2.1 The Education-Earnings Relationship: Alternative Views

According to the classical economists, given the assumption of full employment, the primary function of the labour market is to ascertain the price of the labour at a given point of time, depending upon the relative supply of and demand for labour. Given the assumptions of homogeneity of labour units and flexible wages, equilibrium in the labour market is then a general case and disequilibrium is a temporary aberration. To the neoclassicals, who have dropped the assumption of homogeneity of labour units, the primary function of the labour market is to allocate and rationally adjust labour skills and labour demands so as to establish equilibrating wage rates. The radicals see the labour market as segmented into distinct compartments and, according to them, social, structural and institutional factors in the labour market are overwhelmingly important in determining relative wages. From the educational point of view, these different theories of labour market may be seen to have included different aspects of education which are given premium in the labour market.

The theoretical explanation of the education-earnings relationship as found in the human capital theory emphasizes the productivity-augmentation role of education, and considers the demand for education as an investment demand. According to this theory, education increases cognitive skills which in turn raises the marginal productivity of an individual, and as more productive workers are paid more, increase in educational status of a worker would lead to higher earnings in the labour market (Schultz, 1961; Becker, 1964; Mincer, 1974). Thus, it follows that differences in earnings in the labour market arise because of the variations in the amounts of resources invested in individuals. The human
capital theory therefore argues that there is a positive correlation between levels of education and earnings, and this is the most important reason as to why the more educated earn more than their less educated counterparts in the labour market.

It is to be noted here that the human capital model is based on the marginal productivity theory of distribution which assumes perfect competition. As the assumption of perfectly competitive labour market is a rather strong as assumption, what human capital theory characterizes as higher earnings from higher levels of education involves some more factors. One such factor is the fact that education creates barriers to entry in the labour market. By insisting on educational qualifications for job entry, the job market creates barriers to entry for those who do not possess the required qualifications. In such situation, the earnings of the educated as revealed in the labour market reflect an element of monopoly rent (Balogh and Streeten, 1963). In a strictly human capital framework, however, has been argued that this monopoly rent cannot continue in the long run because competition in the labour market will eventually eliminate it in the process of market clearance.

'Screening' (Arrow, 1973) and 'signalling' (Spence, 1973) theories hypothesize that increase in the level of education does not necessarily lead to an increase in the productive capabilities in an individual; rather education serves as a 'credential' or 'signal' for the employer. This means that employers consider education as a measure of performance ability rather than as evidence of acquired skills. Thus, education serves as a 'screening device' in the labour market which sorts out individuals of differing abilities and conveys this information to the employer. Employers generally depend upon this information to filter out the more productive from the less productive. The screening or filtering hypothesis argues that those who go for higher education are more talented and relatively more capable than those who do not. The role of education in the labour market therefore is to help the employer to search out the more talented for recruitment. This hypothesis also argues that individuals with higher ability are interested in being sorted out for recruitment
and therefore they are willing to invest more on a device (i.e. education) which labels their potentials and which enable them to "capture their ability rents" (Stiglitz, 1975).

The screening hypothesis is similar to the human capital theory in the sense that both support the basic postulation that there exists a positive correlation between education and earnings. However, the screening hypothesis is different from the human capital theory in the sense that it does not subscribe to the view that higher earnings of an individual is caused by any skills developed by the education. It needs to be pointed here that, perhaps, empirical testing of the screening hypothesis is more difficult than its theoretical differentiation with the human capital theory. For example, several studies show that screening exists in the labour market, but the findings do not demonstrate whether productivity increments are due to increase in the level of education or to the inherent talents of an individual (Taubman and Wales, 1974; Layard and Psacharapoulos, 1974; Haspel, 1978).

According to 'signalling' or 'sorting' model (Spence, 1973; Weiss, 1995), hiring in the labour market is an investment under conditions of uncertainty. Therefore, in order to determine the productivity of applicants, employers look for information regarding two types of attributes of the individual applicant - i.e. (i) inherited characteristics such as sex, race etc. which are fixed; and (ii) acquired characteristics such as years of schooling, length of labour market experience etc. which vary greatly between individuals. Given their past experiences, the employers decide about the productivity potential of individual applicants on the basis of their acquired characteristics, and the acquired characteristics, particularly 'education' serves as a 'signal' in the labour market. In other words, the length of schooling is used by individuals to 'signal' their ability to the employer, and employers generally demand a minimum level of schooling from applicants in order to 'screen' their workers. Thus, education acting as a 'signalling device' serve to sort workers according to their unobserved ability. Since firms do not know the abilities of applicants at the time of hiring, those who are in the comparable positions with regard to schooling and other related
characteristics are paid equally and later the firms introduce performance based promotions and income on accomplishment. The signalling model like the 'screening model' recognises the positive correlation between education and earnings, but these models do not subscribe to the view that there exists a direct cause and effect relationship between education, productivity and earnings.

The signalling model differs from the screening hypothesis as regards feedback from the responses of employers. In other words, in signalling model the informed (i.e. students or applicants) move first, whereas in screening model the uninformed (i.e. firms) move first (Weiss, 1995). Signalling model often has multiple equilibria; screening model suffers from the opposite problem of non-existence of equilibrium. Moreover, the relationship between wages and education could be seen as the outcome of either students going for an education programme to signal their ability, or students choosing education levels in response to the relative wage offers of firms, in which case wages would serve to screen workers.

The 'job competition model' which owes its origin to Thurow (1972, 1975) and Lucas (1972) attempts to formalize the empirically observed phenomenon that despite education being more equally distributed among workers, their income is unequally distributed. The main elements of this theory are: (i) the number and type of job slots are technically determined; and (ii) the workers' skills and their wage offers are nearly irrelevant in determining the number and type of job positions actually filled. Social customs and institutional factors largely determine wage rates.

In this model, "instead of competing against each other based on wages, individuals compete for jobs based on their relative costs of being trained" (Thurow, 1975). According to this model, education performs two important functions: (i) it certifies the trainability of a prospective employee; and (ii) it, to a large extent, determines the relative position of the individual in the labour queue. Given the functions of education, jobs and higher or lower income are then distributed among prospective employees on the basis of their trainability.
and relative position in the labour queue. This model argues that skills are picked up on the job, and therefore, trainability and training costs become important determinants of recruitment policy of firms. Education can increase the chances of access to a job, as levels of education of an individual and the amount of training costs are inversely related to each other. It is argued that initially individuals having same level of education may get equal wages, but within the labour market or the firm their levels of earnings may vary depending upon the amount of skills acquired through on-the-job training (Khadria, 1986b). The above discussions make it clear that the job competition model argues that education is an important background characteristic which is indirectly used as the measure of trainability, and it helps in getting access to jobs. But, the actual earnings mainly depends on the skills that the worker acquires on the job.

Finally, the segmented labour market theory (Doeringer and Piore, 1971, Piore, 1975; Carnoy and Rumberger, 1976) emphasizes on the socio-institutional factors as major determinants of access to jobs and levels of earnings. This theory argues that the correlation between education, experience and earnings does not necessarily establish that more education and experience contribute to higher productivity. Therefore, the link between education and earnings is not through productivity but through socio-institutional factors. The segmented labour market theory agrees that there can be positive correlation between education and earnings. But the theory does not accept the argument that higher earnings are due to higher levels of education. Given the above brief discussions on the education-earnings relationship as perceived in different labour market theories, an attempt has been made in sections 2.2 and 2.3 to review the available theoretical and empirical literature on labour market segmentation.

2.2 Theory of Labour Market Segmentation

It is a well accepted fact that almost all labour markets are characterised by heterogeneity in terms of reward structure and access pattern of employment. Given the heterogeneity, the issue then is how to capture this heterogeneity in models in which it has
a logic in terms of labour market structure and functioning. Towards this objective, a number of segmentation models, which are often termed as segmented labour market theory, have been evolved since late 1960s, first in the United States and then in other developed capitalist economies. The various names given to the segmented labour market theory are radical, dual (primary- secondary), tripartite (core -- periphery - irregular), stratified, and hierarchical (multiple). Also, the concept of a dichotomy between "internal" and "external" labour markets is related to the dual and tripartite theories. However, irrespective of the different names given to the segmented labour market theory, economists often lump these different (but overlapping) theories together in focusing on their criticisms of orthodox theories of labour market (Cain, 1982).

Moreover, it may be noted that irrespective of the methodological differences used in investigation, the different segmented labour market theories all focus on groups or classes of workers who face objectively different labour market situations that systematically condition their labour market behaviour and restrict their range of effective choices. The development and operation of institutions which are central to segmented labour market theories result in several rather distinct segments within the labour market. Besides, at the core of segmented labour market hypothesis is the idea that workers with such identical human capital characteristics as education and experience are rewarded differentially depending on the segment of the labour market in which they happen to be located (House, 1984). Before going to review various segmented labour market theories, in the following section an attempt has been made to briefly discuss the definitions and related concepts of labour market segmentation.

2.2.1 Definition and Conceptual Clarifications

Economists often approach the issue of labour market segmentation in different ways and, therefore, definitions of labour market segmentation provided by them vary. However, the most accepted definition of labour market segmentation is that "segmentation taken literally suggests a process in particular, the compartmentalization and isolation of
different groups of participants in the labour market which is evoked, for example, by the concepts of non-competing groups and balkanization or by practice of apartheid" (Ryan, 1981). Other economists define labour market segmentation as "the historical process whereby political economic forces encourage the division of the labour market into separate submarkets, or segments, distinguished by different labour market characteristics and behavioural rules" (Reich, 1973; Loveridge and Mok, 1979). Yet some others define labour market segmentation as "the division of the labour market into separate parts, in which the reward for and conditions of work are different, and between which mobility is limited" (Rodgers, 1994). Moreover, the product side definition of labour market segmentation refers to the differentiation of economic opportunities and rewards in the labour market amongst objectively comparable people independent of their desires. In other words, if the labour market is found to be segmented, the earnings functions faced by workers in different labour market segments will be different.

The above definitions of labour market segmentation, however, exclusively refer to the in-market mechanisms of the broader labour market of any economy. Then, what follows from the above definitions are: (i) labour market segmentation is a 'process' in particular, implying that it is a dynamic concept; (ii) this continuous historical 'process' groups workers into compartmentalized, non-competing submarkets; (iii) each submarket (segment) of the labour market is, then, distinguished by different labour market characteristics and behavioural rules; and (iv) structures of economic opportunities and rewards (reflected in the earnings functions) are different amongst objectively comparable individuals participating in different segments of the labour market. However, the important point here is that in segmentation literature one does not come across any definition on which most of the labour economists agree and which is exhaustive. But, nearly all agree on the point that labour markets are characterised by heterogeneity in many dimensions and segmentation of labour market is not synonymous with division of labour market. Moreover, the most common test of the segmented labour market theory uses
regression analysis to examine the earnings functions faced by individual workers in different labour market segments.

In segmentation literature we come across a number of confusing concepts which need to be clarified here. One reason for this could be that although the theory of labour market segmentation though initially evolved in late 1960s, several scholars from other disciplines such as sociology, psychology, industrial relations and management have contributed in further developing and refining this theory over a period of more than two decades.

Rodgers (1986) uses the term 'stratification' to describe division of labour market into separate submarkets. To him, there seems to be two main ways in which 'stratification' can be applied and developed in the labour market - i.e. horizontally and vertically. "Horizontal stratification" essentially involves separating complete production systems in which labourers have some common characteristics. This implies a separation by type of enterprise or, in some cases, by type of product. The labour process within each segment is then associated with a particular production process such as, for example, the division of labour market into formal and informal sectors. Moreover, within the formal sector, disaggregation too has been considered important. This is also termed as "industrial segmentation" of the labour market. "Vertical stratification", according to Rodgers (1986), on the other hand refers to the division of labour market on the basis of personal characteristics such as sex, age, experience, education, race, caste, religion and others such characteristics. Vertical stratification of labour market thus cuts across industries and takes into account personal characteristics of individuals and occupations. Therefore, this type of labour market stratification is similar to occupational segmentation.

However, the above two types of stratification are not always mutually exclusive. For instance, in India, particular types of informal activities are, in many cases, restricted to those with particular personal characteristics such as caste, religion, gender etc. Besides, migrants from a particular region may control a particular activity and occupations, both
formal and informal, and we come across occupations which are often sex-typed (Rodgers, 1986).

In the labour market segmentation literature we find that, while explaining the structure and functioning of urban labour markets, some economists stress on "occupational segmentation" (i.e. vertical stratification) and some on "industrial segmentation" (i.e. horizontal stratification). Theorists like Carnoy (1980), Edwards (1975), Rumberger (1980), Rosenberg (1980), and others had tried to combine occupational segmentation with industrial segmentation to give a more complete notion of labour market segmentation. Moreover, in the labour market segmentation literature, a distinction has also been made between pre-market and in-market segmentation.¹

Pre-market segmentation refers to differentiation of opportunities to enhance one's productive potential through schooling, formal training, etc. before commencing employment. This type of segmentation is closely related to social stratification. Some individuals enter into labour market with distinct advantages in terms of knowledge, skills and attitudes conductive to success. Such capabilities contain a large developmental component, associated with family and school background of the participants. It should be noted here that pre-market segmentation is the centre-piece of the classical conceptualization of the labour market as a series of non-competing groups. Each non-competing group, then, restricts to its offspring the schooling, training and contracts, which, as occupational prerequisites preserves its market fortunes from the depressing effect of competition from the lower strata (Mill, 1955). According to this view, schooling acts as an agent of the reproduction of social inequality even today.

