoclassical economists to estimate the effect of a vector of human capital variables on annual earnings. In the dual labor market context, the model serves to test the influence of the independent
variables on earnings in both the primary and secondary labor markets.
In order to conform with labor market segmentation theory, certain variables
should prove significant and important with respect to primary market
earnings, but not significant in the secondary labor market.

It should be pointed out that this model does not test for the
existence of dual labor markets. That duality exists is an a priori postulation. The primary and secondary labor markets are demarcated
according to the classification system previously discussed. What I
hope to show in these equations is that factors which are commonly said to
influence earnings do not operate in a systematic fashion across the
entire occupational spectrum. This can be accomplished by specifying a
single earnings equation; running it separately on the primary and secondary labor markets and observing the significance of the independent
variables as explicators of earnings within and between the two sectors.

The model to be tested is specified as follows:

\[ EARN = a_0 + a_1 \text{HSG} + a_2 'Exp' + a_3 \text{Wks} + a_4 \text{VocT} + a_5 \text{Class} + u \]

where

- \( EARN \) = Annual income for males aged 25-55 in the occupational cohort groupings,
- \( \text{HSG} \) = A dummy variable which takes on a value of 1 if the respondent completed
  12 or more years for formal education (high school graduate) and a value
  of 0 if less than 12 years of schooling were completed (did not graduate
  high school),
- \( 'Exp' \) = Potential labor force experience,
- \( \text{Wks} \) = Weeks worked during 1969,
- \( \text{VocT} \) = A dummy variable which takes a value of 1 if the respondent participated
  in a vocational training program and 0 if no vocational training was undertaken,
Class = Class of Worker, a dummy variable used to demarcate those persons employed in the private sector (1) from those in the public sector (0),

\( u \) is an error term.

**Explanation of Variables**

High school graduation status is used in the models to test for the existence of a diploma effect on employment opportunities and remuneration for both secondary and primary market workers. I have incorporated education in the model in this manner, in lieu of using education as a continuous variable measuring years of educational attainment, because I feel there is a qualitative, as well as quantitative, impact on the returns to schooling that accrue as a result of obtaining a high school diploma. This is "smoothed" over when education is used as a continuous variable.

When education is defined as years of schooling completed, the coefficient (\( \beta \)) on education in an earnings model is interpreted as the amount by which income rises for each additional year of schooling completed. Thus, each year of schooling supposedly augments income by the same amount. This is tantamount to saying that "degree stations" do not have any independent influence on earnings. Furthermore, using education as a continuous variable makes it difficult to determine whether or not employers use the high school diploma as a screening device in order to restrict entry into better paying, more attractive occupations.

In either the continuous or dummy variable form, no attempt is made to take into account the quality of education, although one would naturally expect to find schools of different quality throughout the New England area. Here again, I feel graduation status to be superior to years of schooling completed, in that employers who use the high school diploma as a screening device are less apt to differentiate workers according to where they attended high school.
According to dual labor theory, we should expect graduation status to be a significant and important explicator of earnings in the primary sector. Primary market employers often use graduation status as one of the requirements for employment. The "diploma effect" in the primary market should be reflected in considerably higher earnings for those workers who have completed at least twelve years of formal education. Traditional theory explains higher earnings for high school graduates as the monetary returns to investing in higher education. Beyond high school, the decision to forestall entering the labor market is grounded in the belief that future earnings will more than compensate for the earnings foregone by remaining in school. Put simply, the more education, the better the chance of getting a high paying primary market occupation.

Whereas traditional theory holds that all workers should benefit from increasing their educational attainment, the dualists maintain this is only the case in the primary labor market. Thus, graduation status is not expected to be a significant and important explicator of earnings in the secondary labor market. Since educational attainment makes little difference with respect to performance in secondary jobs, workers in this sector are not expected to realize any monetary returns to completing high school.\(^2\) Given the perceived homogeneity of labor power in the secondary sector, formal education should not serve to increase worker productivity. Although this may be more attributable to the nature of the job than to the worker himself, education is not expected to serve its accustomed function of increasing the worker's (marginal) productivity and

hence his wage.

Potential labor force experience is defined as age, minus years of schooling completed, minus six. I feel that this is superior to simply using age in the model, because the variable as defined equals the number of years in which a person could have been in the labor force in one or more jobs gaining work experience. For example, a thirty year old worker who has completed sixteen years of schooling could have eight years of work experience under his belt. If it is assumed that individuals receive training while they are at work, the returns to a year of work experience \( \frac{\partial \text{earn}}{\partial \text{exp}} \) can be used as a surrogate to measure the returns to investment in on-the-job training.\(^3\)

According to the human capital school, experience adds directly to a worker's "endogenous" (marginal) revenue product, and will therefore exert a positive effect on earnings.\(^4\) In the present context, only in the primary labor market should we expect experience to be an important explicator of earnings. The presence of internal labor markets characterize most primary occupations. The internal labor market itself is characterized by mobility clusters which provide a rigid set of institutionalized rules and regulations regarding promotional opportunities, salary scales, work rules and seniority. If we make the reasonable assumption that it is to the worker's advantage to remain in, and move up, along the ranks of his initial mobility cluster, the experience variable

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may also be looked at as a proxy for the returns to employment within an internal labor market. This view of experience as reflecting institutionalized pay increments based (in part) on length of service is considerably more comprehensive than the usual human capital approach to experience. This approach, in addition to on-the-job training, encompasses returns which may not be directly attributable to an increment in an individual's human capital.

Labor force experience should not prove an important determinant of earnings in secondary market jobs. Secondary jobs, by definition, require minimal, if any, training and once learned are simply repeated day in, day out by those performing them. On-the-job training is virtually non-existent—it is neither profitable to the employer, since O.J.T. will not increase productivity, nor to the employee, since O.J.T. will not lead to higher wages. Thus, "experience" should not result in increasing the value of human capital and earnings to workers trapped in the secondary sector. The longer a person has been in the secondary sector, the better his knowledge may be regarding employment opportunities (the "best" of the "worst"). However, since wages are uniformly low, even knowledge concerning where the better jobs are should not have any important influence on earnings.

Vocational training is the third human capital variable included in the earnings model. The importance of vocational training is debatable. Human capital theorists argue that participation in a vocational training program increases the value of a worker's human capital, and therefore his desirability to employers, which should result in a positive impact on earnings. Labor market segmentation theorists counter that within the

Ibid.
secondary labor market vocational training is superfluous with respect to the requirements of secondary jobs, and that employers have no incentive to pay workers who may have had some vocational training any more than they pay those who have none. Even within the primary sector, uncertainty exists as to the influence of vocational training on earnings. Since pay scales in many internal labor markets are set by collective bargaining agreements or some other similar institutional arrangement, prior (to employment) completion of a vocational training program may not have any independent effect on earnings. Whether or not vocational training increases the probability of primary market employment is another matter which will be taken up in the second model.

Vocational training includes those persons reporting to have participated in a vocational training program either in high school, as an apprentice, in a school of business, nursing or trades, technical institute, or armed forces.\(^6\)

I have included "class of worker" in order to see the extent to which earnings in either the primary or secondary labor market are determined by employment in the private and public sector. Again, given the assumptions of dual labor theory, in the secondary sector class of worker should not prove to be a significant explicator of earnings. Private sector primary workers, on the other hand, are expected to have considerably higher earnings than their counterparts in the public sector.

In both the primary and secondary labor market, the coefficient on weeks worked is expected to be positive and significant. In the secondary sector, given the presumed absence of the human capital variables as

explicators of earnings, weeks worked should serve to be the singular most important determinant of earnings. Since workers are perceived to be homogeneous commodities, and since wages are uniformly low throughout the secondary labor market, annual earnings should depend entirely on the amount of time (number of weeks) a worker spent on one or more jobs during the year.

In the primary labor market, whether or not a worker was employed full or part time will naturally influence earnings. But earnings should also vary systematically according to the human capital variables included in the model. Thus, a full time worker possessing a high school diploma and, say, ten years of "experience" should earn more than a similarly situated worker possessing less than ten years of experience. In the secondary market, by comparison, earnings are not expected to show any systematic variation with respect to any of the independent variables except for weeks worked.

Probability of Primary Employment

The second model to be tested is a two equation model, the purpose of which is to determine the relative importance of a worker's labor market status five years ago, as an explicator of his current labor market status. This model closely follows the one used by Samuel Rosenberg in his study of factors which influence a person's current labor market status in four low wage labor markets. The model may be specified as

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follows:

I. \[ PR (Pri) = a_0 + a_1HSG + a_2VocT + a_3Class + a_4Mar + a_5E_1 + a_6E_2 + a_7E_3 + \mu \]

II. \[ Pr (Pri) = a_0 + a_1HSG + a_2VocT + a_3Class + a_4Mar + a_5E_1 + a_6E_2 + A_7E_3 + a_8Occup_{65} + \mu \]

where:

- Pri = 1 if current job is in the primary labor market; 0 if secondary.
- HSG = 1 if high school graduate; 0 if less than 12 years formal education.
- VocT = 1 if respondent participated in a vocational training program; 0 if not.
- Class = 1 if current job is in the private sector; 0 if in the public sector.
- Mar = 1 if currently married, spouse present; 0 if not married.
- \( E_1 \) = 1 if potential labor force experience (DPFE) is less than or equal to 10 years; 0 if otherwise.
- \( E_2 \) = 1 if PLFE is greater than or equal to 21 but less than or equal to 30, 0 if otherwise.
- \( E_3 \) = 1 if PLFE is greater than 31.
- Occup_{65} = 1 if job in 1965 was in the primary labor market; 0 if in the secondary labor market.

In this model, the dependent variable is a dummy variable. Johnston explains the logic behind dummy dependent variable models as follows:

...(the dummy) dependent variable takes on only two values, so that we may use unity to indicate the occurrence of the event and zero to indicate its non occurrence. If we run a multiple regression of such a dependent variable Y on several
explanatory variables $X$, then we may interpret the calculated value of $Y$, for any given $X$, as an estimate of the conditional probability of $Y$, given $X$.

Thus the calculated value of "pri" for any given vector of explanatory variables will tell us the probability of current employment in a primary labor market occupation.

**Explanation of Variables**

Graduation status is included, since it is generally held that the higher one's educational attainment, the greater the chances are of securing a primary market occupation. In the present context, a significant positive coefficient on HSG would indicate that a high school graduate is more likely to be employed in the primary labor market than a non-graduate. This is especially true, given the fact that many primary employers use the high school diploma as a screening device in their hiring practices. The expected relationship would therefore indicate the existence of the "diploma" effect as an important selection criterion which serves to restrict entry into the primary labor market.