In-market segmentation on the other hand denotes the subsequent and future differentiation of opportunities within labour market, opportunities both to enhance further one's productive potential through on-the-job training etc., and to receive a superior price

¹ 'Pre-market segmentation' occurs before the entry into the labour market and 'in-market segmentation' occurs while in action in the labour market. (Ryan, 1981).
for its rental. New trends of exceptions are also possible in some societies and some labour markets' for example as mentioned in Khadria (1984). The neoclassicists perceive in-market segmentation in an altogether different way. According to Becker (1964), the market for human capital is extremely segmented, a fact which provides a major source of inequalities of pay in the labour market. Thus to the neoclassicists, in-market segmentation represents the continuation of pre-market differentiation of opportunities into the market itself.

According to orthodox economists, the market cannot be blamed for inequality which is brought to it, without being in any way part of its creation. This is clear from the memorable assertion of Hicks (1963): "... low wage labour is often badly paid, not because it gets less than it is worth, but because it is worth so appalling little". But, in the segmentation literature it has been argued that in-market segmentation denies to the market such neutrality of status. By rewarding people not solely in accordance with their prospective productivities, a segmented labour market acquires an active role in the generation of inequality and low pay. In-market segmentation therefore raises social and ideological issues apart from narrowly economic ones of market segmentation (Ryan, 1981).

It has been argued that a strict distinction between pre-market and in-market segmentation and their existence may be partly or wholly ineffective due to interactions between the pre- and in-market elements in segmentation. However, it is important to note that segmentation economists assume that the interactions between pre- and in-market segmentation are sufficiently limited for there to exist individuals of comparable ability, attainment and general labour quality in different elements. It is therefore clear that in-market segmentation has been perceived differently by neoclassical and segmentation economists, and it is this difference which distinguishes the segmentation theory from the neoclassical theories of labour market such as 'human capital theory'. However, in the
present study, we are more concerned about in-market segmentation and its outcomes than that of pre-market segmentation.

It is perhaps relevant here to draw a distinction between 'labour market discrimination' and 'labour market segmentation'. In the labour market, 'discrimination' arises when some individuals are paid less than others (i.e. wage discrimination) or are less likely to be employed (i.e. job discrimination) because of factors such as gender, race, appearance or other personal characteristics unrelated to their abilities. 'Segmentation' on the other hand refers to division of the labour market into separate parts, in which the reward for and conditions of work are different, and between which mobility is limited (Rodgers, 1994). Besides, discrimination is usually involved in segmentation since some factors must determine which particular social group has access to which particular labour market segment, whereas discrimination can perfectly well exist without segmentation.

Before we review the different models of labour market segmentation, it may be mentioned here that economists use endogenous independent variables such as characteristics of occupation, industry, firm size, public/private sector employment, sex, race, and ethnicity to identify segments in the labour market -- in the sense that they result by choices made by and opportunities open to workers (House, 1984). Fields (1980) and Mayhew & Rosewell (1979) have argued that the use of these stratifying characteristics is only acceptable so long as workers are not able to change segments over their life-time. So far as segmentation on the lines of sex, race and ethnicity is concerned, Rosenberg (1987) argues that studies which attempt to examine the labour market status of women, blacks, minorities and immigrants only give an account of the labour market experience of these groups rather than providing any logic for recognising that labour market is segmented on the lines of these variables. However, majority of the economists accept sex, race and ethnicity as variables on the basis of which labour market can be segmented into distinct submarkets. Thus, this point is still open to debate.
Apart from this, some other economists consider the level of education or skill as important criterion for segmentation since the propensity to work differs with the individual's level of educational achievements from the demand point of view, and there are varying substitution possibilities between skilled categories and between these and capital (Rene, 1978). Skill levels also affect the degree of mobility and therefore can be considered as one of the criteria for segmenting the labour market. Some economists also identify different labour market segments on the basis of three characteristics of employment - i.e. (i) regularity; (ii) protection; and (iii) autonomy. The relative variation in the degree of any one or all of the above characteristics may distinguish one segment from the other in the labour market. However, it is to mention here that in the present study, we have used level of "educational achievements", "protection" and "autonomy" of employment as main variables to segment the urban manufacturing labour market.

2.2.2 The Dual Labour Market Theory

The dual labour market theory has been advocated by Piore (1969), Doeringer and Piore (1971), Harrison (1972) and Bluestone (1970), though many other economists have contributed towards the refinement of this theory. However, the two theorists most often associated with this theory are Doeringer and Piore. They draw their initial inspiration from the works of two prominent economists of their time: Dunlop (1957, 1958), and Kerr (1954), who first gave prominence to the concepts of internal and external labour markets. Dunlop and Kerr viewed the growth of large firms and unions in the United States, as promoting structured internal (within-firm) labour markets that were only weakly connected to the external (between-firm) labour markets. According to this theory, the entire labour market can be dichotomised between a primary and secondary segment.
The two segments of the labour market can be identified on the basis of 'job contents', 'circumstances of employment' and the degree of 'inter-segmental mobility'\(^2\). The dualists therefore see the primary segment of the labour market consists of a series of structured internal labour markets in which there are stable employment opportunities and regularized lines of advancement. Piore (1971) defines a primary labour market as one composed of unionized jobs in large firms which tend to be better jobs - i.e., higher paying, more promotion prospects, better working conditions and more stable work. The secondary segment of the labour market which roughly overlaps large sections of the external labour market and which is attached to the bottom of the internal labour market within the firm contains jobs that are low paying, offer few fringe benefits, poor working conditions and involve menial and repetitive work. This segment of the labour market is characterised by unstable patterns of employment, general skills, few opportunities for promotion and arbitrary management. Thus, the secondary segment of the labour market is characterised by bad 'job contents' and poor 'circumstances of employment' relative to that of the primary labour market segment.

In the dual labour market literature of early 1980s, a distinction has been made between a 'strict' and a 'heuristic' conception of duality of labour market. In a competitive labour market, it is argued, the distribution is expected to exhibit two characteristics -- i.e., unimodality and smallness of dispersion of job rewards (Ryan, 1981). Usually, the size of dispersion increases with the frictional costs associated with mobility and information. In an essentially competitive world, such costs would be limited and the dispersion will accordingly be small. In contrast, a situation of strict duality of labour market is characterised by both bi-modality and substantial dispersion. This implies that the good jobs (and favoured workers) of the primary segment are clearly separated from bad jobs

\(^2\) 'Job contents' refers to the kind of work people do and the degree of control they exercise in their immediate work activities (i.e. the extent to which work is self-directed or involves directing the work of others). 'Circumstances of employment' refers to the institutional arrangements (or internal labour markets) that govern labour relationships and contrain outcomes (e.g. pay scales, job ladders, promotion criteria & so on).
(and, disfavoured workers) of the secondary segment. Then, in this case, a clear frontier between the two labour market segments can be drawn. It is also argued that a failure to find bi-modality and a distinct frontier between the segments does not, however, mean the absence of segmentation. Therefore, the heuristic concept of duality implies that duality of labour market may even be maintained even if no clear-cut frontier can be drawn between 'better' and 'worse' jobs, and this fact cannot be ignored. Thus, jobs located towards the lower tail of the distribution may be termed as secondary and the rest as primary by giving an arbitrary frontier, if only for the heuristic value of the simplifications. This heuristic concept of duality is one of the major refinements of the concept of duality of labour market which has served to dramatise the structural differentiation prevailing both in developing economies and in industrial structure of advanced capitalist countries.

The concept of duality of labour market is not therefore as restrictive as it is sometimes taken to be in the literature. Because, as there are many levels of labour quality, the implication is that several disadvantaged or secondary segments may exist at the various levels of labour quality. The concept of secondariness is then strictly applicable to any qualified worker who receive markedly lower job rewards than comparable members of his/her peer group.

It is worth noting here that so far as the task of drawing a distinct line between the primary and secondary segments is concerned, the dual labour market literature does not contain any single operational characteristic, let alone a cut-off point, that would distinguish two segments. Even labour market dualists admit that reliable measures of primary and secondary jobs are not yet available (Doeringer, 1971). It is also worth mentioning here that some of the theoretical ideas of the dual labour market theory are similar to that of 'job competition' theory -- i.e. the demand determined allocation of jobs, the key role of on-the-job training, employer discrimination, and downgrading of observable human capital characteristics as determinants of wage levels. Quite distinct on the other hand, is the attention Doeringer, Piore, Harrison, and other dualists give to the
role of the workers' attitudes, motivations and work habits and the way these interact with community variables such as the welfare system and illegal activities (Cain, 1982).

Accepting that two distinct segments exist in the labour market, the dualists raise several issues relating to access to employment in various segments, wage determination mechanisms, earnings-human capital relationships, and inter-segmental mobility patterns which are as follows:

(i) In the dual labour market literature it has been argued that there exists distinct mechanisms of wage and employment determination in primary and secondary segments. Wages in the primary segment are determined within the framework of highly structured internal labour markets with individuals' earnings being determined by their relative access to different job structures (Doeringer and Piore, 1971). In other words, primary segment wages and employment are determined within structured internal labour markets by rules and procedures which are unresponsive to economic factors. The wage a person gets depends not just upon his or her personal productivity ability but on the wage associated with the job he/she does: a wage determined historically by labour market custom. Also, promotion in the primary segment is determined through institutional rules, based for instance on seniority, rather than on personal merit. Thus, institutional rather than market forces play the major part in the allocative and distributive mechanisms of the primary segment of the labour market. Wages in the secondary segment of the labour market are determined partly by the interaction of market forces and partly by employers' decision and by institutional factors. Moreover, variations in productivity-related characteristics across workers in the secondary segment are not strongly reflected in variations in earnings. However, wage structures in the secondary segment are determined mainly by aggregate demand and supply.

(ii) The average level of earnings in the primary segment is comparatively higher than that of secondary segment. In this theory, the importance of human capital investments is not denied for the primary segment since differential access to job clusters reflect, in part, variations in education and training and in learned experience. The schooling-earnings relationship, however, is given less importance than in orthodox labour economics, particularly in human capital theory. It is argued that in the primary segment there exists a positive correlation between human capital variables and the workers' earnings. But, earnings in the secondary segment of the labour market do not reflect variations in individual characteristics or capabilities since secondary segment employees have equal productivities (as perceived by the employers) and therefore do not reward human capital (Gordon, 1984; Watcher, 1984). Thus, in the secondary segment, the degree of correlation
between workers' earnings and their human capital characteristics is different from that in the primary segment of the labour market. For the same reason, workers in the secondary segment are assumed to have fairly flat age-earnings profiles since additional experience, as presented by age, does not increase a workers' earnings beyond the first few years at work. Moreover, in the secondary segment variations in working hours is the most important consideration for income distribution. Therefore, the dualists allege that the human capital model fail to give a satisfactory account of the labour market operations of the secondary segment.

(iii) The dualists argue that the mobility between primary and secondary segments in the labour market is controlled and extremely limited. Secondary segment workers are not often allowed to move up. Mobility is restricted because workers in the secondary segment lack industry-specific skills given their low level of on-the-job training. But the lack of upward mobility primarily arises because of institutional and social barriers unrelated to human capital. In the dual labour market literature, this limited inter-segmental mobility is often attributed to the typical characteristics of secondary segment workers, "inability to show up for work regularly and in time" and of "the attractions of such (illegal) activity, as well as life patterns and role models -- (that) foster behavioral traits antagonistic to primary employment". Harrison (1972) calls attention to "life styles" of workers that make them "psychologically as well as technically" unable to move out of the secondary segment of the labour market. Also, Gordon (1972) says: "disadvantaged workers, especially those recently off the firm, have always had trouble responding to the discipline required of them in industrial organizations". Doeringer and Piore (1971) say: "there are distinctions between workers in the two sectors which parallel those between jobs: workers in the secondary sector -- exhibit greater turnover, higher rates of lateness and absenteeism, more in-subordination ....". But the basic argument of the dualists is that the majority of secondary segment workers would display good habits if they were put into the primary segment, and if the majority of primary segment workers were put into the secondary segment they would soon display bad habits. This implies that work habits are characteristics primarily of jobs, not of workers.

However, the demand side factors affecting inter-segmental mobility are: (a) credential for job access which are based on some fixed characteristics of the individual concerned (i.e. sex, race, age, character, traits, etc.); (b) credentials for job access which are based on some obtainable characteristics (such as education, skill or experience, qualifications, mode of dress or accent); (c) general factors imposing costs or impeding movements (i.e. distance, information costs etc.) and (d) social mechanisms for restricting or controlling job
access (personal networks, queuing time; in the case of self-employment, control over capital and markets). Thus, the secondary workers are victims of a "culture of poverty". A "vicious circle of poverty" in the secondary segment perpetuates low wages and unfavourable behavioral traits of the workers which in turn limit the degree of inter-segmental mobility.

The point worth noting here is that the contribution of the dualists lies not in reiterating the potential importance of behaviour at the work place but rather in pointing out how behaviour at work place may be endogenous and a result of one’s labour market achievements. Thus, the effects of discrimination, other systematic factors, or even random factors that start workers off in the secondary sector, can shape tastes in an anti-work direction and thereby reinforce the disadvantaged position of low wage workers (Cain, 1982). In the dual labour market literature, there have also been allusions to technology as an endogenous variable and Vietorisz and Harrison suggest another type of "vicious circle", whereby technological changes reinforce the low wages status of low skill workers. However, these ideas are still in a stage of being developed fully.

Doeringer and Piore (1971) argue that primary sector jobs are rationed, and that, in particular, women, blacks and other minority groups find it difficult to obtain primary employment. It is argued that while the dual labour market approach helps to explain the occupational distribution of men and women, black and white, it does not explain the sex segregation and racial discrimination which occur within the primary and secondary sectors (Cain, 1982). No integrated model of sex segmentation has been developed yet. Since in the views of the dualists, it is unlikely that the rationing of jobs can be eliminated, training programmes will not be successful in eliminating urban poverty. Therefore, the major role of the macro policies should be to provide income support to the stigmatized groups, ensuring that rationing system is fair and minimizing the extent of secondary sector by stabilizing aggregate demand.
However, the above issues are mainly theoretical hypotheses which require rigorous empirical testing for proving their validity. Apart from this, the stress in the literature is on segmentation as a continuous 'process' which produces the labour market outcomes discussed above. We therefore now concentrate on this 'process' which compartmentalizes the labour market participants into primary and secondary segments, assuming that a clear understanding of the process would help in reshaping the macro policies towards attainment of full employment of labour, equitable distribution of income and non-discrimination in the labour markets.