A strong positive coefficient on VocT would indicate that participation in a vocational training program enhances the probability of primary market employment. Vocational training programs are considered a major factor in increasing the potential productivity of labor market entrants, thereby improving their relative position on the employment queue along which primary employers hire. A significant non-positive coefficient on this variable would indicate that job training does not increase the probability of gaining access to a primary occupation. Such

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a result would necessitate a careful re-evaluation of the entire structure of vocational and job training programs.

Marital status is included, on the assumption that marriage "forces" a worker to adopt a more stable lifestyle which is conducive to employment in the primary sector. Primary employers may prefer married workers, on the grounds that family responsibilities provide greater assurance that the worker will remain with the firm and conform to the requirements thereof, in order to maintain a steady flow of income. Furthermore, Andrisani claims, "inclusion of marital status provides a crude measure of the value employers place on marital status as a sign of maturation." On this basis, a positive coefficient on marital status is to be expected, although it remains to be seen whether or not it will prove a significant factor in determining the probability of primary employment.

Potential labor force experience is included here as a set of dummy variables grouped in ten year intervals. The human capital approach to PLFE would be to treat it as general training which develops a set of productive abilities a worker can apply to any job. Then, the longer a worker has been developing his productive abilities, the greater the likelihood that he will be located in a high paying (primary) occupation.

According to segmentation theory, the above relationship between experience and occupation holds only within the primary labor market. Given the constraints of the secondary labor market, experience does not serve to equip workers with either higher incomes or, more importantly, provide them with productive abilities necessary to get better jobs, i.e., to function in the primary labor market. For workers already in the


primary market, experience increases income, as outlined in the previous model. Thus, from a dualist viewpoint, the role of PLFE is internalized within the primary labor market and therefore should not be a significant determinant of the probability of obtaining a primary market occupation.

The preceding variables are part of a worker's human capital. The purpose of the first regression model in this section is to see the extent to which these variables explain a worker's "current labor market standing". By adding "occup 65" to the model, a major facet of dual labor theory will be tested, namely the contention that once a person finds himself in either the primary or the secondary labor market, the chances are he is going to remain there for his entire working career. A significant positive coefficient on "occup 65" would indicate the importance of worker's earlier labor market standing on his current sector of employment. Concomitantly, the explanatory power of the latter model should be considerably greater than the model which includes only the human capital variables.

A nonsignificant or negative coefficient on "occup 65" would be quite damaging to the proponents of dual labor market analysis. Such a result would mean that the probability of a worker being in the primary labor market does not depend on whether or not the worker was in the primary market at an earlier stage in his working career. The argument that work history figures predominantly in current labor market standing would suffer a sizable loss of validity.

11 Unfortunately, the data source used in this study does not allow us to test the "strict" dualist proposition that a worker's "first job in the labor force...should predict the sector in which he presently works." 12 See Rosenberg for a similar model which uses first job in lieu of sector of employment five years ago. 13 Rosenberg. pp.84-87.
Mobility

The third model examines the probability of upward, secondary to primary, mobility from 1965 to 1970. A dummy dependent variable is regressed against a vector of binary variables, in order to determine the conditional probability of upward mobility. The equation may be specified as follows:

$$MOB = a_0 + a_1V_{ocT} + a_2V_{ocT} + a_3Cl + a_4Mar + a_5E_1 + a_6E_2 + a_7E_3 + \mu$$

where:

- $MOB = 1$ if occupation in 1965 was in the secondary sector AND occupation in 1970 is in the primary sector; 0 if occupation in 1965 was in the secondary sector AND occupation in 1970 is in the secondary sector. (Independent variables remain as defined in the probability of primary employment model.)

Movement from the secondary to the primary sector, according to dual theory, is largely restricted to periods of high aggregate demand which tighten the primary market, forcing employers to either subcontract production into the secondary market or grant "temporary low level primary status" to secondary workers. Since the period under consideration was one of rapidly rising aggregate demand (low unemployment), we might expect to find a considerable amount of mobility. It must be remembered that once aggregate demand subsides, most, if not all, of those temporary primary workers will find themselves out of work and back in the secondary labor market.

The crux of the mobility issue, in terms of this model and dual theory in general, lies not in temporary primary positions during periods of rising aggregate demand, but in terms of what, if any, worker characteristics enhance the possibility of moving from secondary jobs to primary
occupations. Are there any factors, human capital or otherwise, which systematically function to increase the probability of upward mobility? If there exists a sort of queue of secondary workers leading to primary employment, then we might expect those secondary workers whose human capital endowments are marginally superior to the majority of the secondary labor force to gain access, given the proper economic climate, to the primary labor market. In this case, we might expect to find significant positive coefficients on graduation status, vocational training and potential labor force experience, all of which can be considered human capital variables.

A more strict interpretation of the mobility process would maintain that whatever mobility occurs is purely random, and none of the variables enumerated above should systematically explain intersectoral mobility. The two labor markets are virtually separate, and operate under totally different sets of work rules appropriate to the different composition of the work force in each sector. Since the structure of the secondary market is inconducive to the development of primary work traits, and since the secondary work force is a homogeneous commodity, it follows that mobility will be practically nonexistent, occurring merely by chance.

Mobility may be explained in terms of a primary employer pointing and saying, "I'll take you, you and you," as he views a mass of undifferentiated secondary laborers. Thus, we should not expect statistically significant positive coefficients on our vector of independent variables.

CHAPTER V

REGRESSION RESULTS

Earnings Model

The regression results for the earnings models are presented and discussed in this section. As noted in the previous chapter, the purpose of this model is to observe whether or not certain variables systematically influence annual earnings within and across the primary and secondary labor markets. I begin by presenting the results for the runs on the two labor markets, starting with the primary market.

The regression results for the primary market earnings model are given in Table 1. As expected, earnings were found to vary systematically with respect to educational attainment (graduation status), potential labor market experience, weeks worked and class of worker. The rather low \( R^2 \) indicates that a substantial amount of the variation in earnings is not explained in the context of the model. The correlation coefficient in this model and in those that follow, however, does fall within the range of those obtained in most earnings/labor market regression models.\(^1\) Rather than trying to augment the explanatory power of the model as a whole, I feel it is more important to explain the economic importance of the included variables. As M. Dutta points out, "...there is often misdirected emphasis on obtaining a high value of \( R^2 \) (or \( R^2 \))...If the hypothesis based on a priori

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\(^1\) For additional illustrations of the range of the \( R^2 \) term in labor market models, see the empirical sections in Andrisani, Bluestone, Osterman and Rosenberg cited earlier.\(^2\) Also see the J.P.E. Vol.80, No.3, Part II, May/June 1972 cited in Osterman.

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>S. E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>-62.673</td>
<td></td>
</tr>
<tr>
<td>HSG</td>
<td>39.383 a</td>
<td>3.546</td>
</tr>
<tr>
<td>&quot;Exp&quot;</td>
<td>0.657 a</td>
<td>0.164</td>
</tr>
<tr>
<td>Wks</td>
<td>2.236 a</td>
<td>0.259</td>
</tr>
<tr>
<td>VocT</td>
<td>-4.645</td>
<td>3.161</td>
</tr>
<tr>
<td>Class</td>
<td>19.537 a</td>
<td>4.306</td>
</tr>
</tbody>
</table>

R^2 adj 0.128
F 44.924
SE 58.823
N 1499.

*aSignificant at 0.005 level
economic theory is adequately tested, a low value of $R^2$ (or $R^2$) is not so bad." \(^3\)

The strong significant coefficient on HSG indicates that high school graduates fare considerably better in terms of earnings than non-graduates. The almost $4000 per year earnings differential attributable to graduation status tells us that within the primary sector the better paying jobs are reserved for those persons having at least a high school diploma. This finding provides additional support for the dualist contention that the "diploma effect" remains a strong entrance requirement for access to many primary labor market occupations.

Potential labor market experience was also found to be a significant explicator of primary market earnings. Assuming this variable measures the marginal returns to employment in an internal labor market, a worker's earnings increase systematically as he moves up through the ranks of his initial mobility cluster. These returns are undoubtedly reflected in institutionalized wage and salary and promotional opportunities common to internal labor markets, in addition to the effect of experience and on-the-job training on worker productivity.

Primary market workers employed in occupations in the primate sector had considerably higher earnings than their counterparts in public sector occupations. Given the relatively secure nature of higher level primary public sector occupations, it is possible that the significance of this variable serves to measure the extent of the trade-off between higher earnings (private sector) and greater job security (public sector). Bennett Harrison notes there are important non-wage benefits uniquely associated with public employment, including virtually automatic tenure.

and secular job stability. One need not look too far into primary public sector employment (e.g., postal, civil service) to see the extent to which the internal structure of the labor market provides for job security and defined mechanisms for layoffs, promotions, pay scales, etc.

Earnings in the primary market were not significantly influenced by prior participation in a vocational training program. Caution should be taken as to the interpretation of this result, since the role of vocational training may be deemed more appropriate to the development of worker characteristics suitable to primary market employment. At the initial port of entry into a primary market occupation, those workers who have had vocational training may place higher on an employment queue than those without training. Once initial hiring decisions are made, however, the functioning of the internal mobility cluster takes over regarding pay increments. Thus it would be premature to make any definitive statements as to the function of vocational training in the context of dual labor theory.

The overall results of the primary market regression model substantiate many of the basic propositions of segmented labor market theory. This is not to say, however, that the results refute the human capital school. That primary market earnings were found to vary systematically according to a worker's stock of human capital should not surprise either the dualists or the human capital theorists.

If we put our regression model in functional form

\[ \text{EARN} = f(\text{Human Capital, Weeks Worked, Class}) \]

and differentiate earnings with respect to human capital, i.e., \( \frac{\partial \text{EARN}}{\partial \text{H.C.}} \),

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the partial will be greater than zero. This result, \( f'_{\text{H.C.}} > 0 \), is basic to traditional theory. It is also consistent with dual theory, providing we restrict the analysis to the primary labor market. Although causation and methodologies may differ, once a worker finds himself in the primary labor market, the rival theories stand in basic agreement as to the predicted returns to human capital factors.

When the focus is shifted to the secondary labor market, the expected returns from increasing a worker's stock of human capital differ considerably. Not recognizing the existence of segmented labor markets, the human capital theorists claim \( \partial \text{Earn}/\partial \text{H.C.} > 0 \) for all workers, while the dualists maintain in the secondary market \( f'_{\text{H.C.}} = 0 \). Since this distinction is vital in comparing the two theories, I will now discuss the empirical findings for the secondary market, paying close attention to the effect of human capital on worker earnings.

The regression results for the secondary sector earnings regression are presented in Table 2. For persons employed at secondary market jobs, only weeks worked exerted any systematic influence on earnings. None of the other variables proved to be significant determinants of earnings.