**Explanations of Dualism in the Labour Market**

Bosanquet and Doeringer (1973) argue that labour market duality results largely from differences in recruitment, promotion and training practices of firms. There are firms which recruit workers directly into well-classified job positions and provide little opportunity mobility through training and promotion. By contrast, firms with various levels of internal labour markets recruit workers at a limited number of entry points and then rely on training and promotion to fill most of the remaining job positions. On the demand side, Bosanquet and Doeringer argue, it is the presence of enterprise-specific training which encourages market duality. On the supply side, on the other hand, while initial distribution of workers is likely to be the result of both educational differences and discrimination, it is the attitude of workers in the secondary sector towards job shift which tends to reinforce the polarization of the market. The product market and the technological conditions faced by a firm will impose some constraints on the choice employers make in choosing a 'high' or 'low' strategy with respect to a whole set of employment and training conditions.

Piore (1970) also provides an elaborate technological explanation of the "process" by taking into account both the factor as well as product markets. While giving this explanation Piore assumes that "productivity" is basically a technical relation determined by the amounts and types of machines available. According to Piore (1973), the role of
institutional forces and of labour force characteristics in determining market structure are played out within a set of technological forces -- there is probably an elementary technological core to the economy which is impervious to assault by alien institutions and workers and will mould the latter to its own image before it gives way.

For Piore, thus, technological requirements shape the nature of jobs and the requirements of jobs shape the worker characteristics. Piore argues that given particular amounts and types of machines and particular levels of human skill and competence, a definite level of productivity "automatically" ensues. It is precisely the rejection of this "automatic" version of productivity which distinguishes the social "control" variant of segmentation of the radical economists from Piore's version.

Piore starts with the two hundred years old argument of Adam Smith that specialisation of tasks facilitates learning by doing, saves time involved from moving from one task to another, and by focusing workers' attention on a few tasks encourages them to invest "time-saving innovations". However, he admits that division of labour always increases productivity in a technical sense, the economically profitable extent of the division of labour is limited at any given time by the size, stability and predictability of demand. For the purpose of explaining segmentation, the more relevant division of labour are those imposed by the stability and predictability of demand. An inherent part of increasing the division of labour is the substitution of mechanical energy for human labour. This implies an increasing amount of capital investment in physical terms, and probably in value terms, as well as per unit of labour. When product demand of a particular firm is unstable and unpredictable, the entrepreneur will hesitate to undertake the risks associated with large capital investments. In case of this firm, therefore, less capital-intensive (or labour-intensive) technologies will be used.

Here, one could very well argue that the dichotomy between stable and unstable demand is too sharply drawn and that there is in reality a continuum running from relatively stable to relatively unstable situations. This would imply that there is a
continuum of technologies ranging from very capital-intensive, highly sub-divided to labour and skill-intensive technologies. But, because of the great degree of interdependence between intermediate goods producers and users, there are large economies of scale possible from standardisation of capital goods. These economies of scale prevents introduction of intermediate technologies. Therefore, there are "bunching" tendencies around the two poles of capital-intensive and labour-intensive technologies. This implies that, in each industry, a few firms using capital-intensive technology will produce goods which will cater to the stable portion of the demand, while a variety of smaller firms at the periphery of the industry will meet the unstable portion of the demand by using labour-intensive methods of production. The "bunching" principle will project the dualism within each industry onto the economy as a whole so that all peripheral firms will employ broadly similar technologies (i.e. labour-intensive) as will all large capital-intensive firms at the core.

Now, moving from the above explanation of product market dualism to an explanation of labour market segmentation, Piore argues that starting from a situation where all jobs are highly skilled the first stage in the division of labour will be to separate out the most trivial tasks. Little capital expenditure is involved to change the technology necessary to do this. Firms at the periphery of the industry with small and uncertain product markets employ technology suitable to this stage in the division of labour. Jobs in such firms have either a very low, almost trivial skill level which requires very little experience, and very little cooperating capital or are managerial and technical jobs requiring "task-general" learning. Thus, these competitive firms generate both primary independent and secondary jobs.

In large firms at the core of the industry with stable product demand, the entire production process can be much more subdivided and routinized. Such firms employ a

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3 Piore (1973). "Task-general" learning (traits) consist of the ability to deduce from a set of general rules the appropriate behaviour in particular situations. This set of traits is acquired through formal education enables the worker to perform specific tasks which the worker has never encountered before.
capital-intensive technology in which most jobs are multi-task, semi-skilled or skilled jobs requiring "task-specific" learning or traits. Since a worker's productivity on such jobs is a function of experience, these firms have set up the internal labour market structures to encourage stability and promote the transfer of accumulated expertise from older to younger vintage workers. The direction of technical jobs in these firms is to increase division of labour, which implies continually decreasing the number of tasks per job. All jobs in this sector except for a few highly skilled coordinating and managerial jobs will become single-task-secondary segment jobs. The important point here is that many jobs in this core sector of the economy are objectively simple so that very little experience at them is required for greater productivity which implies that these should be considered as secondary labour market jobs. Yet these continue to be part of the primary labour market because the institutional structure of unions and internal labour markets which were set up when the jobs were highly skilled are hard to dismantle.

Thus, corresponding to the core and periphery sectors of the industrial sector, there exist primary and secondary jobs which are filled by people having distinct labour market traits. It is therefore argued that the structure of the industrial sector itself has greater impact on the process of segmentation of urban labour markets.

Besides, to Vietorize and Harrison (1973), technological innovation and its subsequent introduction in the production process creates and perpetuates segmented labour markets. They argue that technological innovation brings about a complete change in the production techniques. The result is that industrial activities experience a complete cyclical change which provides a positive feedback. Positive feedback arises when the induced effect after completion of the cycle has the same sign as the original effect. Figure 2.1 provides a reinterpretation of the production technique cycle based on the fundamental conceptions of

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4 "Task-specific" learning consists of the ability to do a particular task. Such traits are acquired through a process of "automatic incidental learning" which occurs from watching others do the tasks and doing them oneself. Thus the range of such tasks one can perform depends mainly on labour market experience.
the nature of the labour markets. Given the initial technology, in activity A, for example, workers are paid more relative to that of activity B. Suppose, in activity A, a modern labour-saving technique is introduced. This will raise the productivity of workers in that activity and hence the wage levels of the workers are further pushed up. In activity B, persistence of more labour-intensive technique will stagnate the wages. In sum, activity A and B will undergo 'divergent development'. Technological levels, labour productivity and wages will steadily advance in activity A while they will stagnate in activity B. The cluster of activities of type A will define the primary labour market and that of type B, the secondary labour market. The mechanism of positive feedback thus underlines divergent development and labour market segmentation. However, in any labour market, positive and negative feedback cycles always operate side by side, with their relative strengths determining where the outcomes will tend towards homogeneity and where towards segmentation.

Another economist, Mezzera (1981) argues that the process of segmentation is initiated when technological and other innovations are introduced into the industrial sector of an economy in an initially imbalanced environment because the capital market in such an economy is imperfect. It is argued that only large firms can adopt the modern expensive techniques of production. On the other hand, small firms have to force their workers to reduce their labour incomes in order to compete with the modernized large firms. The latter do not reduce wages because their interest is to minimize total labour costs rather than the wage bills alone: with labour as quasi-fixed cost. In this way, the difference in the behaviour of firms tends to be significant. Even in the absence of government and union interventions, technical innovations lead to segmented labour markets. This is particularly true of those less developed countries where credit markets are disintegrated and inadequate. In these countries, small firms have no ready access to required institutional credit for introducing modern technical innovations which ultimately results in the development of segmented industrial sectors, and thus segmented labour markets.
Fig. 2.1: Production technique cycle (positive feedback)

Activity-A (Primary Segment)

1. HIGHER WAGES
2. ADOPTION OF LABOUR-SAVING INNOVATIONS
3. HIGHER PRODUCTIVITY
4. WAGE INCREASE

Activity -B (Secondary Segment)

1. LOW WAGES
2. PERSISTENCE OF MORE LABOUR-INTENSIVE TECHNIQUES
3. LOW PRODUCTIVITY
4. WAGES STAGNATE

Source: Vietorize, T. and Harrison, B. (1973)
2.2.3 **Radical Segmented Labour Market Theory**

Partly in response to the inconsistencies of the empirical findings with the hypotheses of the dual labour market theory, a more elaborate and dynamic theory of segmented labour market was developed by Edwards, Reich and Gordon (1975) and this theory was modified later in the early 1980s by economists like Rumberger (1980), Carnoy (1980), Loveridge and Mok (1978), Rosenberg, Rodgers (1986) and other empiricists.

The radical theory of segmented labour market expresses a more explicit critique of capitalism, acknowledges its ties to Marxian dialectical analysis, and emphasizes the role of class conflicts and labour market institutions. The radical theory is similar to the dual labour market theory in drawing upon sociological analysis of institutional change, but the radicals focus on the role of the historically rooted class-based motivations of behaviour by employers and workers in explaining the structure and functioning of urban labour markets. In this theory, technology is viewed as an endogenous variable that is manipulated by employers to further class interests rather than profits. It is difficult, however, to test these ideas relative to neoclassical theory, which also views technology as endogenous, depending on the time period analysed, and which assumes non-pecuniary aspects of profit maximization (Cain, 1982).

It should be remembered that most of the issues raised by the radical theorists are similar to that of dual labour market theory. But the division of labour market into various segments and the explanation of the process of segmentation provided by the radical economists are different from that of the 'dualists'. Radical labour economists divide the labour market into multiple segments, mainly into three segments -- "primary

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5 Several economists are associated with the development of the radical segmented labour market theory. However, among others, those who are most often associated with this theory are Wachtel, 1972; Edwards, Reich and Gordon, 1975 and Bowles and Gintis, 1975.
independent", "primary subordinate" and "secondary". Some economists have also added another labour market segment termed as "crafts" to the above three markets.

In this theory, the primary independent or creative segment of the labour market retains most of the characteristics of the primary sector as defined by the 'dualists'. However, the radical economists have used different terms in defining this segment. According to them, primary independent segment of the labour market consists of jobs which require creativity, self-initiative action on the part of the workers, whereas jobs in the primary routinized segment require conformity to externally imposed norms. In this segment, individual motivation and achievement are highly rewarded and work is judged and regulated by professional standards. Jobs in this segment are characterised by high degree of autonomy, and wages attached to these jobs are the highest compared to that of jobs in other segments.

Jobs in the primary subordinate or routinized segment of the labour market are characterised by relative (to secondary jobs) stability, high wages, rising with age (or seniority). It is implicit in the radical segmentation literature that the blue-collar workers constituting this primary subordinate segment have, to a large extent, similar qualifications and skills (productivity) of secondary segment workers of the dual labour market theory. The important variables separating them from the secondary labour market workers are their relative job stability and high wages. This is the important refinement provided by the radical labour market theory.

These two segments of the labour market (i.e. primary independent and primary subordinate) together constitute the primary segment. To the radical theorists, jobs in the primary segment as a whole tend to be full-time and full-year employment and are marked by promotion and wage patterns which are set internal to the firm. There are well defined promotional ladders in this segment. In this segment, access to entry level jobs are determined by schooling, race and sex which are seen as convenient indices of "stability" and other desired workers' attributes. Besides, relative wages for different jobs and job
ladders are defined by "shop customs" and do not respond to supply and demand pressures. Jobs in this segment are often unionized, and the unions are frequently allowed to determine this relative wage structure in return for cooperation with management in disciplining and stabilizing the work force. The fixing of relative wages and the seniority based promotion system also facilitate the transfer of valuable know-how from experienced to newly recruited workers. More experienced workers do not fear competition from new comers and are willing to pass on accumulated expertise to them. Thus, institutional factors play an important role in the wage determination process in the primary segment of the labour market.

However, as the individuals active in the upper-tier (primary independent segment) of the primary segment possess considerably higher credentials and pre-market preparations in general than those in the lower-tier (primary subordinate segment), it is possible that the difference in their positions owe nothing to in-market segmentation and everything to pre-market segmentation and differences in their innate abilities. In this case, the distinction between the tiers of the primary segment would be one of the descriptive categorization, lacking in analytical importance as far as market segmentation goes (Ryan, 1981).

In the secondary segment of the labour market, jobs require the least on-the-job training and the minimum of general skills. Jobs in this segment do not lead to promotion ladders, usually are not unionized and offer low wages and poor "circumstances of employment". Supervision and firing criteria are arbitrary and vary with the whims of the manager or the boss. The chief characteristic which distinguishes workers of this segment from the workers of the either of the primary segments is the lack of stability in employment.

However, in Carnoy's version of the labour market segmentation, the "primary independent" segment has been described as the "high education" segment. But, the "primary subordinate" segment as such does not exist in Carnoy's model. Carnoy argues that a historical analysis points to the division of primary subordinate workers into those working in the "union" jobs, which are also jobs in the monopoly industries, and those
workers who are not organized are usually in competitive industries. Finally, he brings the secondary segment together with the primary subordinate segment which is not unionized to form the 'competitive segment'. Thus, Carnoy perceives labour market as mainly divided into three segments - "high-education", "unionized" and "competitive" segments.