The \( R^2 \) term was lower in this model than in the preceding one, indicating a somewhat greater degree of randomness in the earnings determination process in the secondary sector. Finding greater randomness in earnings determination in the secondary sector is supportive of the dual labor theory, in that individual worker characteristics are claimed to have no systematic influence on earnings. Since wages are uniformly low throughout the secondary sector and an abundant supply of labor power is readily available, factors which are conventionally used to explain variation in earnings fail to do so. Osterman also found that the explanatory power of his model increased for runs on the primary market, although
TABLE 2

Earnings Model

SECONDARY LABOR MARKET

Dependent variable: Annual Earnings

<table>
<thead>
<tr>
<th></th>
<th>( \hat{\beta} )</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>-17.825</td>
<td></td>
</tr>
<tr>
<td>HSG</td>
<td>9.534</td>
<td>6.126</td>
</tr>
<tr>
<td>&quot;Exp&quot;</td>
<td>0.429</td>
<td>0.278</td>
</tr>
<tr>
<td>Wks</td>
<td>1.425(^a)</td>
<td>0.352</td>
</tr>
<tr>
<td>VocT</td>
<td>-8.930</td>
<td>6.936</td>
</tr>
<tr>
<td>Class</td>
<td>2.317</td>
<td>7.710</td>
</tr>
</tbody>
</table>

\( R^2 \text{adj} \) | 0.102 \\
F                         | 5.077 \\
S.E.                      | 35.124 \\
N                         | 180.

\(^a\)Significant at 0.005 level
comparability is difficult, since he subdivided the primary labor market into an upper and lower tier. Andrisani's wage determination model, on the other hand, experienced a sharp decline in explanatory power for runs on the primary sector as opposed to the secondary sector. In fact, the adjusted $R^2$ for his primary whites-only model (the one most comparable to that used here) was only slightly more than half the $R^2$ attained in the secondary market. According to Andrisani's model, worker differences are important in explaining earnings determination in the secondary labor market. Thus, in terms of correlation coefficients, the results obtained here, along with Osterman's, are more supportive of dual labor theory than those obtained by Andrisani.

That none of the human capital variables turned out to be significant with respect to earnings lends still further credence to dual labor market analysis. A basic proposition of the dual theory is that within the secondary market, employers do not distinguish between workers with respect to age, race, sex, etc. The relations of production in the secondary sector are such that educational status, years in the labor force and vocational training do not increase worker productivity, and as a result are uncorrelated with earnings. Labor power is, in fact, viewed as a homogeneous commodity, in that all workers look alike to the secondary employer and are readily interchangable.

Given the severe test conditions under which this model was estimated (i.e., tight labor market period, no racial distinctions, etc.), it is surprising to find results even more supportive of strict dual theory than in some earlier empirical endeavors. Andrisani, for example, found that in

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5 Osterman. p.518.

both sectors, dropping out of school (not graduating high school) had an adverse effect on wage rates, while age, used as a proxy for labor market exposure, significantly contributed to earnings.\(^7\) These results are mentioned because they are supportive of the competing human capital queue theory of the labor market, while my results refute the traditional theory. Potential labor market experience did not serve to increase secondary earnings. Since most secondary jobs take very little time to learn and once learned worker productivity plateaus, there is no need for any sort of continuing on-the-job training programs. Furthermore, given the absence of internal labor markets in secondary jobs, no institutionalized mechanisms exist which specify earnings increment, promotional opportunities and/or collective bargaining agreements. The employer is simply indifferent with respect to the age composition of his work force. Since training programs are virtually nonexistent, and since years in the labor force do not systematically increase earnings, workers in secondary jobs receive the same income regardless of experience (age). Thus, an experience/earnings profile for secondary labor market workers in New England would take the following form:

\[\text{Earnings} \quad E_0 \quad E_0 \]

\[\text{Experience, Years in Labor Force} \]

Neither participation in a vocational training program nor employment in the private sector contributed to earnings in the secondary market. Both of these results are consistent with dual labor theory in that (a) the nature of secondary jobs renders vocational preparation superfluous.

\(^7\)Ibid. p. 81.
(b) earnings are uniformly low for all secondary jobs, and (c) the secondary labor process does not distinguish public sector low wage, skill level, etc., occupations from those located in the private sector.

As stated above, only weeks worked was found to be a significant explicator of earnings. David Gordon's contention that in the "secondary market individual income will depend primarily on the (amount of time) worked while variations in individual earnings will depend very little on variations in individual capacities..." is strongly substantiated, given the results of the present model.

Probability of Primary Employment Model

The results of the probability of primary labor market employment model are given in Tables 3 and 4. As discussed in the previous chapter, this is a two equation model of the form:

\[
Y_1 = a_0 + \sum_{i=1}^{7} a_i x_i + \mu
\]

\[
Y_2 = a_0 + \sum_{i=1}^{7} a_i x_i + a_8 \text{Occup}_{65} + \mu
\]

where the estimated value of the dependent variable (y) is interpreted as the conditional probability of employment in the primary labor market. The \(x_i\)'s are defined as a vector of human capital variables, the purpose of which is to determine the extent to which these variables explain a worker's current labor market standing. In the second equation, sector of employment (primary or secondary) five years ago is added to the human capital variables, in order to test the dual hypothesis that a worker's earlier labor market

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standing should serve to predict the sector in which the worker is currently employed.

So that I may avoid repeated use of the somewhat cumbersome titles given to the above models, the first will be referred to as the "current" model while the second one (which includes $\text{Occup}_{63}$) will simply be called the "augmented" model. I will begin by discussing the results of the current model, and then compare them with the estimates derived from the augmented model.

The coefficient of correlation ($R^2_{\text{adj}}$) for the current model turned out to be quite low (only 4.6 percent), indicating that factors not captured in the model may account for a sizable amount of the variation in the dependent variable. Nevertheless, two of the independent variables, graduation status and vocational training, were found to systematically affect the probability of employment in the primary market. A one tail $T$ test on these two variables revealed them to be different from zero at the 0.005 level of significance.9

From Table 3, it can be seen that the probability of securing a job in the primary labor market is significantly greater for high school graduates than for drop outs. Although it may be argued that at least a high school diploma is a necessary prerequisite for many primary market occupations, this is clearly not the case for all occupations which have been classified as primary occupations.10

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9 One tail $T$ tests were used since the hypothesis tested is that graduation status and vocational training are positively associated with the chances of primary market employment.

10 A series of tables which list the census Classified Index of Occupations and estimates of required general educational development can be found in James Scoville, The Job Content of the U.S. Economy 1940-1970. Inspection of these tables shows the vast majority of occupations require less than 12 years of schooling.

### TABLE 3

**Probability of Primary Market Employment**

"Current" Model

<table>
<thead>
<tr>
<th>Dependent variable: Pr(Pri)</th>
<th>$\hat{\beta}$</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>0.780</td>
<td></td>
</tr>
<tr>
<td>HSG</td>
<td>0.105$^a$</td>
<td>0.017</td>
</tr>
<tr>
<td>VocT</td>
<td>0.067$^a$</td>
<td>0.016</td>
</tr>
<tr>
<td>Class</td>
<td>0.018</td>
<td>0.022</td>
</tr>
<tr>
<td>Mar</td>
<td>0.013</td>
<td>0.056</td>
</tr>
<tr>
<td>E1</td>
<td>-0.001</td>
<td>0.023</td>
</tr>
<tr>
<td>E2</td>
<td>0.005</td>
<td>0.020</td>
</tr>
<tr>
<td>E3</td>
<td>-0.034</td>
<td>0.022</td>
</tr>
</tbody>
</table>

$^a$significant at 0.005 level
Access to the primary market is strongly influenced by graduation status, indicating that the diploma remains an important credentialing device used by employers in their hiring decisions. This supports segmentation theory, in that the use of educational credentials provides a quick and allegedly inexpensive device for screening out socially undesirable individuals.\textsuperscript{12} Since a major function of the educational system is to teach future workers how to behave and fit into the production process, employers, by screening out high school dropouts, ensure themselves of a stable "well" conditioned work force.\textsuperscript{13}

Participation in a vocational training program was also found to increase the likelihood of employment in the primary labor market. Vocational training programs, in addition to teaching (hopefully) marketable skills, stress behavioral modifications (such as punctuality) deemed necessary prerequisites for employment in primary occupations, but of no value in the secondary market, given the structure and nature of employment therein. Although statistically significant, this result should not be used to throw whole-hearted support to the structure of vocational training programs in New England. Enrollment in a training program only increased the probability of primary employment by approximately six and one-half percent. In this light, I would recommend a cost/benefit analysis of vocational training programs in the New England area to see whether or not this six and one-half percent increase in the probability of primary employment justifies maintaining existing training programs.


\textsuperscript{13}See S. Bowles and H. Gintis, Schooling in Capitalist America for a detailed discussion of the role of education in the labor process.
Neither marital status nor employment in the private sector served to increase a worker's chances of gaining access to a primary market occupation. Finding marital status insignificant forces me to question Piore's hypothesis that marriage and family formation increases a worker's stability, thereby making him more conducive to employment in the primary sector. A word of caution is in order, in that this result may be attributed more to the fact that the New England model is not restricted to urban labor markets where the "street corner lifestyle" prohibits both stable marriage and the development of work characteristics, thereby trapping workers in the secondary labor market.\textsuperscript{14} It may well be the case that in non-urban labor markets, secondary workers exhibit stable marital patterns even though secondary job structures do not provide much stability.

The likelihood of employment in the primary labor market did not vary systematically with labor market experience. Workers with limited market exposure were just as likely to be in the primary market as were workers who had been in the labor market for upwards of twenty years. This supports the hypothesized relationship between experience and probability of primary employment, in that workers whose market exposure has been in the secondary sector are not provided with increases in productive abilities which would act to increase their chances of gaining a slot in the primary sector. For workers whose PLFE has been in the primary market, experience, as the results of the first model indicate, increases income via the institutionalized structure of the internal labor market.

Turning to the "augmented" model, (Table 4) we find that the inclusion of Occup\textsubscript{65} results in a sharp reduction of the unexplained variance and

\textsuperscript{14}Elliot Leibow, \textit{Tally's Corner} (Boston: Little, Brown and Co., 1967) chapter 2.
TABLE 4

Probability of Primary Employment

"Augmented" Model

<table>
<thead>
<tr>
<th>Dependent variable: Pr(Fri)</th>
<th>( \hat{\beta} )</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>0.0356</td>
<td></td>
</tr>
<tr>
<td>HSG</td>
<td>0.046&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.015</td>
</tr>
<tr>
<td>VocT</td>
<td>0.035&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.013</td>
</tr>
<tr>
<td>Class</td>
<td>0.007</td>
<td>0.018</td>
</tr>
<tr>
<td>Mar</td>
<td>0.008</td>
<td>0.046</td>
</tr>
<tr>
<td>E1</td>
<td>-0.009</td>
<td>0.019</td>
</tr>
<tr>
<td>E2</td>
<td>-0.001</td>
<td>0.016</td>
</tr>
<tr>
<td>E3</td>
<td>-0.027</td>
<td>0.018</td>
</tr>
<tr>
<td>Occup&lt;sub&gt;65&lt;/sub&gt;</td>
<td>0.549&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.021</td>
</tr>
</tbody>
</table>

\( R^2_{adj} \)                  | 0.342 |
F                              | 103.436 |
SE                             | 0.249  |
N                              | 1576.

<sup>a</sup> significant at 0.005 level
consequently, a much higher coefficient of correlation. Occup$_{65}$ exerts a positive significant effect on current market standing, accounting for more than half the conditional probability of employment in the primary labor market. The importance of labor market status five years ago as a determinant of current status suggests the viability of the dualist position that once a person finds himself in the primary (secondary) labor market, he will more than likely spend the remainder of his working career in the primary (secondary) labor market.

Graduation status and vocational training were also significant explicators of primary employment in the augmented model. However, the relative importance of these two variables declined in the latter model. Graduation from high school increased the probability of primary employment by ten and one-half percent in the current model, but only by four and six-tenths percent in the augmented model; whereas participation in a vocational training program increased the likelihood of primary employment six and seven-tenths percent in the first model, but only three and one-half percent in the second. This suggests there may be interaction between Occup$_{65}$ and one or more of the remaining independent variables included in the model.

In order to test for the existence and severity of multicollinearity, I used a test developed by D. E. Farrar and R. R. Glauber. M. Dutta explains the test as follows:

...estimate the multiple correlation coefficient of a particular independent variable, $x_k$, with respect to all other members of the $x$ set and denote this by $R_{x_k}$. To test whether $x_k$ is seriously collinear with the other $X$'s, form the ratio:

---


\[
\frac{R_{x_k}}{R_y} > 1
\]

where \( R_y \) is the correlation coefficient as estimated for the multiple regression.\(^{16}\)

Regressing \( \text{Occupy}_{65} \) against the remaining \( x \)'s yielded an \( R_{x_k} \) of 0.044. Forming the required ratio:

\[
\frac{R_{x_k}}{R_y} = \frac{0.044}{0.346} < 1
\]

we see that multicollinearity is not a serious problem. Thus, \( \text{Occupy}_{65} \) exerts a strong independent influence on current labor market standing.

Mobility Model

The regression results for the probability of upward mobility model are given in Table 5. This model is a dichotomous dependent variable model of the form:

\[
y = a_0 + \sum_{i=1}^{7} a_i x_i + \nu
\]

where \( y \) takes on a value of one if the respondent was employed in the secondary labor market in 1965 and in the primary market in 1970, and a value of zero if he was in the secondary market in 1965 and 1970. The \( x_i \)'s were defined as a vector of human capital and control variables.

As in the previous models, the adjusted \( R^2 \) is somewhat low; only ten and six-tenths percent of the variation in mobility is explained by the independent variables. However, several of the independent variables do exert a systematic influence on the likelihood of upward mobility. In addition, the computed \( F \) statistic is greater than the critical value \( (f_{7,161}) \), so that we can reject null hypothesis that \( a_i = a_j = 0 \).

Graduation status did not turn out to be a significant explicator of upward mobility, in that high school graduates were no more likely to be
**TABLE 5**

**Upward Mobility Model**

Dependent variable: MOB

<table>
<thead>
<tr>
<th></th>
<th>$\hat{\beta}$</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>0.441</td>
<td></td>
</tr>
<tr>
<td>HSG</td>
<td>0.096</td>
<td>0.080</td>
</tr>
<tr>
<td>VocT</td>
<td>$0.149^{c}$</td>
<td>0.089</td>
</tr>
<tr>
<td>Class</td>
<td>-0.051</td>
<td>0.104</td>
</tr>
<tr>
<td>Mar</td>
<td>0.045</td>
<td>0.241</td>
</tr>
<tr>
<td>El</td>
<td>0.023</td>
<td>0.127</td>
</tr>
<tr>
<td>E2</td>
<td>-0.072</td>
<td>0.096$^b$</td>
</tr>
<tr>
<td>E3</td>
<td>$-0.332^{a}$</td>
<td>0.095</td>
</tr>
<tr>
<td>$R^2_{adj}$</td>
<td>0.106</td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>3.868</td>
<td></td>
</tr>
<tr>
<td>SE</td>
<td>0.462</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>171</td>
<td></td>
</tr>
</tbody>
</table>

$^a$significant at 0.005 level

$^b$significant at 0.01 level

$^c$significant at 0.05 level
upwardly mobile than were nongraduates. This result is particularly damaging to traditional/human capital theory, since proponents of orthodox theory have continually stressed the role of formal education as a means by which workers can escape from the confines of low paying, low status secondary type jobs. Finding graduation status insignificant, on the other hand, suggests the viability of the dualist position that secondary workers are "locked into" their low level positions, and increasing human capital endowments of these workers will not serve to increase their chances of upward labor market mobility.

Although the coefficient on HSG does lend itself to an interpretation favorable to segmented labor market theory, a word or two of caution is in order. As explained earlier, the data only accounts for mobility between 1965 and 1970. Since the respondents completed their formal education prior to 1965, there is no way to ascertain the function of formal education in the distribution of first job selection. It may well be the case that educational attainment figures decisively in the determination process on the basis of the results obtained here.

Turning to vocational training, we find participation in a vocational training program does act to increase the probability of upward mobility. A one tail T test shows the coefficient on VocT to be significant at the 0.05 level. Hence, a worker in the secondary sector in 1965 who has had some formal training is almost fifteen percent more likely to be upwardly mobile than a similarly situated worker with no vocational training. This result, in contrast to that for education, is at odds with dual theory and supportive of the rival human capital theory. According to the dualists, the relations of production in the secondary labor market are inconducive to vocational training, i.e., the jobs do not require it and workers do not receive any monetary returns from it. Thus, workers in the secondary market
should have no incentive to undertake vocational training if it doesn't result in monetary payoffs and if they believe they don't have access to primary jobs. The human capital school, in contrast, argues that vocational training increases the primary "employability" of secondary workers. In addition to teaching a primary marketable skill, vocational training programs also expose workers to the rigor and behavioral characteristics deemed prerequisites to entrance into a primary market occupation. As a consequence of such training and exposure, those in the program move upward on the employment queue, thereby gaining access to the primary market. Quite simply, vocational training differentiates secondary workers, increasing their productivity and desirability to primary employers.

The results obtained here tend to substantiate the latter approach to the role of training programs. Although this appears on the surface to conflict with the results obtained elsewhere which favor a dualist interpretation, it should be tempered by the realization that VocT was, at best, marginally significant. Looking at the model was a whole, it is safe to say that the mobility process is marked by a sizable amount of randomness and it is difficult to make any precise statements as to what, if any, factors serve to explain intersectoral mobility.

Several additional comments on the coefficients on this model are in order. The coefficient on E3 (30 or more years of experience) turned out to be significant at the 0.005 level. This is interesting, in that it denotes a strong inverse relationship between years in the secondary labor market and the probability of upward mobility. This strongly favors our hypothesized relation between experience and mobility, in that the longer a person has been subjected to the unstructured relations of production in the secondary market, the more ingrained the "negative" behavioral traits associated therein become. The continued exposure to secondary working
conditions thus reduces the likelihood of a worker escaping these confines and getting a primary job. The significant negative coefficient on E3 simply indicates that the chances of mobility diminish over time.

In order to further test the inverse relationship between chances of mobility and years in the labor force, the model was run a second time with experience as a continuous variable. The results were similar to those in Table 5 (VocT significant at 0.05, HSG, Class, etc., insignificant), except now the coefficient on experience equals -0.015 and tested significant at the 0.005 level. This is interesting, in that it tells us that a secondary worker's chances of upward mobility decline by one and one-half percent each year he is in the secondary labor market.

An overall evaluation of the mobility model raises several important questions and problems. Some of the coefficients suggest the viability of segmented labor market theory, while others support traditional theory. That the mobility process is marked by a substantial amount of randomness, and that educational attainment does not increase the probability of upward mobility can be readily interpreted from a dualist perspective. On the other hand, the data indicate that mobility takes place to an extent that renders a strict interpretation of dual theory (market boundaries are virtually impenetrable) a severe setback. In fact, of those persons whose reported 1965 occupation was classified as secondary, better than one-third reported 1970 occupations which were in the primary labor market. I am at a loss to provide a satisfactory explanation for the mobility that does take place. This indicates that (1) factors endemic to the data make

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17 The basic mobility model was respecified using education as a continuous variable. It still turned out not to be significant with respect to mobility.
accounting for mobility impossible or (2) despite the extent of mobility, it remains truly "an accident" of chance, e.g., being in the right place at the right time. Perhaps the best explanation is that 1965 to 1970 was an historical period of rapid G.N.P. growth, falling unemployment rates and the induction of thousands of young men into the military.

This concludes the empirical chapters of my thesis. In the following chapters the emphasis shifts from econometric models to a case study of the labor market in Manchester, New Hampshire. The purpose of the case study is to gather direct evidence concerning the extent to which internal labor markets function in the state's largest and most industrious city. The results of the case study will then be used in conjunction with the empirical findings, in order to gain a clearer understanding of the labor market segmentation process in New England.
CHAPTER VI

CASE STUDY: THE MANCHESTER LABOR MARKET

In this chapter, I present the results of a case study of the labor market in Manchester, New Hampshire. Through the cooperation of the Center for Industrial and Institutional Development (CIID) of the Whittemore School of Business and Economics and the Manchester Industrial Council, I was able to gain access to several of the city's largest footwear, electronics and textile producing companies. These industries were selected partly because they represent two cases (textile and shoe) of what may be called declining industries, and one (electronics) which is a growth industry. Furthermore, in terms of employment these are the three largest manufacturing industries in Manchester. Total employment in the three from 1970-1975 is given in Table 6. Despite the severe downturn in electronics employment during the 1975 recession, state projections indicate "the primary sources of new jobs in durable goods manufacturing from 1974-1985...should be electrical machinery products industries. One out of every five projected new jobs for the Manchester SMSA will be in this electrical machiner sector."1 The declines in the other two sectors are expected to continue through the 1980's.