Now, it becomes clear that each labour market segment has its own characteristic entrance requirements, methods of work organization and each requires different characteristic traits. The labour economists argue that although one comes across a number of variants of segmented labour market theory, all of the variants hypothesize and try to establish that there are several types of jobs in the labour market, each with distinct criteria for hiring and advancement, supervisory procedures, working conditions and wage levels, and each with generally different groups who fill the jobs.

**Explanations of Labour Market Segmentation**

The most explicit explanation of segmentation of labour market which is termed as the "social control" explanation has been provided by Riech, Gordon and Edwards (1973). This is also often termed as the GRE version of labour market segmentation. GRE, first, reject Piore's assumption that "productivity" is basically a technical relation determined by the amount and types of machines available. On the other hand, while giving their explanation of segmentation of labour market, GRE assume that "productivity" is rooted in social relations, and not in the technical relations.

According to the social control explanation, segmentation results not solely from the interplay of blind technological forces, but also from the conscious desires of managers and capitalists to maintain control over the labour force and the production process. The objective of control over the labour force and the production process is achieved by dividing the workers, and placing them in objectively different, and frequently antagonistic relationships. For instance, workers in the primary independent market are frequently used to control workers in other segments, both directly and indirectly. Seen from this
perspective, the high general educational requirements for entrance into the primary independent segment are due to the need for a separate socialization process, so that workers in this segment will identify with management and not with other workers. Thus, Piore's technocratic explanation that high general education requirements reflect the comparative advantage of schools over experience in teaching "general traits" occupies a subordinate place in GRE's argument.

However, according to Carnoy (1980), this explanation of labour market segmentation suffers from two technical and conceptual drawbacks which are as follows:

(i) The precise connections among product market dualism, the requirements of monopoly capital, and labour market segmentation are never spelled out in GRE's explanation; and

(ii) GRE's treatment of the relation of these technological forces to the 'conscious' forces promoting segmentation has never been clearly explained.

In the literature an attempt has also been made to explain the "process" of segmentation of labour market by taking into consideration the various types of 'fringe benefits' and 'call-ins'. It is argued that "non-discriminatory" provision of fringe benefits promotes segmentation by inducing workers to sort themselves across the industrial sectors according to their demand for fringe benefits. Given the provisions of fringe benefits and the fact that the effective amount of fringe benefits varies inversely with the marginal rate at which income is taxed, high income workers tend to prefer a compensation package more heavily weighted towards fringe benefits than do low income workers. A source of conflict thus arises, but in order to qualify for exemptions from taxes a fringe benefit must be offered by the employer in a non-discriminatory fashion. The result is that workers tend to sort themselves across the economy according to their demand for fringe benefits, with high income workers dominating some sectors and low income workers dominating others. Moreover, increase in incomes over time causes greater dispersion of workers across tax brackets, leading to further sorting and labour market segmentation.
There are some types of fringe benefits which are not counted as taxable income (e.g. health and life insurance) whereas some other types of fringe benefits are subject to imposition of taxes (e.g. benefits received in the form of cash). Workers prefer fringe benefits which are non-taxable and thus prefer the companies/firms providing such benefits. Particularly, the high income workers sort across the economy to join firms/companies providing non-taxable fringe benefits. Moreover, "the higher the level of fringe benefits, the more likely the firm was to use a THS (temporary help industry) or 'call-ins' for temporary help" (Mangum, Mayhew and Nelson, 1985). The immediate result of non-discriminatory provisions of fringe benefits is the growth of the temporary help industries dominated by low income workers of the secondary segment of the labour market. However, this kind of behaviour of urban labour market is found mainly in developed market economies.

Apart from this, in developing economies, the differential access to resources and information to invest in job-search contributes to the phenomenon of segmentation of urban labour market (Rodgers, 1986, 1994). Moreover, in these countries, the existence of poverty as such contributes to labour market segmentation, as the children of the poor are confined to lower level jobs for which entry is relatively easy, but which offer few opportunities for the development of skills and raising of incomes, while those whose families can afford to invest in education and training obtain access to more desirable, better paid jobs.

Thus, labour market economists agree that interaction of a host of economic, socio-political and institutional factors give rise to segmented labour markets. This implies that for a better understanding of the "process" of labour market segmentation, an integrative approach has to be adopted. However, it is argued that the segmented labour market theories are sketchy, vague, and diverse if not internally conflicting. Descriptions, narratives and taxonomies crowd out model development (Cain, 1982). On the positive side, these theories have been evolved from detailed data that are richer in historical,
institutional and qualitative aspects compared to the explanations provided by the
econometrically-oriented orthodox theories of labour market. Given the above discussions
on the theories of labour market segmentation, an attempt has been made in the following
section to review the available literature on empirical evidence on segmented labour
markets.

2.3 Empirical Evidence on Labour Market Segmentation

There have been a number of attempts to empirically test the existence of segmented
labour markets, both in developed and developing countries during the last two and half
decades. However, there is considerable variety in the empirical models of labour market
segmentation. This may be because of lack of identical theoretical models of labour market
segmentation. Several studies attempt to provide empirical evidence of the existence of
segmented labour markets -- of dual as well as multiple segmented labour markets, both at
occupational and industrial levels. Although most of the "segmentationists" agree that
segmented labour markets exist, empirically they fail to provide precise boundaries of
different segments of the labour markets. However, identification of empirical boundaries
of different labour market segments do not matter much. Therefore, most of the
economists, by dividing the labour market into distinct segments on the basis of one or
other criteria, have attempted to empirically test the validity of different theoretical
hypotheses (propositions) of labour market segmentation theory.

In the literature, we come across a number of hypotheses relating to various aspects of
labour market operations. However, the major hypotheses tested in the empirical studies on
segmented labour markets are :

(i) That different labour market segments exist which are characterised by
differential behavioural patterns and human capital characteristics.

(ii) That in the labour market, disadvantaged groups are crowded into secondary
segment which consists of jobs having low wages, no upward career prospects,
no security of employment and bad working conditions. The existence of these
conditions will be taken to support what has been referred to as the "dual labour market" hypothesis in the literature. In other words, in any urban labour market, there is a distinct secondary low-wage labour market in which there are low returns to schooling and workers do not receive on-the-job training.

(iii) That a more refined proposition found in the literature is that stigmatized groups with defined characteristics but who otherwise possess similar educational qualifications to those of non-stigmatized groups are crowded into secondary segment of the labour market to a greater extent than are the latter groups. This has been described as the "anti-human capital" or "the job discrimination" hypothesis. If proven, it demonstrates differential returns to similar levels of human capital which cannot be explained in the neoclassical framework of human capital theory adopted by Becker (1964), Mincer (1958) and Schultz (1963) and others.

(iv) That stigmatized groups possessing similar qualifications to those of the non-stigmatized groups and occupying similar jobs are paid significantly less than the latter and also subject to insecure employment and bad working conditions. According to the segmentationists, specially the dualists, this is the necessary and sufficient condition needed to demonstrate the existence of discrimination between individuals and groups in exactly the same market situation. In segmentation literature, this hypothesis is sometimes referred to as the 'wage discrimination' hypothesis.

(v) That the methods of wage determination in different labour market segments differ and human capital is not properly rewarded in the secondary segment. In other words, there does not exist any positive correlation between the earnings of the individuals and their respective human capital characteristics in the secondary segment. In the primary segment of the labour market, institutional factors are important in determining wages.

(vi) That there are non-economic barriers that prevent at least some secondary segment workers from obtaining better primary segment jobs, and hence inter-segmental mobility is limited to a great extent.

2.3.1 Studies on Labour Market Segmentation in Developed Countries

A number of empirical attempts (viz., to name a few studies in the USA: Andrisani, 1973; Osterman, 1975; Rosenberg, 1975 and 1987; Carnoy and Rumberger, 1976; Carnoy, Girling and Rumberger, 1976; Dickens and Lang, 1985; Baron and Bielby, 1984; and in the UK: Mayhew and Rosewell, 1979; Basanquet and Doeringer, 1978; Psacharapolous, 1980).
1978; MacNabb, 1987; Lawson, 1981) have been made in advanced industrial countries to test the theoretical hypotheses of the labour market segmentation theory. In this section, however, an attempt has been made to briefly review some of the important studies on labour market segmentation in the developed economics.

Andrisani (1973) attempted to empirically test the labour market experiences of white and black males in the Ohio state. His study was based on a sample of 159 males (82 whites and 77 blacks) interviewed in 1966 and 1969 and who were of 14-64 years old not enrolled in school and with no more than 12 years of schooling. By dividing his sample into primary and secondary segments he attempted to estimate: (a) the degree of mobility between secondary first job and intermediate and primary jobs in 1968; (b) the relation between likelihood of primary first job and human capital, socio-economic status, mental ability, and other independent variables; and (c) the relationship between secondary/primary sector mobility and human capital and other independent variables. Osterman (1975), by using the US data on 5076 male workers of the 1967 Survey of Economic Opportunity and by dividing individuals into each of three segments - secondary, lower-tier primary and upper-tier primary, investigated into the hypothesis that the earnings functions differ significantly between different segments of the labour market. In his study of the labour markets of large city low income areas, Rosenberg (1975) attempted to test a number of hypotheses about the behaviour of secondary and primary labour markets, including the determination of a worker's initial job (primary or secondary) and the mobility between the job segments. His sample consisted of individual males of 21-64 years old, living in low income areas of Brooklyn, New York (5031 cases), Cleveland (1838 cases), Detroit (2085 cases) and San Francisco (1496 cases), survey as part of the 1970 US Census. Also, in his study of urban labour markets, Rosenberg (1987) attempted to look into the relationship between the economic contractions and racial differentials in job mobility in the US by drawing data from the National Longitudinal Surveys and by

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6 The empirical studies on segmented labour markets differ from each other with regards to the nature of data used and the approaches of investigation. However, the attempt here is to present some of the select studies together and to specify the differences wherever necessary.
focusing on older black and white males aged 45-59 years in 1966. There were 440 black and 1041 white men in the sample.

Apart from these studies, Carnoy and Rumberger (1976) and Carnoy, Girling and Rumberger (1976), by drawing their data from the 1/1000 Public Use Samples of the 1960-70 of the US Census attempted to empirically test the existence of segmented labour markets. It should be noted that these two studies, for the first time, included female workers in their samples thereby making these studies distinct from the earlier ones dealing with male workers only. However, the specific hypotheses tested in these two studies are: (a) mobility between occupational and industrial segments is limited for both blacks and whites; (b) mobility which does occur is random; i.e. it does not follow any pattern predicted on individual characteristics of those who move and do not move; (c) age-earnings profiles for blacks and whites in secondary occupations are flat (no significance in earnings with increased age) while there are significant increases in earnings with increasing age in primary subordinate and primary independent jobs (internal labour markets); (d) similarly, in competitive private industries, age-earnings profiles are flat, while in noncompetitive private industries there are significant increases in earnings over working life; (e) in secondary jobs increased education is not rewarded, while in primary jobs, particularly in primary independent jobs, it is; (f) employers do not seek stability of employees in secondary jobs and since secondary jobs or jobs in the competitive sector tend to be more temporary, stability is not rewarded by additional earnings.

Moreover, Dickens and Lang (1985), by drawing their data from the Thirteenth Wave (1980) of the Panel Study of Income Dynamics, attempted to test the hypotheses relating to the rationing of primary segment jobs and the degree of inter-segmental mobility. Besides, Baron and Bielby (1984) attempted to look into the industrial structure of the US economy and related it to the segmented labour market theories.
The empirical studies on the existence of segmented labour markets in the UK are relatively few in number and the findings of these studies differ widely. Mayhew and Rosewell (1979), by using the data collected by the Oxford Social Mobility Group on a sample of over 10,000 men in the year 1979 attempted to test the existence of segmented labour markets in the UK by investigating into the mobility patterns that existed between different segments. MacNabb (1981), by using individual data from the General Household Survey of 7000 employed men, conducted the tests on the possible existence of dual labour markets in the UK. Specifically, he estimated individual earnings functions to see whether there was evidence of segmentation in terms of wage determination mechanisms and if there was evidence of differential human-capital-earnings relationships consistent with those proposed by the dualists. Apart from these, two other studies Bosanquet and Doeringer (1978); and Psacharapolous (1978) provide weak evidence of segmentation of labour markets in the UK.

Now, it is evident that the samples used in different studies are different and also the methods adopted to divide the labour markets into different segments are different. Therefore, in the following section the attempt is to look into the nature of data used in these studies and the methods followed for segmenting labour markets into noncompeting groups.

Data and Methodology

Almost all studies discussed in this section are based on stratified random samples. These studies draw their data base either from National Censuses or from General Household Surveys. Besides, most studies up to late 1970s use data relating to male workers only. A close examination of data reveals that the data used are of cross-sectional or longitudinal in nature. It should be noted that the size of data base varies between studies thereby exerting differential influence on the empirical results.
Though most of the empiricists find that labour market is segmented into distinct submarkets, the methods used by them to segment the labour market are different. This is one of the reasons as to why, sometimes, we come across conflicting generalisations about labour market segmentation. This point will be clear from the following discussions on the definitions of various job segments as given by different segmentation economists.

While providing his definition of job segments, Andrisani (1973) takes the median income in 1959 as the criterion to divide the labour market into primary and secondary segments. Those individuals in occupations with median earnings greater than or equal to the median earnings of the entire labour force and in an industry with median earnings of at least $4,404 (these industries employ 2/3rd of the male labour force in 1959) were defined by him as in the primary labour market. Similarly those individuals in occupations with median earnings below the median earnings of the entire labour force and in an industry with median earnings below $4,303 were defined as in the secondary labour markets. However, this definition of primary and secondary labour markets makes it much more likely that there will be less movements between secondary and primary jobs, since what is measured here is movement from occupations below median earnings to occupations above the median earnings. This is the reason as to why Andrisani's independent variables were not effective in explaining what may be nothing more than one upward drift in jobs as young workers gain experience in the labour market.