In order to find information concerning the structure of the labor market from which these industries draw their manpower, a two-part, semi-open ended questionnaire was developed. Managerial personnel, primarily

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### TABLE 6

**Employment by Industrial Group, Manchester, N. H.**

*(Annual Averages)*

<table>
<thead>
<tr>
<th>Year</th>
<th>Electrical</th>
<th>Textile</th>
<th>Leather and Leather Products</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970</td>
<td>3,350</td>
<td>2,800</td>
<td>4,900</td>
</tr>
<tr>
<td>1971</td>
<td>3,600</td>
<td>3,000</td>
<td>4,600</td>
</tr>
<tr>
<td>1972</td>
<td>4,050</td>
<td>3,300</td>
<td>4,350</td>
</tr>
<tr>
<td>1973</td>
<td>4,800</td>
<td>3,200</td>
<td>3,500</td>
</tr>
<tr>
<td>1974</td>
<td>4,950</td>
<td>2,900</td>
<td>3,000</td>
</tr>
<tr>
<td>1975</td>
<td>4,100</td>
<td>1,800</td>
<td>2,850</td>
</tr>
</tbody>
</table>

personnel directors, were interviewed and asked questions concerning (a) the composition of their labor force, (b) recruitment procedures, (c) the provisions the company has for worker training, (d) the existence of avenues of in-firm worker mobility and (e) separation and turnover rates. The second part of the questionnaire was administered to production workers in each of the companies visited. Workers were asked (a) how long they had been with the company, (b) whether or not they had participated in training programs, (c) if their current job was different from the one they were initially hired to perform, (d) the frequency with which they received either pay increases or promotions, and (e) several questions concerning their pre-employment history and family background. Questionnaires were given to four personnel directors, one vice-president, and approximately forty workers in five companies: two footwear, two electronics, and one textile. See Appendix 2 for copies of the questionnaires.

The intent of this survey was to see if management and labor responses suggest segmentation within the Manchester labor market. It will be recalled from Chapter 2 that employment conditions in the secondary labor market differ considerably from those in the primary market. It was also pointed out that many dualists believe the existence of an internal labor market with structured mechanisms for the administration of work rules, seniority, promotions and layoffs, all of which serve to isolate workers from external market forces, signifies that the occupation is in the primary labor market. With this in mind, the extent to which we can find developed internal labor markets in the industries studied may give an indication as to whether or not the occupations therein are in the primary labor market.

The methodology I use for reporting observations is as follows: For
each of the three industries studied, I first present some observations based upon discussions with management, and then present observations based upon worker discussions. The industries are discussed separately in order to get as complete a picture as possible of the labor process in each industry, and also to see if there is any conflict between management's responses and those of production workers. I begin with the footwear industry, followed by the electronics and textile industries. The chapter concludes with an attempt to synthesize the occupational and industrial characteristics described by workers and management with the dual labor market theory.

Footwear Industry

Management Responses

According to the personnel directors interviewed, the labor supply for the footwear industry is drawn from the local labor market, i.e., Manchester and the surrounding area. A large part of the labor force in one company was said to come from the French Canadian district of the city, which was within walking distance of the plant. When recruiting workers, the companies tended to rely upon three major sources: walk-ins, word of mouth (employee referrals), and the local media (newspaper want ads and radio spots). Given the unstructured nature of the hiring sources, it follows that hires were not subjected to an extensive pre-employment screening process. I was told on numerous occasions there were no standard requirements on which hiring decisions were made. Education was not considered an important factor, since most of the jobs required medium to low skill levels. One personnel manager went so far as to describe his labor force as comprising "the low end of the labor market."

Formal, in-house worker training programs were virtually nonexistent
in any of the footwear plants visited. Whatever training a new worker received was attained informally, usually watching someone performing the job, being shown the basic techniques, and then beginning the job. Since, in some cases, payment was by piece-work, it was to the employee's advantage to start on the job quickly in order to develop speed. Management argued a more extensive training program was really unnecessary, because most of the jobs required only a short period of time to be learned.

In response to questions concerning avenues of in-firm upward mobility, personnel directors indicated there were no formal job ladders for production workers operating in their organizations. Although most workers were hired into entry level positions and were said to receive periodic pay increases (especially in unionized plants), workers generally remained at the job they were initially hired to perform. In one case, I was told that openings in the factory were posted and workers could bid for the open job. Whereas Doeringer and Piore consider "bidding and posting" as factors in an internal market structure, ² in the present case, relatively few workers were said to take advantage of bidding. Those that did seemed to move horizontally, just to try something different from their current job. One manager commented that significant upward mobility was rare, but a possible line of progression might take the form: bell boy (assistant to a machinist), machinist, department manager, factory manager.

Upper level job slots were said to be almost always filled by going out into the external labor market. The impression was given that "insiders" were simply not managerial or supervisory material. One company reported to have tried an in-house pre-supervisory training program, but found

internal promotion to be ineffective: "Standards were below par". The company concluded that in order to maintain an acceptable rate of growth, hiring at mid-level positions and above must be done externally. In all cases, upper level positions were said to require academic training. Obviously, this tends to limit that range of opportunities available to production workers.

Turnover rates were reported to be in excess of 100 percent per year in all firms visited. Although management voiced concern about such a high rate of turnover, I was told that this was common to this type of industry. Turnover was mostly due to workers quitting their jobs. No formal exit interviews were conducted, but the major reasons given for quitting included: a different (better?) job which either paid slightly better or had better working conditions, and morale problems such as not being able to get along with the foreman, supervisor, or co-workers. None of the personnel directors indicated that their company was planning to do anything to try to curb the amount of labor turnover.

Worker Responses

Interviews with production workers substantiated most of what management said regarding the structure and organization of work in this industry. Employees interviewed included lining cutters, stitchers, casers, assemblers and nailers. Although it was clear that a detailed division of labor exists in the shoe industry, the differences in the jobs appeared minimal. Then cross referenced with the Dictionary of Occupational Titles, most of the jobs fell in the first and second General Education Development (GED) level, and the first through third Specific Vocational Preparation levels.\(^3\)

\(^3\)G.E.D. level 2 entails applying common sense understanding to carry out detailed but uninvolved written or oral instructions and svp level 3
With very few exceptions, workers were on the same job in which they initially started employment. Those who had "moved around" within the company appeared to have performed the same type of work, but on different machines. There was no evidence of an internal labor market. Workers did say that they had received periodic pay increases, so that other things being equal, workers with "seniority" earned more than recent hires performing the same job. Since most workers said they were paid on a piecework basis, incomes, for the most part, depended on how fast the worker could perform his/her job.

When asked if they had undertaken any formal or informal on-the-job training since beginning employment, close to sixty percent responded "no". Upon further questioning of the "yes" respondents, all admitted that the extent of their "training" was: "Following a person around to learn the ropes", "supervisor saying things", or watching an experienced worker. Given the extent and nature of training, it was not surprising to hear workers say that their training did not lead to either pay increases or promotions.

Despite the fact that half of the workers interviewed said they had less than twelve years of schooling, more than eighty percent felt their current job did not require the educational background they had. There was little evidence of intergenerational upward mobility among footwear workers. Of those who remembered, none of their fathers had graduated from high school, and three-fourths said their father had little more than a grammar school education. Furthermore, of the ninety percent who grew up to three months of training.  

up in New Hampshire, most said their fathers were employed as shoe and mill workers in the Manchester area.

Electronics

Management Responses

Recruitment of personnel in the electronics industry operates on what can be considered a two-tiered system. Professional and "high technology" employees are recruited from the national labor market drawing manpower from Boston, New York, Chicago, etc. This is considered by management to constitute a separate labor market. These employees were not covered in this survey since my concern is with production level workers. For the second tier, assemblers and other production workers, hiring is usually confined to the greater Manchester labor market. Oftentimes, recent arrivals to the Manchester area were said to seek employment in electronics firms. Aware that electronics is Manchester's fastest growing industrial sector, personnel directors noted that other electronics companies were their major source of competition for workers. In previous years, it was argued, there really was not much competition for employees, but now employees are aware of wage and benefit packages of competing firms.

Most of the hiring was said to be done by means of newspaper want ads, although some indicated they hire from employment security offices, W.I.N., C.E.T.A. and referrals from current employees. Hiring decisions appeared to be somewhat more structured than in the footwear industry. References were frequently requested and, in some cases, closely checked. Education levels were looked at but were said not to constitute a basis for hiring. It did seem that employers had a preference for high school graduates and that a screening process operated in entry level hiring decisions.
All companies reported that in-house worker training programs exist. However, the extent of the training programs differed quite widely from plant to plant. One personnel director stated O.J.T. was simply placing a new worker with a senior employee. The senior employee functions as a group leader, demonstrating whatever techniques hires need to learn. Another director elaborated a more detailed in-house training program, which included a "one week cram program" for assemblers, a machinist training program, and a series of in-house vestibule schools for learning soldering and other assembly-related techniques. Depending upon the situation, responsibility for training rested on the group leader, the machine shop supervisor, or the assembler trainer, a person whose job is to train assembly workers. Two company representatives stated that their firm would pay a part of any work-related outside education an employee undertakes.

Hourly workers were initially hired into entry-level positions as either assemblers or machinists. There was some indication of a structured job sequence in the companies visited. The degree of market internalization differed and was found to depend, in part, on whether or not the company was unionized. Management in a unionized firm argued that union influence hindered worker mobility, because the union traps employees into positions and pay scales as specified in the union contract. The union agreement establishes pay increases, seniority and so forth, but makes promotion out of specified job classifications based upon ability difficult. In a non-unionized firm, promotion decisions were said to be left up to the worker's immediate supervisor. I was told that the relevant promotion criteria included attendance, punctuality, attitude, quality of work, supervisor's opinion, and seniority.
Several different lines of promotion existed, indicating the presence of internal labor markets in the electronics companies visited. In one firm, promotion was from assembly jobs into light clerical. An example of such a progression was as follows:

Manager's secretary
Purchasing clerk
Assembler (entry level)

Except for top level positions, those above manager's secretary, every open job slot was said to be posted and filled from within if at all possible.

In another firm, there appeared to be a more structured internal labor market. Promotion levels were more sharply defined and confined within the production sphere as indicated:

Supervisory level
Group leader
Skilled production assembler
Production assembler
Entry trainee

Each upward step was considered a promotion and was said to entail an increase in pay. As in the previous case, upper level slots were filled from within, but promotion was based upon selection, as opposed to bidding and posting.

No specifics were given with regard to the incidence of turnover. However, rates were said to be lower in the unionized firms than in non-unionized establishments. On the whole, management did not feel turnover to be a serious problem. No formal exit interviews were conducted with
departing employees, but personnel directors indicated that workers who leave usually go to another electronics firm that may pay slightly more or offer more nonwage benefits.

Worker Responses

Most of the people interviewed were working as assemblers. However, the nature of the assembly work differed considerably from plant to plant. In one company, assemblers built each unit from start to finish (similar to the Volvo production format) while in another, each assembler only performed a specific task (stuff circuit board with components, cable assembler, solderer). In response to questions concerning what they liked best about their jobs, several people in the former said they liked, "building units from start to finish", "found it challenging", and "got satisfaction out of seeing a finished product". In the latter, the responses were more along the lines of, "I like the people", "it's a nice place to work", or quite simply, "everything".

Other workers interviewed included quality control inspectors, pressure calibrators, and floor supervisors. In all cases, these people started out in entry level positions (assembly) and were promoted from within the organization. Although such in-firm upward mobility did indicate an internal job allocation process, it appeared that many workers were not upwardly mobile and were more or less locked into assembly level positions. In some cases, assemblers moved about from line to line, since some assembly lines were claimed to be more attractive than others. It was not possible to determine whether or not there was an occupational hierarchy among assemblers, or what factors determined which assembly station a worker was assigned to. There was, however, a greater sense of job attachment among electronics workers than in the footwear industry.
Better than eighty percent of the workers interviewed indicated that they had received some formal or informal on-the-job training since they began working. Of these, approximately sixty percent stated they had participated in formal, company-run or sponsored training programs, such as soldering school. Upon completion of soldering school, workers noted they were given a "certificate" indicating successful completion of the course.

In one company, when asked if this training resulted in pay increases and/or promotions, the uniform response was "no". This was somewhat surprising since, according to traditional economic theory, training increases a worker's human capital, thereby raising his/her marginal productivity and hence wages. Management's response was that the union contract specifies pay scales and positions, and as a result rules out promotions based upon performance and ability. Employees receive periodic pay increases and seniority rights, but these accrue independent of participation in formal training programs.

Close to seventy-five percent of the electronics workers interviewed had at least a high school diploma. All of the employees who had moved out of assembly level job slots came from this group. Perhaps this indicates that although management does not necessarily make a high school diploma a prerequisite for employment, the diploma greatly enhances the probability of upward in-firm mobility. Also, slightly more than half the sample said they felt their job required the educational background they possessed.

Workers in the electronics industry tended to come from a somewhat higher socio-economic strata than their counterparts in the footwear industry. The education level of their parents was found to be considerably higher than in the shoe industry, in that only forty percent reported that their fathers did not attend high school, while forty percent said their
fathers had at least graduated from high school. Their fathers' occupations were, for the most part, lower level primary sector: construction, electronics, sales and retail operators. Almost half indicated that they did not grow up in New Hampshire.

Textile Industry

Management Responses

As in the previous two cases, most of the production workers resided in Manchester and the surrounding community. Hiring sources were more varied than in the shoe and electronics industries. In addition to worker referrals, local media, and employment security agencies, a company spokesperson said that if a mill closes somewhere in New England or Northeastern Canada, they attempt to recruit workers who have recently lost their jobs.

There did not appear to be an extensive screening process for entry into the textile industry. Although the preceding paragraph indicates that companies will, at times, seek out experienced personnel, no specific mention was made of either previous experience or educational prerequisites for employment. Pre-employment physicals were said to be given.

Of the three industries surveyed, textiles seemed to have the most formalized new worker training procedures. Entry level employees were said to receive a two-week training program conducted in a vestibule school. Successful completion of the program indicated that the worker was ready to move into a higher level job slot, i.e., entry into a well defined internal labor market. Above entry level, training was more informal and took place on the job. Usually a senior employee would show the worker "the ropes".

Virtually all production hourly workers were hired into entry level
positions. Once in an entry level slot, workers received training which enabled them to move into the next rung on the job ladder. Although it was not made clear who was generally responsible for making promotion decisions, I was informed that the most important factors influencing promotion decisions included the "ability to keep up" and learn the required techniques of operating the weaving machinery. Within the "weaving room" internal labor market, vacancies in upper level job slots were filled solely by moving workers from the job category immediately preceding the one in which the vacancy opened. The internal job allocation structure in one of Manchester's largest textile companies was described to me as follows:

<table>
<thead>
<tr>
<th>Weave Room</th>
</tr>
</thead>
<tbody>
<tr>
<td>Superintendent</td>
</tr>
<tr>
<td>Supervisor</td>
</tr>
<tr>
<td>Fixer</td>
</tr>
<tr>
<td>Changer</td>
</tr>
<tr>
<td>Weaver</td>
</tr>
<tr>
<td>Unifil tender (entry level)</td>
</tr>
</tbody>
</table>

Each upward step was considered a promotion and entailed an increase in pay. From unifil tender to fixer there was an approximate pay differential of fifty cents per hour for each step upward.

Despite the well-defined internal structure of the labor market, management indicated the turnover rate was high, and felt it to be a serious problem. Since the average length of employment of the workers I spoke with was close to thirty years, it seems likely that turnover is concentrated among younger workers in either entry or low level positions. Workers who terminate their employment usually do so because of higher
pay and/or better working conditions elsewhere.

Worker Responses

The sample consisted of workers performing various tasks in what was called the "weave room". As mentioned above, the average duration of employment was upwards of thirty years. Thus, none of the interviewees were in entry level positions. Although this may bias the sample by making employment in the textile industry appear more stable than it actually is, it did provide me with an excellent opportunity to observe the functioning of an internal labor market.

Most of the workers indicated that they had received some combination of formal training and on-the-job training. The major emphasis was on learning by simply watching a more experienced employee performing his/her job. Since this type of training was deemed a necessary prerequisite for mobility, the few who said they had not received any training were probably discounting learning by watching as a form of training. In all cases, those who had received training said their training resulted in both pay increases and promotions. Most employees indicated they received pay increases when they moved up in rank, as well as increases guaranteed in their union contract. This is obviously quite different from the unionized electronics firm where employees stated they received no pecuniary rewards from undertaking training programs.

Management's depiction of the internal job structure was well documented in the worker interviews. Virtually all workers began their careers in what, at the time, were entry level positions. Due to modernization, some of the job categories in which workers started employment no longer exist. Nevertheless, as the examples below indicate, a great deal of similarity exists in the mobility patterns of the workers interviewed.
When asked to enumerate the different jobs they had had since they began working for the company, several workers responded as follows:

<table>
<thead>
<tr>
<th>Worker # 1</th>
<th>Worker # 2</th>
<th>Worker # 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Position:</td>
<td>Unifil fixer</td>
<td></td>
</tr>
<tr>
<td>Loom fixer</td>
<td>Changer</td>
<td>Changer</td>
</tr>
<tr>
<td>Changer</td>
<td>Knot tier</td>
<td>Weaver</td>
</tr>
<tr>
<td>Weaver</td>
<td>Leaser</td>
<td>Cloth boy</td>
</tr>
<tr>
<td>Battery handler</td>
<td>Peg boy</td>
<td>Battery handler</td>
</tr>
<tr>
<td>Entry Level:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bobbin boy</td>
<td>Cleaner</td>
<td></td>
</tr>
</tbody>
</table>

Each worker reported that each upward step entailed a salary increase and was considered a promotion. According to wage rate information that was made available to me, fixers earned about $4.50 per hour, changers $4.00 per hour, and weavers $3.90 per hour. The examples given here are quite similar to those described by Doeringer and Piore as "closed internal markets" wherein "all jobs are filled internally through transfer or upgrading from a single entry job classification".\(^5\)

In terms of both their educational background and that of their parents, textile workers were far more similar to footwear workers than to electronics workers. Very few textile workers were high school graduates. In fact, sixty percent of those questioned indicated that they had never attended high school. Their fathers, on the average, had even less formal education. It was interesting to find that better than sixty percent of those currently working in textile factories came from families whose primary income recipient was also employed in the textile Mills in Manchester.

\(^5\) Doeringer. p.43.
Concluding Comments

In this section, I will synthesize the occupational and labor market information gathered in the interviews with the dual labor market theory. As we shall see, this raises several important problems, as there was no clear-cut, one-to-one correspondence between the characteristics of employment in any one firm and the basic postulates of dual theory. Dual theorists argue that employment conditions in secondary labor markets are characterized by high turnover, low pay, almost no opportunity for in-firm occupational advancement, arbitrary managerial control and a general environment which is unconducive to the formation of stable employment relationships. A corollary to these characteristics is that industries where these work relationships predominate are low wage industries, i.e., denoted by low profit margins and situated in competitive product and factor markets. Primary market jobs pay higher wages, are more stable (lower turnover), oftentimes are unionized, and are characterized by the presence of an internal labor market. Employers are generally more restrictive in their hiring policies and usually provide for specific training for workers.

Table 7 presents a summary of the employment conditions in each of the three industrial sectors: Footwear, Electronics and Textiles. It appears that in some industries, despite unstructured and informal recruitment procedures, relatively short training programs, and high turnover, a well-developed internal labor market operates. This was especially true in the textile industry. Prerequisites for employment were minimal, entry training programs lasted only about two weeks and turnover among young workers was said to be very high. However, the textile industry provided the clearest examples of an internal labor market structure. Workers who
### TABLE 7
**Summary of Case Study Findings**

<table>
<thead>
<tr>
<th>Recruitment</th>
<th>FOOTWEAR</th>
<th>ELECTRONICS</th>
<th>TEXTILE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hiring</strong></td>
<td>Walk-Ins, Word of mouth, Local media</td>
<td>Newspaper ads</td>
<td>Referrals, Local media</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Employment offices</td>
<td>Mill closings in N.E.</td>
</tr>
<tr>
<td><strong>Screening</strong></td>
<td>No standard requirements for employment</td>
<td>References checked</td>
<td>No prescribed requirements, Pre-employment</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Appeared Preference for High school graduates</td>
<td>physicals</td>
</tr>
<tr>
<td><strong>Training</strong></td>
<td>No formal training programs were said to exist, Learn by watching someone performing the job</td>
<td>Informal O.J.T., watching someone, More formal demonstration classes, Vestibule and company training schools</td>
<td>Entry level, formal, supervised training period, Beyond O.J.T. more informal, watching experienced workers</td>
</tr>
<tr>
<td><strong>Degree of Market Internalization</strong></td>
<td>No formal job ladders, Upper level slots filled by going to external labor markets</td>
<td>In production lines, upper level slots were filled from within when possible</td>
<td>Internal labor markets well developed and function to allocate the internal division of labor, Clearly defined avenues of mobility (pay increases and promotion) exist</td>
</tr>
<tr>
<td><strong>Turnover</strong></td>
<td>Very high, Mostly quits</td>
<td>High in some cases, low in others, but not said to be a serious problem, Workers usually move to another electronics company</td>
<td>High, among young workers Mostly quits</td>
</tr>
</tbody>
</table>
stayed with the company had definite lines of upward progression open to them, i.e., pay increases and promotions. I would, therefore, tend to consider textile workers to be in the primary labor market. They were, to be sure, very low level primary workers, in that the jobs were routine, workers did not possess a great deal of autonomy over their jobs, and turnover resulted more in going to another similarly situated firm rather than advancement.

In the electronics firms, recruitment was somewhat more structured, upper level vacancies were filled from within and training programs were both formal and informal. Although specific wage information was not available, given that electronics is a rapid growth sector, one can surmise that electronics workers, on the average, were better paid than either footwear or textile workers. The information presented herein, as well as my personal observations of the plants visited, leads me to conclude that occupations in the electronics industry belong in the primary labor market. Furthermore, workers who leave one electronics firm often go to another electronics company, but textile workers who quit may either move to a footwear company or stay within the textile industry. The same holds true for footwear workers. This suggests there may be a separate labor market for electronics workers, but a common labor market for shoe and textile workers in the Manchester area.