Osterman (1975), on the other hand, used his personal judgment to place each five-digit occupation into the proper segment. In his study the secondary segment of the labour market contained occupations characterised by low wages, instability of employment, and similar factors, and within the primary segment each occupation was assigned to the upper or lower-tier on the basis of autonomy and personal freedom enjoyed by workers in that occupation. However, this division of labour market into primary upper-tier, primary lower-tier and secondary segment has raised questions. Because, even when there was a high degree of correspondence between the upper-tier and high-end of the Duncan Scale
and secondary segment and the lower-tail of the Duncan Scale, Osterman's segmentation resulted in almost 90 percent of the sample of 4600 male workers falling into the lower-tier of the primary segment. Only 234 workers are classified as secondary and 242 as upper-tier primary. This division of labour market into different segments conflicts with the notions of the secondary labour force as 'lower class', the lower-tier primary as 'working class', and the upper-tier primary as 'smallish elite' of the middle class. However, in spite of the drawbacks, Osterman's criteria is widely used in empirical studies on labour market segmentation.7

One of the most important contributions of Rosenberg's (1975) study is his definition of job segments. While dividing the labour market into different segments, Rosenberg relies on Robert Lucas' study on working conditions, wage rates and human capital (1973), which links the Dictionary of Occupational Titles (DOT) job classification system of about 10,000 occupations with the Bureau of the Census Classification System of about 200 occupations (1960). He defined secondary jobs by the low specific vocational training and general educational attainment required to do the job, as well as the low pay and temperament (ability to take direct orders) of the workers.8 Primary jobs were taken as those jobs which were not secondary. Thus, Rosenberg's definition of secondary jobs is much more carefully specified than in other previous studies. In his 1987 study, Rosenberg also measured occupational standing by using one-digit census occupation and the Duncan socio-economic status index -- an ordinary prestige scale that assigns a rank between zero and 97 -- to each of the three digit 1960 Census categories.

Thus, using Rosenberg's criteria, Carnoy and Rumberger (1976) and Carnoy, Girling and Rumberger (1976) divided the labour market in four ways: by race, sex, type of job

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7 This criterion has been used by Mayhew & Rosewell in their study of labour market segmentation in the UK, 1979.
8 Rosenberg's criterion of segmentation has been used by Carnoy and Rumberger (1976) and Carnoy, Girling and Rumberger (1976) in defining their job segments.
and type of industry worked in. In the first division, they divided races into blacks and whites, putting to one side a small minority of Americans who were non-whites but not Negroes. They divided types of jobs into four occupational segments: secondary jobs, primary subordinate jobs, primary independent jobs and crafts. Finally, they divided industry into public and private sectors, and private industries into competitive and non-competitive. Thus, we find in the segmentation literature that economists usually divide the sample on the basis of occupation or industry in order to determine the size of different labour market segments.

However, according to Dickens and Lang (1985), dividing the sample on the basis of occupation or industry has major drawbacks. Since the worker's choice of industry or occupation is not independent of major characteristics, there is a danger of sample selection biases. Often industries and occupations are classified as secondary because they offer low wages. Therefore, it is not surprising to find that in low wage jobs, the returns to schooling is relatively low (Cain, 1976). Moreover, the assumption that all members of an occupation or in an industry are in the secondary sector may significantly reduce the power of the tests of segmented labour market theory. Thus, it is possible that anomalous results found in the segmentation literature are due to inaccurate classification. Dickens and Lang, therefore, apply a technique that allows to derive the probability of sector attachment directly from the observed distribution of wages and worker attributes. They have argued that this resolves the problem of attributing primary or secondary sector employment to every one in a given industry or occupation. Then, they propose a direct test for involuntary confinement of workers to the secondary sector. Besides, some economists rank occupations by their 'general desirability' on the Hope Goldthorpe Scale (Psacharapolous, 1978) and some have used the method adopted by Doeringer and Piore in defining the different labour market segments (McNabb, 1981).

Thus, several studies on the validity of dual labour market theory and multiple segmentation theory have roughly taken two forms: factor analysis of job for worker
characteristics; and a comparison of wage equations for different labour market segments. Those who have used factor analysis have used techniques fitting the dual labour market typology and have found bi-modal distributions of factor score, (for example, Gordon, 1971; Buchele, 1981; Osterman, 1979). However, according to Dickens and Lang (1985), the coefficients of certain attributes such as low wages and pay and working conditions do not provide strong support for the dual labour market hypothesis of the existence of sectors with distinct wage-setting mechanisms. As has already been discussed in the present section, some researchers have attempted to test more directly the hypothesis that the wage-setting mechanisms are different in two or more sectors. The approach these economists follow is to divide occupations and industries into two or more sectors on the basis of the characteristics of jobs or of workers in these occupations or industries. Having thus divided the sample they test for differences in wage equations for different sectors or segments. It is to be noted here that, in the present study, our attempt is to examine the determinants of wage in each individual labour market segment to test for the existence of segmented labour market in urban India. Apart from this, some economists also test for the degree of inter-segmental mobility and for other labour market experiences in different sectors. Some have found patterns roughly corresponding to dual labour market and segmentation theories (Andrisani, 1973; Osterman, 1975; Carnoy and Rumberger, 1980; Buchele 1981; Rosenberg, 1976; McNabb, 1981); others have found little support for the hypothesis (Psacharapolous, 1978). In addition, none of the studies has been entirely free from anomalies.

Empirical Findings

Perhaps, the most common test of the segmented labour market theory uses regression analysis to examine wage determination processes in different segments of the labour market. This involves, first, dividing workers into distinct segments on the basis of some criteria, and then estimating the earnings functions, usually of modified Mincrarian type, for each segment. The basic argument here is that if the labour market is segmented, the
estimated B-coefficients in the secondary segment equation should be significantly different from those in the primary segment equation. The ordinary least squares (OLS) estimates of different equations of the above studies provide the following results on access to primary jobs, inter-segmental mobility, determination of earnings levels, turnover rates of secondary workers and other labour market experiences of different groups of labour market participants.

That, whether black or white males get a primary job in largely random (Andrisani, 1973). However, educational attainment is the most significant variable determining access to primary first job (Andrisani, 1973; Rosenberg, 1976; Carnoy and Rumberger, 1976; Carnoy, Girling and Rumberger, 1976; Mayhew and Rosewell, 1979). According to Andrisani, educational attainment is significant for whites but not for blacks, while mental ability is significant for blacks but not for whites to gain access to primary segment jobs. However, Rosenberg finds that educational attainment plays an important role in primary first job determination, a much stronger role than in current job determination. These, he argues, are consistent with the dual labour market theory which predicts that a worker's job experience, rather than education, becomes increasingly important in determining future jobs as career progresses. Besides, Mayhew and Rosewell (1979) find that father's labour market status (i.e. his labour market segment) and education are significant in predicting whether an individual will have the first job in the primary segment of the labour market. Moreover, the first job in a secondary labour market for young whites, particularly, young white males, appears to be a temporary situation (Carnoy and Rumberger, 1976; Carnoy, Girling and Rumberger, 1976). For black males, it is much more likely to be a permanent situation. This finding implies that the first job would probably not be a very good indicator of future occupation for young whites but is a much better indicator of future occupation for young blacks. The opposite appears to be true for those who start out in primary independent jobs.
The empirical findings on inter-segmental mobility patterns are diverse - i.e., some findings are in agreement with the segmented labour market theory and some are not. There exists a greater degree of mobility from secondary first job to primary jobs (Andrisani, 1973; Mayhew and Rosewell, 1979). Despite the important race differences in mobility, even for blacks mobility cannot be said to be restricted. In other empirical studies, it is also found that black males are less upwardly mobile from secondary jobs and more downwardly mobile from primary independent jobs (Carnoy and Rumberger, 1976; Carnoy, Girling and Rumberger, 1976; Rosenberg, 1975). White males have a tendency to upward mobility from primary subordinate to primary independent segment. A black male has a greater likelihood of remaining in his secondary job than does a white.

Moreover, Carnoy and Rumberger (1976) and Carnoy, Girling and Rumberger (1976) find that women, both blacks and whites, are less likely to move into higher segment of the labour market than are corresponding race males. White women in higher segments are more likely to move into lower segment than white men. Besides, they find an additional dimension to the outward mobility of black males and women in primary independent jobs; in all groups, those employed in the public sector have much higher stability in primary independent jobs than those employed in the private sector. This difference is particularly striking for blacks. For both black and white, man and women, there is less movement from the private competitive to the non-competitive industries and that from the non-competitive to the competitive. However, blacks have somewhat less sectoral stability than whites.

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A strict version of the segmented labour market theory implies that a very large majority of those obtained a job in a particular segment remain there. Moreover, it is argued in empirical labour market segmentation literature that the labour market segments only become meaningful for analysis if there is substantial life-time immobility meaning as to what constitutes 'mobility', or 'immobility'. According to Mayhew and Rosewell (1979), in so far as there is immobility it is not a matter of there between well defined segments. Rather, it would seem that general mobility is in the form of small steps. So whenever one partitions the range of jobs into groups, one will find more intra-group mobility than inter-group mobility. Besides, given that it is not possible to draw precise physical boundaries, the obvious alternative form of 'immobility' is that movement is limited to a relatively narrow range of jobs around one's current job. The picture that would emerge from this would be movement along the whole distribution of jobs, but from any one point on that distribution of mobility would be of limited distance (Mayhew and Rosewell, 1979).
However, only a small percentage of inter-segmental mobility can be explained, mobility is not completely random. Moreover, mobility follows well defined patterns through age. Being black or Mexican-American definitely means lower upward mobility and higher outward mobility, but being in the public or private sector does not seem to have much difference when other factors are accounted for.\(^\text{10}\)

According to Rosenberg (1975), mobility between secondary and primary markets is found to be significantly affected by years of schooling, although the evidence is not strong enough to argue that the reason people are locked into secondary jobs is because of lack of education. Training is not significant in explaining mobility, but in some cases migration is. The effect of the labour force experience on the mobility of the secondary workers is also quite small which is consistent with the dual labour market hypothesis that increased experience in the secondary labour market would not lead to upward mobility. It is also found that the blacks are more heavily concentrated on the lower-end of the occupational structure and whites are more so at the higher-end of the job structure. Whites are more mobile than are their black counterparts.

Carnoy and Rumberger (1976) and Carnoy, Girling and Rumberger (1976) argue that the pattern of mobility can be explained in terms of schooling, age, experience and vocational training. They find that school and age are significant correlates of upward mobility for both black and white men and women. Being married for a man means greater probability of moving to a higher segment, but for the women opposite is true, even for those who became head of the household. This implies that there is a positive return to marriage and vocational training of males in the secondary segment of the labour market. Andrisani (1973) finds that in explaining mobility, human capital variables (education, experience, training and mental ability) are not significant for either black or white males. Marital status seems to be important in explaining white mobility but not black. Mayhew and Rosewell, (1979) on the other hand, find that higher educational attainment and father's

\(^\text{10}\) Carnoy and Rumberger, 1976; Carnoy, Girling and Rumberger, 1976.
labour market status are significant variables in explaining mobility both upward and downward, between primary and secondary segments. Psacharopolous (1978) finds that a greater degree of inter-generational mobility exists which, he argues, goes against the segmentation hypothesis on mobility.\footnote{Psacharopolous' (1978) test of mobility is not a strong one. In particular, questions of inter-generational mobility have not been a major concern of segmented labour market writers. Further, Psacharopolous' criteria for allocating occupations to different segments -- basically truncating the distribution of jobs at the mid-point on the Hope Goldthorpe Scale, is certainly arbitrary or possibly wrong (Carnoy, 1980).}

Commenting on the inter-segmental mobility tests of different researchers, Dickens and Lang (1985) argue that the issue of measuring mobility does not provide a test of rationing of primary market jobs. Rosenberg (1979) notes that some mobility is consistent with the segmented labour market theory, while purely random movement is not implied by the human capital theory. It is, therefore, easy to derive a simple human capital model with firm-specific training in which there is no mobility between jobs whatsoever. No one has specified what levels of mobility would constitute refutation of the segmented labour market theory or the human capital theory. Although studies of differential mobility between races of sexes are suggestive, the key issue is whether there are qualified individuals who would like to work in the primary sector but cannot find a job there. No study so far has addressed this issue.

Andrisani (1973) finds some support for the hypothesis of non-competing groups in his estimates for wages. He thereby substantiates racial differences in the criteria used to allocate better paying jobs. For whites, family's social status, marital status, education and age are significant factors in wage determination in both primary and secondary jobs. For blacks, first job status and educational attainment are significant in the primary jobs but only marital status and graduation status are significant in secondary jobs in determining earnings levels. Besides, Osterman (1973) finds that the estimated equations for the lower-
and upper-tiers of the primary labour market indicate the significance of all the variables in the lower-tier equation (with time worked having a positive effect on earnings) and education and age are significant in the upper-tier equation, but race is not significant whereas hours-worked is with a significant and negative effect on earnings. The age and educational coefficients in the upper-tier equation are larger than in the lower-tier. In the secondary segment, only time worked has significant coefficients, i.e., education, age and even race have no significant effect on earnings. Thus, Osterman's findings strongly support the segmented labour market theory. They grant that the human capital model holds up very well for the upper-tier workers but has little explanatory power for workers in the secondary labour market.\(^\text{12}\)

Camoy and Rumberger (1976) and Carnoy, Girling and Rumberger (1976) find marked variations across segments in average earnings both for whites and blacks. Their results generally support the claims of the segmented labour market theory that additional experience in the secondary jobs does not increase a worker's earnings beyond a very young age. Other things remaining the same, earnings in the secondary jobs stay flat relative to that of primary segment jobs. In other words, education is essentially unrewarded in the secondary segment of the labour market. This supports the contents of the segmentation proponents that additional education will be of very little help to alleviate poverty of the secondary segment workers. Being married is positively rewarded in the secondary segment only for males since it relates to stability factors in the secondary segment as well as to the kinds of characteristics which are rewarded in that segment. For women, the situation is more complex in some segments, such as the primary subordinate,

\(^{12}\) The way in which Osterman divides his sample into segments casts considerable doubts on his results, particularly in the secondary segment. However, by using years of schooling as a linear variable in his equation, he does not differentiate between the different levels of schooling which are entered into equation for each segment. Thus, in his secondary market, there are probably very few workers with more than high school education, and in his upper-tier, there are few workers with less than "some college" education. Cain's and Wachter's point that truncating earnings would bias education coefficients to zero in the secondary segment -- while certainly applicable to Osterman's analysis -- should also affect the upper-tier sample, since that group is also very select. Thus, the education level is very highly significant in the latter, while it is not in the former, tending to lend support to Osterman's conclusions about the relative effect of human capital at the lower and the higher ends of the occupational spectrum (Osterman, 1973).
married women living with their husbands earn less than single women living alone or with other wage earners. In other segments such as the secondary and primary independent, married women generally earn the same or more than single women. Perhaps, an interesting result is that the average level of earnings and the earnings function for the black males in primary subordinate jobs are similar to the average earnings and the earnings function for white males in the secondary jobs. The principal differences are in the pay-off to being married, which is much higher for white males in secondary jobs, and in the public sector, where black males receive significantly higher salaries in primary subordinate jobs but white males in secondary jobs receive insignificantly lower salaries. This result can be interpreted to mean that black workers even in primary sector jobs face labour market conditions, characteristics of the secondary labour market for whites.13

Mayhew and Rosewell (1979) find that age has a positive but diminishing effect on earnings. Education has a positive effect. Father's segment has also a small positive impact on earnings. The overall fit of the equation is best for primary independent segment. The difference between Osterman's finding and that of Mayhew and Rosewell is in the crucial fact that education in the latter has a significant impact on earnings in all three segments of the labour market.

McNabb (1981) finds a positive and significant relationship between the earnings and the human capital variables in both the upper and the lower segments of the labour market.

13 They argue that none of their results proves that a segmented labour market exists or does not exist, but they do show that some of the notions of the segmented labour market theory about the way labour markets operate tend to be true and others false. They suppose that the movement between jobs and industries is fairly limited partly because of differences in educational levels required by employers for different jobs, and partly because of limited access to higher paying, capital-intensive monopoly industries. This implies that the characteristics of the particular labour market in which people are located heavily influence the reward level and reward structure which people will most probably face throughout their working careers. In some cases, such as the secondary market, this structure results in very low returns to more schooling and to increase time in the labour force; in primary independent job the opposite is true. As long as people work in the secondary market, increasing their education and training can raise their incomes only if the additional investment moves the workers out of secondary jobs and into higher paying jobs (Carnoy and Rumberger, 1976).
The effect of experience on earnings is positive in the secondary segment. However, the magnitude differs between primary and secondary segments. According to McNabb, though the findings differ slightly from that of the segmented labour market hypotheses, the UK labour market is segmented along the line suggested in the dual labour market theory.

Dickens and Lang (1985) find a flat secondary sector wage equation. This implies that the returns to experience (which is measured precisely in terms of age) is essentially zero. The secondary sector wage equation is almost everywhere below the primary sector equation. Moreover, two wage equations fit the data considerably better than one. So far as the rationing of primary sector job is concerned, Dickens and Lang find that the blacks are discriminated against in the labour market.14

Rosenberg (1975) also finds that the secondary workers exhibit relatively higher turnover rate than the primary sector workers. However, the turnover rates are not great given the relative heavy emphasis in the writings on the segmented labour markets. He finds that primary workers are more prone to work full year than secondary workers, while the average tenure of the secondary workers is quite lengthy. Results on turnover suggest that only small part of the secondary labour force exhibit the instability associated with secondary work while other workers in the same occupation do not. Moreover, white secondary workers have certain job tenure than blacks while the opposite holds true for workers in the primary labour market. Several empirical studies of 'paternalistic' forms of work organisation in developed countries, on the other hand, reveal that within firms, although conditions of pay and work are relatively unstable, the workforce nevertheless demonstrates a high degree of job attachment and firm loyalty (Lawson, 1981). Such findings, however, contradict typical labour market segmentation theory characterisations

14 Dickens and Lang (1985) argue that so far empirical works contrasting the labour market segmentation theory and human capital theory have suffered from two major drawbacks; (a) the taxonomies that have been developed simultaneously bias the results in favour of the labour market segmentation hypothesis by virtue of the selection criteria and are too gross to allow accurate testing of the hypothesis; and (b) the crucial issue of the barriers to entry into primary segment has not been clearly addressed.
according to which workers in the secondary employment conditions are assumed to exhibit relatively unstable work habits and high rates of job turnover. Therefore, Lawson argues that paternalistic relationship is an important factor in understanding why dualism (segmentation) in the product market structures need not coincide with dualism in employment conditions.

Thus, we find that the above results of the empirical studies reviewed are not similar and they differ from each other on a number of points. However, we can draw some tentative conclusions on labour market segmentation.

Some Conclusions

Despite rather different definitions and findings of labour market segmentation in different empirical studies both in the US and in the UK we have reviewed so far, there are a number of tentative conclusions we can reach concerning segmentation:

(i) Almost all studies find that the labour market is segmented, and each individual segment exhibits certain distinct characteristics.

(ii) There exists considerable degree of mobility between secondary and primary jobs.

(iii) The segmentation theories view that secondary jobs are marked by instability or high turnover is subject to serious questions on a number of grounds.

(iv) The mobility patterns between secondary and primary segments, while affected by education and age is not very well explained by any of the studies reviewed here. Whatever mobility patterns between segments have been explained in these studies are found to be largely random. This finding supports the segmentation theory argument that mobility between labour market segments is limited to a great extent.

(v) The variables such as education and labour market experience seem to be insignificant in explaining earnings differences among individuals in the secondary market than in the primary subordinate or primary independent jobs. This does not appear to be a statistical anti-fact of truncating earnings through segmentation, since all three segments are truncated. These findings support the segmentationists' view that increasing education and training of individuals in the secondary jobs will not have a significant effect on their earnings.
Lack of inter-industry differences in the shape of earnings functions contradicts the segmentation hypothesis of the differential roles of human capital in monopoly and competitive industries. Internal labour markets seem to exist in both types of industries. Although ideal, this hypothesis should be tested at the firm level. Nevertheless, noncompetitive industries pay higher salaries to workers than competitive, even when the human capital characteristics of workers are accounted for.

Thus, the proper concept of the secondary labour market which emerges from these results is one of a large reserve labour force, low paid and crowded into competitive industries, which is not unstable in terms of turnover rates, has some opportunity to move to primary jobs and is likely to be disproportionately black, female and immigrant. The pay-off to education and experience in the secondary market is much lower than in the primary, and mobility of these groups into the primary segments depends largely on capitalist expansion and emergence of new groups of secondary workers to take their place, as well as on the growth of the public sector (Carnoy, Griling, and Rumberger, 1976). No matter how much the neoclassicists argue to increase public provisions of education and training to solve the problem of poverty in the secondary segment of the labour market, results drawn from the above studies show that this will be of little use in realising its objective. Whatever upward mobility has been achieved by women and other disadvantaged workers of the secondary segment to primary subordinate segment can be attributed to the sectoral changes of the job markets (i.e. expansion of the size of primary labour markets that has taken place both in the US and in the UK).

2.3.2 Studies on Labour Market Segmentation in Developing Countries

In the last one and half decade, several econometric studies on segmented labour markets have been carried out in the developing countries. Interestingly enough, studies in the industrializing countries (viz. urban labour market studies in: Singapore by Liu, 1975; Brazil by Velloso, 1975; Peru by Toledo, 1979; Mexico by Lobo, 1977; Chile by Uthoff, 1986; Cameroon by Clignets, 1976; Panama by Heckman and Hotz, 1986) provide quite
different empirical evidence on labour market segmentation compared to that in the industrialized countries.

Liu (1975) by using two-staged survey data of 124 industrial manufacturing establishments in Singapore tests the propositions relating to: the determination and distribution of earnings of different groups of workers in the urban labour market; inter-segmental mobility patterns; and determinants of access to primary market jobs. His study is based on a sample which included 915 employees of 124 manufacturing establishments. Besides, Velloso (1975) by using data from the 1970 Demographic Census of Brazil, Toledo (1979) by basing his study on samples drawn from the 1961-1972 Peruvian National Census, Lobo (1977) by drawing his samples from the 1960-1970 Mexican National Census and Uthoff (1986) by drawing his data base from the Employment and Unemployment Surveys of the Economic Department of the University of Chile, estimate the earnings functions by labour market segments and test for the existence of segmented labour markets in the urban sectors of their respective countries. Moreover, Clignet (1976) by using survey data has done an extensive analysis of labour markets in the modern production sector of an African country, Cameroon, in which he examines, in detail, both the occupational structure and the structure of enterprises in the region of the capital city, Yaounde, and the industrial areas around Douala, Edea, the Mungo, the Ntam and the Wouri. Clignet uses informations on 36,281 industrial workers in about 414 firms -- 3,702 in the public sector, 25,936 in the private sector and 17,551 self-employed. Clignet's principal analysis tests whether there are significant differences between the treatments of individual characteristics and labour market history of the two segments, manual and non-manual, of the labour force in the modern sectors in Cameroon. Apart from these studies, Heckman and Hotz (1986), by using data from the socio-economic Survey of Panama, also investigate into the determinants of labour market earnings of male workers. All these studies (except Liu's study) confine their analysis to urban male workers aged 14-64.
Data and Methodology

Some of the above mentioned studies (in Singapore, Chile, Cameroon and Panama) use survey data and other studies (in Brazil, Peru and Mexico) use Census data in their analysis of the labour markets. The data used in these studies are of cross-sectional in nature and provide informations on worker characteristics, nature of jobs people hold, income and expenditure patterns, marital status, education and other socio-demographic characteristics.

However, the empiricists employ different methods to segment the labour market into several submarkets (segments). Liu (1975) uses job characteristic requirements and mean earnings as criteria in dividing the labour market into primary and secondary markets. Liu classifies jobs into two groups in such a way that there is no possibility of mobility between the two, while the mean earnings of primary sector jobs is above the mean earnings of all jobs in the firm, while the mean earnings of the secondary jobs is below the mean earnings of all the jobs in the firm. Velloso (1975) divides the labour market into primary independent, primary routinized and secondary segments on the basis of job characteristics and the scale requirements. In that sense, his secondary segment workers are mostly concentrated in industries which usually tend to be competitive like textiles, clothings, food and beverage, while a large proportion of workers in the primary routinised segment are located in sectors where oligopoly prevails such as automobiles, metallurgical industries and transportation services. This is in accordance with the predictions of dual labour market theories regarding the distribution of segments by economic sectors and types of industries. Toledo (1979) divides the labour force into four occupational groups: secondary, primary subordinate, primary independent and crafts. The segments are defined

15 The difference between Andrisani’s (1983) criteria and Liu’s criteria is that in the former case, median earning is used to segment the labour markets.

16 The great advantage of this survey is that Liu was able to collect data on the firm level and study employers’ preferences regarding the educational, sex and ethnic characteristic of workers from employers interviews.
by him roughly in the same way as in the Centre for Economic Studies analysis in the US. But, one of the interesting differences between the US and Peru segments is the much larger number of workers classified as 'crafts' in Peru. Moreover, the average level of schooling in secondary and craft jobs is much lower than in primary subordinate or primary independent jobs. Like Toledo, Lobo (1977) divides the labour market into four occupational segments. However, there is important variation with regard to the size of different segments. In Lobo's analysis, the size of the secondary segment is much smaller than that of both Toledo's and Velloso's, because Lobo has included only those jobs in the secondary segment which require little or no training and experience. Uthoff (1986) divides the labour force into two segments: formal and informal, on the basis of the degree of effective rate of protection to the firms operating in the economy. His informal sector comprises of independent non-professional workers having less than 12 years of schooling and employers engaging less than 6 employees. The formal sector consists of all wage earners (which cannot be distinguished by union membership or firm size), of independent professional workers and employers with six or more employees. Clignet (1976) divides the occupations into manual and non-manual jobs on the basis of educational requirements of the jobs. However, the manual and non-manual workers in Clignet's sample differ greatly in their educational levels - 50 percent manual workers have no schooling and 35 percent have some primary education, while 36 percent of the non-manual have some primary, 51 percent have completed primary schooling and 6 percent have completed the first cycle of the primary schooling. Similarly, educational level is also used as a criterion in dividing the labour force into segments in Panama. Thus, we find that, in case of the studies in the developing countries, human capital, particularly schooling, is taken as a basis for dividing the labour force into different segments, while in the developed country studies in the US and in the UK, the emphasis is on the worker characteristics in dividing the labour force into different segments. This is one of the reasons as to why the empirical findings of the developing country studies differ greatly from that of the developed country studies.
Empirical Findings

Almost all the studies except the study in Panama which employs a human capital model, use segmentation models in analysing their data. Mostly, the empiricists use regression techniques and fit separate regression equations in different segments of the labour market. The regression estimates provide the following results in different industrialising economies.

Liu (1975) finds that for upper segment jobs the education requirements increase with firm size: educational requirements for all but production jobs are greater in the larger firms. Moreover, in firms with 50 or more workers, educational requirements divide jobs into three clusters: high level professional and administrative (university degree); white-collar and technical blue-collar jobs (secondary level); and low level production jobs (primary level). In firms with less than 50 workers such pattern can be discerned but not very clearly. Liu, therefore, argues that the larger firms seem to make use of education as a 'screening' device more than the smaller firms. Besides, female workers are preferred over male workers in low level production jobs and white-collar (secretarial) jobs, while Chinese workers are preferred over other ethnic groups.