Analysis of the footwear industry entailed a problem not encountered in either of the other case studies. The information gathered during the interviews and the summary given in Chart 1 strongly suggest that jobs in the footwear industry should be considered secondary market employment. Recruitment procedures were quite unstructured, there were no formal training programs, no evidence of internal labor markets, and very high turnover rates.
All of these are clearly secondary market employment conditions. However, one company that I visited was unionized. Although the presence of a union is usually considered to be a characteristic of primary market employment, in this case it was difficult to see whether or not the union resulted in more stable employment. In my judgment, employment conditions, in terms of attractiveness of the plant and workers' sense of job attachment, were somewhat better in the unionized than non-unionized plant. The latter clearly belonged in the secondary labor market. I am in no position to argue the union was responsible for the marginally better conditions. Regardless, occupations in the unionized firm can be considered very low level primary, on a par with the textile workers'.

The basic problem involved in trying to fit the results of the case study into the dualist perspective was in reconciling a conceptual framework for the study of labor markets with observed "real world" examples. This problem was further exacerbated by the nature of the industries studied. Textiles, footwear, and, to a lesser extent, electronics are all basically low wage, competitive industries engaged in light manufacturing. These are obviously very different from the automobile or steel industries, which are high wage and have a long history of collective bargaining and internal organization. No high wage industries or occupations which are unequivocally primary were considered. Thus, I was trying to see evidence of occupational stratification within a narrowly defined segment of the labor market.

Clearly, some occupations exhibit both primary and secondary market characteristics. Jobs in the textile company were denoted by a developed internal labor market and the presence of a union, but were marked by a very high turnover rate. Footwear workers in a nonunionized plant were, according to established criteria, in the secondary sector while employees
in a unionized shop were borderline primary. Employees and jobs in the electronics firms visited exhibited the most primary market characteristics of the three.

In my judgement, there was a qualitative difference in employment conditions in the electronics companies as compared with the nonunionized shoe company. However, the others were marked by considerable overlap. The important question is whether or not finding a "mixed bag" of primary and secondary employment conditions in some of the firms is inconsistent with the basic postulates of dual labor market theory. In the remainder of this chapter, I argue that this finding is not inconsistent with dual labor market theory.

Even from the outset, it was unrealistic to expect to find an exact one-to-one correspondence between the conceptual literature on the characteristics of primary and secondary market employment and "real world" situations. It was far more important to see if employment patterns in the industries studied conform to predictions of dual market theory.

The modes of employment which I have deemed secondary conform to the theory, in that hiring standards were informal and casual with minimal pre-employment questioning and screening. The employer's chief concern appeared to be simply getting enough people to show up for work. Training programs were unstructured, in that a new worker could be taught his/her job in a very short period of time. Advancement opportunities were limited. For the most part, employees remained in their initial employment assignments, indicating the absence of an internal labor market. Turnover rates were very high. Workers appeared not to have much difficulty in moving about from one shoe or mill company to almost any other.

The above are all basic features of secondary market employment,
which were found to characterize working conditions in the nonunionized footwear company studied.

Occupations which I have deemed primary were characterized somewhat by greater formality in the hiring process. References were often checked, and educational level was at least noted by prospective employers. Formalized training programs, including vestibule schools, courses in assembly related skills, and O.J.T. were found to be operative. Many workers with whom I talked had advanced out of entry level positions and were moving up in an internal labor market. Although turnover rates fluctuated, management did not voice much concern about it being a serious problem.

The preceding are all established criteria for an employment situation to be considered in the primary labor market. They were also found to characterize employment in the Manchester electronics industry. As mentioned above, jobs in some of the firms exhibited aspects of both the primary and secondary labor markets, and as a result did not fall directly into either. In the following paragraphs, I offer an explanation as to why there was considerable overlap.

Compared with other cities where research on labor market structure has been attempted, Manchester is considerably smaller in size and located in a more rural environment. Even though, in recent years, more industry has been locating in New Hampshire (electronics, computer circuitry, etc.) industry in Manchester has a long history of being dominated by the shoe and textile mills. Now in their declining stages, these industries, up until very recently, accounted for a substantial amount of total manufacturing employment in Manchester (see Table 6).

The domination of the mill work industries offers a partial explanation for the lack of an historical process of the segmentation of the Manchester
labor market. It is quite difficult to see segmentation in a labor market that is not characterized by a diverse industrial and occupational structure. However, the recent influx of electronics firms appears to have contributed to segmentation of the Manchester labor market, since the mill and electronics companies did not seem to draw manpower from the same pool of workers.

Another reason for the difficulty in identifying secondary and primary labor markets may have been the absence of non-white workers. All of the workers I interviewed were white. In fact, I really cannot recall seeing any blacks in the plants I visited. Since dual labor market theory had its origins in explaining the plight of urban blacks segregated into ghetto labor markets, the study of a labor market without a sizable black population confined to low wage jobs makes for a severe test of the dual labor hypothesis.

To summarize, I conclude that although the interviews suggest segmentation in the Manchester labor market, it is by no means as clear as in the case of a large city where segments of the population are confined to certain types of jobs in inner city labor markets. Nevertheless, the employment patterns in the firms studies were not inconsistent with dual labor market theory. The line separating lower level primary from secondary was found to be a fine one, but when dealing with an emerging stratified labor process, it would have been impractical to expect clear-cut market segments, each with their own market specific characteristics.

In the concluding chapter, I present a review of the more important findings derived from the empirical models and the case study. I also tie the two together, in order to show the extent to which the results of the case study substantiate those of the econometric models.
CHAPTER VII

CONCLUSIONS

In the preceding chapters, the incidence of segmentation in New England labor markets has been examined by means of empirical models and a case study. The empirical sections included three econometric models, using data from the 1970 Census Public Use Sample in an attempt to identify factors which influence the process of wage determination in primary and secondary labor markets, the likelihood of employment in the primary market, and the chances for upward mobility. The case study entailed an indepth look at employment conditions and industrial organization in three of Manchester, New Hampshire's largest manufacturing industries. In this final chapter, I present a summary of my major findings, weaving together the results of the empirical models and the case study. The chapter concludes with some notes for further research on segmented labor markets.

Major Findings

Education did not appear to be a significant factor in the allocation of jobs in low wage, secondary labor markets. The results of Model 1 indicate that graduation status had no systematic effect on earnings for secondary market workers. Secondary employers thus displayed no preference for high school graduates in their hiring and remuneration schemas. This was expected, given the low skill level of most secondary employment situations.

This result was substantiated in the Manchester case study. None of the low wage industries surveyed had any education prerequisites for
employment. For example, although most of the footwear workers did not finish high school, those that did worked at the same type of job as those without the diploma. Educational levels were said not to influence productivity, and therefore had no impact on wages and earnings. This finding is similar to the results of two case studies of low wage Southern textile plants wherein "the education of high producers did not differ from that of low producers" and productivity and education were, in some cases, inversely related.¹

In the primary labor market, earnings and education were positively related and completion of high school significantly increased a worker's chances of securing a primary market occupation. The coefficients of the earnings and probability of primary employment models indicated that the better paying jobs within the primary market are reserved for high school graduates, and that the "diploma effect" remains a strong entrance requirement to many primary market positions. In the Manchester electronics industry, the highest wage industry of those studied, employers seemed to prefer high school graduates, although they said they did not screen out nongraduates. Their preference for graduates was clearly demonstrated, in that all of those who exhibited upward mobility, i.e., moved out of entry level positions, were at least high school graduates. Thus promotion and pay increases were dependent upon educational levels.

Even though more research is needed on the relationship between education and income in different strata of the labor market, the results presented here suggest that education "pays off" only in the primary labor market. Increasing educational levels of workers confined to secondary labor markets will not necessarily lead to higher incomes. Accordingly,

the "supply" approach to alleviating inequalities in the labor market by increasing the human capital of disadvantaged workers is called into question. However, for workers who gain access to the primary labor market, education serves its traditional function as a means of generating higher incomes and promotional opportunities.

Years in the labor force exerted a positive effect on earnings in the primary labor market, but were not correlated with earnings in the secondary sector. Furthermore, the longer a person resided in the secondary market, the less likely were his chances of moving into the primary sector. The empirical results suggest that occupational stability is encouraged in primary jobs, in that financial returns accrue to workers who remain in and move up the ranks of an internal labor market. The internal labor market found to be operative in a Manchester textile company had clearly defined mechanisms governing pay increases attributable to promotions and seniority. In general, those workers employed in firms having internal market structures received pay increases and/or promotions as specified in union contracts or in institutionally determined procedures. The internal market clearly appeared to promote organizational stability by providing employees (and management) with some degree of protection from external market forces.

The finding that experience did not lead to higher incomes in secondary jobs can be attributed to the nature of employment therein. The jobs have short learning curves and productivity quickly reaches a plateau. Dualists further argue that employment relations are casual, and there is little incentive on the part of either management or labor to develop a stable work environment. The case study only partly substantiated these contentions. The jobs which I considered secondary were ones which required minimal skill levels. Turnover in the firms in which they were
located was in excess of 100 percent. Nonetheless, even in the firms without a developed internal labor market, workers with seniority received higher wages than new employees, even if they were performing the same basic tasks.

With respect to the model testing the probability of upward mobility, only participation in a vocational training program was found to increase the likelihood of movement from the secondary to primary labor market. This was the only human capital variable which proved significant in explaining mobility. Neither education nor experience increased a worker's chances of upward mobility.

That the model failed to account for the extent of intersectoral mobility over this time period was apparent, upon inspection of the data which revealed a substantial number of respondents whose 1965 occupation was in the secondary sector, but whose 1970 occupation was in the primary market. Despite the fact that this was a period of rapid G.N.P. growth and falling rates of unemployment (tightening labor markets), the extent of the mobility suggests that barriers between labor markets are not impenetrable. Similar conclusions were reached by Andrisani\(^2\) and Rosenberg\(^3\) who both concluded that secondary to primary mobility occurs to an extent irreconcilable with a strict interpretation of dual labor market theory.

Although many dualists have been quite skeptical of expansionary macro policy as a means to curb high levels of unemployment in the secondary labor market, the results obtained here suggest high levels of aggregate demand do have an impact on secondary to primary mobility, and on


lowering unemployment rates. More research is definitely needed on the responsiveness of employment in low wage sectors of the economy to fluctuations in aggregate demand. However, I feel safe to conclude that sustained high levels of aggregate demand are at least a prerequisite to significant policy proposals aimed at the transformation of secondary labor markets.