So far as the probability of getting a primary job is concerned, Liu finds that access to primary jobs is a function of education, social class and other related variables (this finding is in agreement with the findings of Rosenberg for the US). Like Rosenberg, Liu also finds that education, particularly higher education, is the single most important variable explaining access to the first job, along with social class variables.

Liu also finds relatively restricted inter-segmental mobility. This finding differs from that of Rosenberg's for the US. His results also differs from the findings of other developed
country studies, particularly from Rosenberg's, in that education, social class variables and marital status are important explanations of inter-segmental mobility.\textsuperscript{17}

Estimating the earnings functions, Liu finds that the coefficient of schooling is more than 5 percent as high for primary workers as for secondary. Liu, however, comes out with a number of unexpected results. He finds that experience in the secondary job is rewarded which contradicts the segmentation hypothesis of employers' preference for instability in that segment, even that the coefficients of experience is very small. Experience in the labour market is rewarded in both primary and secondary jobs, as expected the coefficient of this variable is very small in the secondary segment. The effect of training is not significant for primary workers but is for secondary, again contradicting the prediction of the segmentation theory.\textsuperscript{18} Velloso (1975) also finds that in all three types of jobs (primary independent, primary routinized and secondary) education, labour market experience and months worked are significant variables in explaining earnings and earnings variations. Moreover, the coefficients of investment in education is largest in the secondary market and lowest in the primary independent segment, quite the opposite of what the segmentation theory predicts. Besides, education explains almost 88 percent of the variance in earnings in the primary independent segment, 70 percent in the primary routinized and 76 percent in the secondary segment. Except for the secondary market, this

\textsuperscript{17} In part, these differences in findings can be attributed to the way Liu defines his labour market segments. In his study, the secondary and the primary jobs are defined in a way that is highly correlated with the entry educational level of a job. So education here plays an important role in determining who moves from one job to another.

\textsuperscript{18} These unexpected results can be attributed to Liu's definition of different labour market segments. Comparing Liu's different labour market segments with that of the labour market segments as conceived by the US economists, it becomes clear that Liu's secondary segment includes primary subordinate segments of the US studies. Moreover, Liu's sample is confined to the manufacturing sector of Singapore and, therefore, most of his secondary workers may be actually working in the stable production jobs having all the characteristics of the internal labour market and job ladders. In the sense, his findings that years of experience outside and inside the firm is highly paid-off in the primary market while internal and external experience is not rewarded in the secondary jobs is perfectly consistent with Doeringer and Piore's internal labour markets.
result is consistent with the findings of other empiricists about the relative effect of education on earnings in the upper and lower-tiers of the primary market. Moreover, he also finds that the employment variables make a negligible contribution to earnings variance in all three earnings equations, but is largest in the secondary market which is consistent with the segmentation theory.\footnote{However, Velloso's results provide little support for the segmented labour market model. To the contrary, results indicate that human capital theory does better in the Brazilian context in explaining urban labour market treatment of male workers.}

Toledo's (1979) regression estimates of the earnings functions show that except for a few levels of schooling, formal schooling is rewarded with additional income in all four labour market segments (primary independent, primary routinized, secondary and crafts). This implies that there is no distinct pay-off to education in different labour market segments, again contradicting what the segmentation theory predicts. However, in this case, because of the nature of labour market segments, it is somewhat problematic to compare the returns to different levels of schooling across segments because the average level of schooling vary greatly between segments. He also finds that the age-earnings profiles of secondary and crafts jobs are flatter than those of the primary segments. This finding is in agreement with the segmented labour marked model, but at the same time, the profiles of all segments but crafts show considerable increase in earnings with increased age.\footnote{Human capital theory also predicts that the occupation characterised by lower education levels will have flatter age-earnings profiles because of fewer possibilities of worker investment in on-the-job training. Mincer, 1962.} Unlike the Brazil and Peru studies, Lobo (1977) finds that important differences appear in the effects of education and age on log income in different labour market segments. Moreover, log earnings from additional schooling is greater in the primary subordinate segment than in other segments. For all purposes, age does not play any significant role in the secondary and crafts jobs but the coefficients of age becomes increasingly significant as one moves to higher segments. Moreover, Uthoff (1986) finds
that the earnings of formal and informal sector workers differ greatly and much of the differences in earnings between the two types of workers can be accounted for by the large gain in earnings which accrue to the formal sector workers because they are protected from underemployment, i.e. they receive a fixed wage for the fixed amount of time worked. In addition, levels of education and on-the-job training play an important role in explaining the earnings differences. Apart from this, the degree of access to capital market has a positive impact on the earnings level of formal sector workers. Schooling is being used as credential for labour market entry into formal sector. The shape of the schooling log-of-income profile curve increases mainly because schooling becomes more valuable in both the segments and also because the inter-segment schooling variance increases overtime as the result of a larger selectivity process according to schooling endowments between segments.

These changes, Uthoff argues, are the result of labour market liberalisation policies such as abolition of minimum wages and labour turnover legislations in the formal sector, the promotion of self-employed activities in the informal sector, and the selective mobility patterns between segments. Apart from these, Clignet (1976) finds that both education and prior occupational experience are significant determinants of the skill level and earnings of both manual and non-manual workers. He argues that the educational attainment of the two groups of workers varies across types of firms, i.e. the salaries and higher promotion practices of both manual and non-manual workers differ according to size, age, activity and legal status of the firms. He also notes that the educational contrast between manual and non-manual workers is declining and the role of on-the-job training as

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21 In all, Uthoff argues that although the formal-informal labour market segmentation criterion proves to be useful in understanding changes in the earnings distribution, the results based on the Chilian experience suggest that a more extensive breakdown of the labour market is needed. Criteria for such breakdowns should be resulting from the industrial market structure, Uthoff, 1986.
a substitute for education in both the labour markets has increased.\textsuperscript{22} Besides, Heckman and Hotz (1986) also find that the labour market in Panama appears to be geographically segmented. There are sheer differences in the earnings functions for samples of high income and low income workers. The social background, parental education and, especially, mother's education have a strong effect on male earnings. Moreover, family background plays an important role in determining access to higher segments of the labour market and of higher earnings of Panamanian males. Moreover, married workers are relatively paid more in the secondary jobs (Liu, 1975; Lobo, 1977; Toledo, 1979). Liu finds that being married has high pay-off to workers in the secondary jobs but not in the primary jobs indicating possible preferences of employers for stability among the secondary workers. Similarly, Lobo argues that being married is more important, salary-wise in the secondary and crafts jobs than in the primary sector jobs, (this finding is similar to the findings of Toledo, 1979) again contradicting the alleged lower pay-off to stable workers in the secondary jobs, which confirms the findings of the US studies.\textsuperscript{23} Apart from this, it is also found that the negative effect of being single increases with higher occupational segments (Toledo, 1979).\textsuperscript{24}

\textsuperscript{22} In all, Clignet's results indicate little difference in the labour market treatment of individual characteristics in the two segments. Only age has a much lower coefficient for manual workers than for non-manual whereas aggregate training score and multiple of aggregate training score and seniority in the firm are similar in both the segments. Even that mean skill level and mean income are much higher for non-manual workers, and also experience is more rewarded in the non-manual segment. Thus, educational differences between workers are the key factors in explaining access to each segment and pay within each segment.

\textsuperscript{23} The results of Mexican study, thus, lend some strong support to the general concept of different treatment of worker's 'human capital' characteristics in different kinds of jobs. However, Lobo's work does not tell us anything about the inter-segmental mobility patterns. Moreover, it appears that formal education has a good deal to say about the segment in which one ends of working.

\textsuperscript{24} In sum, Toledo's (1979) work indicates that although the pay-off to education, experience and civil status is lower in secondary and crafts jobs than in the primary segment, the rewards to those characters is possibly significant. The former supports the segmentation theory and the latter contradicts it. However, because of data limitations, Toledo's analysis cannot tell anything about the mobility between defined segments. So one can say little about the validity of the segments as he has defined them.
2.3.3 Studies on Labour Market Segmentation in India

In India, labour market studies, particularly studies on segmented labour markets, are few in number. Exclusively theoretical or exclusively empirical studies on segmented labour markets have not been done in India. This may be because of the peculiar characteristics of the labour market or because of lack of availability of suitable cross-section and time series data on the existing labour force. Moreover, factors like caste, religion and culture may have a greater influence on the functioning of the Indian labour market. Perhaps, for this reason we do not find an integrated labour market in India which makes it difficult for empirical analysis (Kannapan, 1985; Papola, 1985). But, most of the economists agree that segmentation is a most useful notion for understanding how labour markets are structured in India. It is also argued that Indian urban labour markets are especially segmented to a point which can perhaps be described as fragmented (Van der Loop, 1992). However, in the present section, we will be looking into some of the few available empirical studies on segmented labour markets in India (viz. Deshpande, 1979; Mazumdar, 1979, 1983; Harriss, 1986; Papola, 1986; Harriss, Kannan and Rodgers, 1989).

The Bombay Labour Market Study (BLMS) (Deshpande, 1979; Mazumdar, 1979), using survey data relating to 1974-76, distinguishes between: (a) casual workers, employed on a daily contract basis; (b) workers in the small scale sector; and (c) workers in the factories registered under the Indian Factories Act of 1948. The study is based on a sample of 11,000 casual workers randomly selected from those who gathered for work in well known market places for casual work distributed across the city, a sample of 2,000 workers in small scale units drawn by using the registers of such establishments maintained by the municipal ward offices; and a sample of about 2,700 employees in factories sampled by using the list of factories kept by the Chief Inspector of Factories. In this study, casual workers and those employed in small establishments have been described as working in the "unorganised" sector, as opposed to the "organised" sector of the registered factories and comparable business and service establishments.
The workers in Deshpande's sample were overwhelmingly male (91.7 percent), casual workers and those in small establishments were distinctly younger than those in factories and a much higher proportion of them were single men, reflecting that there was a higher percentage of recent migrants among the casual and small establishment workers. Workers in the small establishments were also the most highly educated, and they and the factory workers were distinctly better educated than the casual workers. However, an important finding of this study is that "--- in a sense, the segmentation of an urban labour market begins in villages" (Deshpande, 1979). Because the workers of different urban labour market status had the corresponding rural social status.

Analysis of data revealed that amongst the workers in the factories and small establishments, 57 percent (in each sector) reported having changed at least one job, but only 13.5 percent of them had started as casual workers. Seventy percent of the casual workers had not changed jobs at all implying low degree of mobility. Deshpande was not able to find out how many factory workers had worked in small establishments, but the evidence on the way in which placements were made led him to doubt the "graduation hypothesis". Overall evidence strongly indicates that "--- the process of recruitment by which regular jobs go to friends and relatives of those already employed helps to continue the stratification of the urban job market that began in the villages". This shows that, in India, personal 'contact' plays a vital role in the process of recruitment of workers into regular factory jobs.

Moreover, data on earnings in all three sectors (i.e. casual, small and factory) indicate the existence of very marked differentials and suggest that the sectors constitute non-competing groups. Mazumdar (1979) reports the findings from these data that:

Differences between earnings are substantial between sectors of the labour market, and are only reduced -- not eliminated -- when we control for factors (such as education) typically allowed for in earnings functions analysis. Workers in the largest factories earn just above twice as much as casual workers.
Apart from this, Deshpande finds that, over the period, the factory workers have gained in terms of their real wages whereas the casual workers have experienced a slight decline in their real wages. He argues that due to fierce competition from fresh migrants the casual workers do not experience a rise in their real wages because their money wages are kept much lower compared to that of factory workers in a context of rising prices in the economy.

In sum, the BLMS provide quite strong evidence of the existence of distinct compartments in the labour market, those employed in different sectors having distinct personal characteristics, with little mobility between casual work and regular employment and market differentials in wages and lifetime earnings prospects. Moreover, it is found that the relative incidence of poverty is higher in the casual work sector.

Mazumdar (1983), by investigating into the labour market experience of the textile workers of Bombay and Ahmedabad, attempts to throw light on the process of segmentation of Indian labour market over time and its corresponding labour market rewards to its participants.

Analysing his sample, Mazumdar finds that, in India, urban markets for workers of low skills often tend to develop a sector of high wage, accompanied by job security and other benefits available to larger number of workers outside this sector. He also finds that wage levels are high in the formal sector. The educational distribution of these workers in different sectors (formal and informal), is very similar. Returns to various educational levels, although significant in each sector, do not differ very much as between sectors.

Mazumdar argues that the process of segmentation of urban labour market in developing countries especially in India can be explained by taking into account the supply price of the family migrant labour to urban areas which is relatively higher than that of the individual migrant. Moreover, family migrant labourers are relatively stable when compared with the individual migrant labourers. This may be one of the reasons of the
employers' preference for family migrant labourers and consequently of the high wages received by these labourers. According to Mazumdar, this process has led to the emergence of a modern formal industrial sector in urban areas in India having a high wage level. A higher wage level of stable migrants can be interpreted as the reward for superior labour (from the point of view of the employers) with a higher supply price.

Apart from this, sometimes the employers offer wages to stable migrants which exceed their supply price. This may imply that the employers by offering a high wage to stable labourers try to maintain a firm-specific labour force and also try to use this high wage as an incentive to increase the efficiency of the workers. The wages of labourers of such firms are increased because: (i) the total number of firm-specific labourers are not much in number and hence the wage increase is not shared out among a large number of workers; (ii) the employer-employee relationship takes on some of the characteristics of the implicit contract with the understanding that the employee would achieve a certain level of efficiency; and (iii) the management costs are smaller, the smaller is the work force one deals with, and hence, there is a built-in incentive for employers to increase wage rates rather than hire extra workers as long as efficiency responds to wage increase. Thus, the subsequent increase in wage is not due to the prior scarcity of workers of a certain quality. It is due to a pursuit of a high wage policy within a firm dealing with an exclusive body of workers -- which produce net profits to be shared between management and workers.