The results of the case study indicate there is a considerable amount of intergenerational transmission of low wage labor power in the Manchester area. Many of the interviewees in the shoe and textile companies told me that their fathers also worked in the mills in Manchester. Although the offspring may have marginally higher levels of education than their parents, there did not appear to be any important returns to increased education, in terms of movement out of these low wage industrial sectors. Perhaps this suggests the need for at least a high school diploma in order to gain access to better paying employment. One should not be too quick to cite this reproduction of low wage labor power as evidence supportive of the culture of poverty thesis discussed in Chapter 2. I tend to consider it endemic to the structure of industry in Manchester, a city with a long history of being a "mill town". Nevertheless, further research is needed on the life cycle experience of workers trapped in secondary labor markets.

What overall conclusions can be drawn from the above findings? While I feel that my results point to segmentation in New England labor markets, the extent of secondary to primary mobility leads me to stand in basic agreement with Doeringer and Piore's conclusion that:

The data currently available do not uniquely support either a continuous (queue) or a dichotomous (dual) theory of the labor market. Nevertheless it would seem that a unified labor market with linkages between primary and secondary
employment is most likely to characterize the labor market behavior of the disadvantaged who are white.\footnote{Peter B. Doeringer and Michael J. Piore, \textit{Internal Labor Markets and Manpower Analysis} (Lexington, Mass.: D. C. Heath and Company, 1971), p.183.}

Notes for Further Research

Substantive Issues

The results of the models and the case study clearly point to areas where additional research is warranted. In this concluding section, I point out several of these areas and make suggestions concerning the nature of this research.

1. Additional research is needed on the responsiveness of employment in low wage sectors of the economy to fluctuations in aggregate demand. The Census data only provided employment information during an expansionary phase of the business cycle. Therefore, it was not possible to determine whether or not those workers who were upwardly mobile during the upswing found themselves either unemployed or back in the secondary market once the downswing of the early to mid 1970's set in. A possible research strategy might entail extensive interviews with older workers in low wage employment situations who have experienced numerous oscillations in aggregate demand.

2. The results of the case study indicate the need for further research on the life cycle experience of low wage laborers. Many of the workers I interviewed had been with the same company upwards of twenty years, yet turnover in these firms was reported to be in excess of 100 percent per year. Different employment patterns among different age cohorts even within the same industry should be explored, especially since proponents of dual theory advocate policies aimed at stabilizing secondary market employment relationships.
3. The role and influence of labor unions in low wage firms and industries is an area in which surprisingly little research has been attempted. Although union influence is not as strong in competitive industries as in oligopolies, it is important to document the extent to which a union is able to qualitatively improve the work environment in a low wage, competitive firm. It is important to shed some light on this issue in that if the presence of a union stabilizes and institutionalizes labor management relationships, unionization may become a means whereby secondary market jobs can begin to take on primary market characteristics.

4. Additional research should also be focused upon the labor market in rural and semi-urban geographic locales in order to test the generality of dual theory. The results of the Manchester study indicate that a diverse occupational and industrial structure is a necessary prerequisite to segmentation of a local labor market. Supplemental studies of the historical process of industrial development in small to mid-sized cities would do much to augment our understanding of the workings of labor markets and market segmentation.

Methodological Issue

The empirical models contained herein, as well as in other related studies, provide researchers with useful information on labor market behavior. Accusations of truncation aside, it is obviously important to find that education, vocational training, experience, etc. are not correlated with earnings in the secondary labor market. Likewise, the Census data provide information enabling us to construct models to examine the importance of labor market status five years earlier as a determinant of current labor market status and, in general, to test the significance that human capital variables have on labor market standing.
I believe there is an important methodological problem with these types of models that persons working from a dualist perspective need to address. The problem lies in my belief that these models are more geared to exposing weaknesses in the traditional queue theory approach to the study of labor market behavior than in demonstrating the viability of the dualist approach. The reason for this one-sidedness rests, in part, with the nature of the data sources currently at our disposal. Most large scale government or government-sponsored surveys collect data on what may properly be considered supply side variables: education levels, participation in vocational training programs, marital status, head of household, etc. What is missing are detailed characteristics of employment conditions and industrial structure, i.e., demand side factors to go along with the supply side variables currently being tabulated.

As shown in the previous chapter, in trying to determine if a particular job is primary or secondary, it is important to know characteristics of the firm as well as the industry in which the job is located. In the footwear industry, for example, the presence of a union in one firm was a reason why employment therein was considered primary, while a nonunion firm was clearly secondary. Furthermore, occupations in firms which are subsidiaries of larger companies or larger than their competitors may be primary, while the same occupation in a smaller independent organization may be secondary. Thus, the size and relative autonomy of firms in an industry are important factors in determining the labor market status of employment therein. This is especially true in light of the work of Katherine Stone, which points out that the extent of market internalization (the most important factor in determining primary/secondary status) is directly related to the size of the organization.\footnote{Katherine Stone, "The Origins of Job Structures in the Steel Industry" in Labor Market Segmentation, ed. Richard C. Edwards, et.al. (Lexington, Mass: D. C. Heath and Company, 1975), pp.27-84.}
The above is not meant to deny either the importance or the viability of econometric models presented by proponents of dual labor market theory. It is quite legitimate to expose weaknesses in the mainstream paradigm in order to signify the need for alternative approaches. However, it is my feeling that labor market segmentation theorists planning empirical studies should place less emphasis on data bases constructed primarily for neoclassical analysis. The case study is one approach which is particularly constructive for generating data for the study of local labor markets. The interview format developed in this dissertation enables the researcher to have direct contact with workers for supply side and background data, and with management for industrial organization and labor demand information. I conclude that both are essential for a thorough study of the labor process, and believe that this dissertation provides an important contribution to the development of a framework for labor market analysis which incorporates demand side as well as supply side factors. It is my hope that this study encourages other dualists to work on the construction of a data base comprehensive enough to take account of individual and institutional components of the labor market.
APPENDIX 1

Mean, Standard Deviation and

Correlation Matrices for Segmentation Models
TABLE 8

Earnings, Model, Primary

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Correlation Matrix

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Correlation Matrix

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**TABLE 10**

Probability of Primary Employment

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**Correlation Matrix**

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<tr>
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TABLE 11

Upward Mobility Model

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<td>HSG</td>
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<td>Mar</td>
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Correlation Matrix

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<th>Mar</th>
<th>Class</th>
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APPENDIX 2

Sample Copies of Questionnaires
Used in the Case Study
MANCHESTER LABOR MARKET SURVEY

MANAGEMENT QUESTIONNAIRE

ORGANIZATION:

DATE OF INTERVIEW:
I. Recruitment and Screening
   1. Where do most of your workers live?
   2. From what sources do you do most of your hiring?
   3. Who is your major competition for workers?
   4. What do you look for when you hire workers?
      (Probe: education, experience, age, sex....)

II. Training
   1. Are provisions made for in house worker training?
   2. Who is usually given responsibility for providing worker training? (Probe for degree of formality)

III. Worker Mobility
   1. Are most of your workers hired into entry level positions?
   2. Are there opportunities for workers who begin their employment in entry level positions to move up through the ranks?
   3. What are some of the factors which determine which workers receive promotions?
   4. Can you give me an example of a line of progression or job ladder which operates in this organization?
   5. When vacancies occur in upper level job slots, are they normally filled by upgrading or transferring workers from within the organization?
      5a. If not, how are they filled?

IV. Turnover
   1. Can you tell me the turnover rate in this organization?
   2. Do you feel labor turnover to be a serious problem?
   3. When you lose workers, where do they go?
MANCHESTER LABOR MARKET SURVEY

QUESTIONNAIRE

ORGANIZATION:

DATE OF INTERVIEW:

NUMBER:
1. What is your present position with this organization?

2. Can you give me a brief description of your work related responsibilities?

3. How long have you been working as a (response to 1)?

   ________________________ yrs. _____________________________ mos.

4. How long have you been employed with (name of organization)?

   ________________________ yrs. _____________________________ mos.

   If 4 is different from 3, ask 5 and 6; otherwise skip to 7.

5. What was your position with this organization when you were first hired?  ____________________________________________

6. What positions have you held between your initial placement and your current position?

7. Are you presently a member of a labor union? _____ yes _____ no

   Please specify union name: ________________________________

8. Between the time you were first hired and now, have you received periodic:  
   (a) Pay Increases   _____ yes _____ no
   (b) Paid Vacation Time   _____ yes _____ no
   (c) Other Fringe Benefits   _____ yes _____ no

9. Since you started working for (name of organization) have you undertaken any formal or informal on the job training?

   _____ yes _____ no

   If yes, ask 9a and 9b, otherwise skip to 10.

9a. Please indicate the nature of this training?

9b. Has this training led to:  
   pay increases   _____ yes _____ no
   promotions   _____ yes _____ no

10. Five years from now do you see yourself still working for (name of organization)?  _____ yes _____ no

    In what capacity?  ______________________________________
What do you foresee yourself doing?____________________________

11. What were you doing prior to your initial employment with this organization?
   school_____________________________________________________
   military____________________________________________________
   another job________specify________
   other________specify________________________________________

12. Are you currently holding down a second job?
    yes____ no _____
    What type of work is your second job?________________________

13. What aspects of your current job do you like the best?__________

14. What aspects of your current job do you like the least?__________

15. Which of the following would best describe the relationship between you and your coworkers and your immediate supervisor?
    _______ Constant supervision
    _______ Supervisor "checking" regularly (every hour)
    _______ Left along most of the day
    _______ Other, specify ________________________________

16. What do you like about your current job compared with jobs you've had in the past?
    _______ better pay
    _______ better hours
    _______ better working conditions
    _______ closer to home
    _______ other, specify ________________________________

17. Suppose a new firm were to locate in this area and offer you a job similar to the one you now have. What would it take to persuade you to switch jobs?____ more money, how much ______
    ______ better conditions, such as __________
18. What is the highest level of schooling you have completed?

   _____ No High School
   _____ Some High School
   _____ Some College
   _____ College Graduate

19. After you finished school did you take any formal vocational training courses?

   _____ yes _____ no

   If 19 yes, ask 20; if no skip to 21.

20. What kind of training program did you take?

21. What was your first regular job after you finished school (and training program)?

22. Do you feel your current job requires the educational background you have?

   _____ yes _____ no

23. Are you married?

   _____ yes _____ no

   If 23 is yes, ask 24; if no skip to 25.

24. Does your wife, husband work?

   _____ yes _____ no

   What type of work does he, she do?

25. When you were growing up, say in your early teens, what kind of work did your father do?

26. How much formal schooling did your father have?

   _____ No High School
   _____ Some High School
   _____ High School Graduate
   _____ Some College
   _____ College Graduate

27. Did you grow up in the State of New Hampshire? _____ yes _____ no

   If no, ask: In what state (or part of the country) did you live while you were growing up?
BIBLIOGRAPHY