He also argues that stabilised firm-specific labour in the LDCs, especially in India may develop into a group which does not compete with and is not replaceable by the general mass of urban labour. Such a body of workers can be and often is organised. These give rise to segmented labour markets in the urban areas in India. The point to be noted here is that unionism is established as a natural consequence of the labour market segmentation produced by previous stages, rather than being a cause of the segmentation. Thus, Mazumdar's study only takes into account the labour market experience of the family as well as individual migrants in the urban areas in India.
Harriss (1982, 1986) by drawing his data from a survey of engineering units and slum households of Coimbatore in 1980 tried to look into the labour market experiences of different groups of workers. His sample consists of units in engineering (in both "organised sector" designated "factories" -- 123 workers in six units; and "unorganised sector" designated small workshops -- 85 workers in 15 units), and a survey of 827 households in five "slum" areas selected to represent the range of working class residential areas in the city. It should be noted here that data used in BLMS and data used here are not strictly comparable because, data on workers collected from a sample of industrial establishments and those collected from a household survey are not strictly comparable with each other. Data here provide information on the social characteristics of workers in different types of employment, on their mode of entry into the labour markets and on mobility between different types of employment. This study strongly bears out the evidence of the Bombay study on the segmentation of the labour market and the degree of determination of chances in the market exercised by ascriptive social characteristics.

Harriss divides the labour market into sector one (comprising of engineering workers which is "organised" or "permanent") and sector two ("unorganised" or "short-term"). One important aspect of Coimbatore labour market is that most of the workers in sector two and one-third of the workers in sector one in engineering industry are migrants. Moreover, particular caste groups use to control particular occupations.

In other words, the "principle of particularism" is clearly very strong in this case. Permanent wage workers in engineering are relatively highly educated and a substantial minority have had specialised technical training. Short-term wage workers in unregulated production units are rather unlikely to have had any technical training, but they are generally fairly literate. In case of the household survey data, Harriss, divides the workers into permanent, short-term, casual workers and self-employed. Almost the same characteristics of workers (as in case of engineering industry data) are found with the workers of household survey study. However, here caste community, with its concomitants
in terms of broader social background, appears to have been a more significant determinant of entry into permanent wage work than education. There are strong indications in Coimbatore data that mobility between sectors is very restricted though there are greater possibilities of movement from short-term into permanent wage work, than from casual work or self-employment to permanent wage work. In Bombay study Deshpande argues that "... in a sense the segmentation of an urban labour market begins in the villages". The same might be argued for Coimbatore also, when, members of the prestigious land-owning rural caste communities enter mainly into permanent wage work, while those from the bottom of the rural ladder remain in casual work and poorly remunerated dependent commission selling.

Moreover, comparison of wage levels in different forms of employment suggests that in Coimbatore there is a marked differential between wages in permanent wage work and those in other types of work. What is striking here is that wage differentials exist even among the similar type of workers. In this case the role of trade unions in maintaining wage differentials is significant. Besides, the incidence of poverty is higher among casual workers than among other categories of workers. The above findings, therefore, suggest strong evidence of existence of labour market compartments, having different labour market characteristics and rewards, in Coimbatore.

Harriss, Kannan and Rodgers, (1990). by defining and measuring "labour status" (in terms of protection, regularity and autonomy) more effectively than is possible with conventional labour statistics and by demonstrating its importance in the analysis of the functioning of urban labour markets, have built and tested models of labour market stratification and segmentation and analysed their implications for policy in developing countries, particularly in India. Besides, the processes of job access and mobility, patterns of household labour supply and labour market insertion, and the implications of "labour status" for livelihood have also been looked into in this study.
They had collected data on a range of personal characteristics of workers, their job histories and socio-economic and cultural aspects through a survey in Coimbatore in 1987. The data were subjected to cluster analysis which included variables such as broad occupational class, types of business, payment system, size of enterprise, whether enterprise was registered, type of contract, permanent or temporary work, regular or occasional work and whether a trade union was present or not. In an effort to categorise workers into various status groups in the labour market, they found that a number of variables including personal characteristics, education, parents' occupation, social background, and nature of migration of an individual determined his/her labour market status. Specially, male workers were found in large numbers (i.e., relative to female workers) in firms using capital intensive methods of production. The proportion of old workers (i.e., 35 years and above) was relatively higher in protected regular wage works whereas the proportion of young workers was high in unprotected regular employment. This finding implies that a process of "informalization" is under way in Indian labour market, with smaller number of entrants to labour market, who over time, are able to enter protected employment. The incident of both "marginal self-employment" and of "unprotected irregular wage work" was higher among female workers, implying that women are more vulnerable than men in Indian labour market.

A large number of migrants from urban city centres to Coimbatore were found in the protected regular wage work and the incidence of migration from rural areas was higher in more vulnerable groups of unprotected regular short-term wage work and in marginal self-employment. All these reflect the processes of migration of more educated and well qualified people from other urban areas to specific occupations in Coimbatore (this was so because some factories in the city had a policy of recruitment of relatively more educated people from outside the city) and less educated rural people into more marginal occupations. The point here is that patterns of migration do determine the relative labour status of individuals in India. Moreover, individuals from backward castes and rural areas were found strongly represented amongst unprotected regular wage workers.
They further found a definite predictable relationship between the level of education attained and labour market status of an individual. Individuals in unprotected regular long-term wage employments were better educated than those in unprotected regular short-term employments. The most vulnerable groups of workers had no education at all.

Analysis of mechanisms of job access revealed the particularistic nature of Indian urban labour markets and the consequent stratification and segmentation. This provides ideas on the process by which jobs are rationed and distributed among different demographic groups having varying personal characteristics, including education and socio-economic background. Information about the availability of jobs and selection processes of various industrial units were equally important in determining one's access to job. Even in this case, education was not so much important in determining job access. Personal and community contacts were very strong, particularly for the in-migrants to have access to particular kinds of jobs. Interestingly, for the same kind of jobs the education and work experience requirements were higher for the female workers than for the male workers. Also, access to was a significant factor in explaining access to better paid work.

Mobility across labour status boundaries was extremely limited in Coimbatore labour market. The interaction between the "inherited" characteristics such as gender, caste, place of origin etc., and the "acquired" characteristics such as educational experiences, etc., was important in determining mobility in the labour market. Father's education was not strong enough to influence labour market mobility. The influence of one's own education was a positive factor influencing his/her upward occupational mobility. Thus, as an "acquired characteristic", education lends itself for policy interventions in enhancing the capacity of urban workers to secure better employment.

It was also found that labour supply was greatly determined by the opportunities available to people of different backgrounds and their personal characteristics. Specifically, apart from age and sex, economic and social factors like employment opportunities, average level of earnings of individuals, educational attainment and cultural
values influenced the rate of labour force participation. The participation rate in Coimbatore was significantly influenced by levels of educational attainment.

Moreover, Papola (1986) provides empirical categories of urban labour force on the basis of the criteria of dependency on capital and share of wage income in the total personal income of the individual workers. He divides the Indian labour force into: (i) workers in the public services; (ii) factory workers; (iii) employees of the non-household establishments; (iv) household industry workers; and (v) other self-employed and independent workers.

Papola considers each of the categories of labour as constituting separate labour market segment without following any precise criterion of labour market segmentation. So, one can say that he has not applied segmented labour market model to analyse Indian labour market. He also tries to explain the mobility patterns between the above segments of labour market which seems that the explanation of mobility is between the categories of labour force rather than between market segments.

Apart from these evidences, several other studies in prominent cities in India (Bose, 1978; Holmstrong on the Calcutta labour market; Metropolitan Development Authority, 1980, on the Madras Slum Dwellers; Papola, and Subhramanian, 1975, on factory workers; Papola, 1983, on the informal sector; Subhramanian, 1982, on contract labour in Rourkela Steel Plant) provide evidence of some sort of compartmentalization of labour markets. The findings of the above studies are somehow comparable with the findings of Bombay or Coimbatore studies -- particularly, with regards to the existence of particularism in the labour markets.

To sum up, the evidence reviewed here, though fragmentary in nature, shows that Indian labour market is segmented on various lines. The following conclusions can be drawn from the Indian labour market studies:
(i) Though the definitions and criteria of segmentation of labour markets found in different studies are not the same, almost all studies find that labour markets in India are segmented, and the characteristics and functioning of the individual labour market segments are different.

(ii) Almost all the studies show that the influence of ascriptive social characteristics, commonly linked to rural class structure, on the process of recruitment of labour into different types of employment is very high.

(iii) It is not only that entry into different types of employment is clearly channeled by the principle of particularism, but also that mobility between different sectors of the market is also clearly constrained. Though the data on mobility is limited in quantity they give clear indication of compartmentalization in the Indian labour market (even of segmentation in a strict sense). The model of extended internal labour market may be applicable here. In the extended internal labour market models, information regarding recruitment to a particular position, particularly jobs in the bottom of the hierarchy, within the firm is usually carried over to the community (even to rural areas) to which some of the employees of the firm belong.

(iv) Examination of macro level labour force data shows that in India there has been a structural shift in favour of manufacturing and tertiary sectors in the 1970s. Moreover, this expansion relatively and absolutely has been in unregistered manufacturing units. Therefore, the evidence indicates that with the shift of labour out of agriculture, the kind of structural shift occurring is one in which labour is concentrated in unprotected firms or employment, and in tertiary sector and "unregistered" manufacturing rather than in large-scale manufacturing with a protected labour market.

(v) Finally, evidence shows that real wages of some groups of unprotected wage workers have stagnated or declined over the period. Thus, the evidence bears out Mazumdar's 1983 model of segmented labour markets in the LDCs.

Thus, though most of the labour economists agree that the Indian labour market is segmented, few studies have provided any systematic empirical evidence of the existence of segmented labour markets. Moreover, some economists say that because of the peculiar nature of the Indian labour market, it is very difficult to answer the question as to who is a secondary worker in the Indian labour market? In sum, though these studies provide some evidence of the existence of segmented labour markets in India, the evidence is not enough to generalise anything about the Indian labour market as a whole.
2.4 Summery of Findings

A comparative analysis of the empirical studies in both developed and developing countries reveals that most of the researchers of developing countries use the US-type occupational classifications for looking at the segmentation of the labour market (for example, in the Brazil, Peru, and Mexico studies). Moreover, the size of secondary segment in the industrializing country studies is relatively large compared to that of developed countries. Probably, the secondary segment in these studies incorporates a large percentage of 'primary subordinate' workers. This is probably true in the production job segment in Singapore and the manual job segment in Cameroon, which include unskilled, semi-skilled, and skilled production workers. In these two studies, it seems that the comparisons have been made more between the primary subordinate and primary independent segments than between primary and secondary.

In the Latin American studies, 'secondary jobs' in urban areas show a significant correlation between formal schooling and earnings as well as between on-the-job experience and earnings. This finding goes against the segmented labour market hypothesis that human capital characteristics are not rewarded in the secondary segment. Thus, these findings raise serious questions as to the definition of secondary labour markets in the developing countries, i.e. who is a secondary worker?

Interestingly, in Singapore and Cameroon studies, which test for mobility between the segments, the degree of mobility is relatively much lower than in the industrialized country studies, particularly in the United States studies. In the former, it depends more on education and work experience. By and large, in the developing country studies, segments are much more defined by human capital criteria (by educational characteristics of workers) than in the developed country studies. In part, this may be the result of the greater disparities of schooling in the labour force of lower income countries. It may be that in the developed countries relatively greater equity in education in the labour force has
led to greater influence of the demand side of the labour market (i.e. segmentation into different labour markets is based on non-human-capital criteria).

Moreover, income differences between different segments in the developing country studies are much greater than in the developed country studies, especially in the US. Even though education is a more important variable in explaining income differences within segments in lower income countries, the inter-segment income differences are much larger. In these countries formal schooling and experience are probably less important in explaining inter-segment income differences than in developed countries.

Thus, education and work experience may be rewarded in all segments in the urban labour markets of low income countries, thereby supporting the human capital view of such markets. Moreover, educational differences may be the most common characteristic differentiating various segments. This implies that the income differences between different occupational segments may be so large that, in these countries, equalizing education and training has a limited effect on equalizing earnings between different segments. Demand side variables, therefore, retain their importance in determining who gets what income.

2.5 Critiques of Segmented Labour Market Theory

Several criticisms have been labeled against both the theoretical and empirical studies on segmented labour markets. Particularly, the modern neoclassicists, while trying to defend their explanations of the labour market functioning, argue that the empirical attempts to find out the existence of particular kinds of labour market segment are faced with three major problems: (i) conceptual; (ii) methodological; and (iii) technical.

2.5.1 Conceptual Problems

Several modern neoclassical economists argue that review of most of the studies on segmented labour markets reveals that the occupational boundaries between labour market
segments are largely set by the researchers in terms of their perceptions. Therefore, setting physical boundaries for different market segments happens to be arbitrary (Jain and Sloane, 1977). Cain (1975) and Wachter (1974) also employ the same criticism against the dual labour market analysis. Cain argues that analysis of data on wages of workers does not show any bi-modal or multi-modal distribution. Moreover, he argues, Piore does no more than to list several good characteristics of jobs in the primary sector and several bad characteristics of jobs in the secondary sector. This implies that this listing of characteristics does not provide any systematic reliable criterion for defining the physical boundaries of different labour market segments. Even Wachter argues that a strict division of labour market into primary and secondary segments is not possible. He admits that segmentation exists but it is only on the basis of human capital differences between workers.

2.5.2 Methodological Problems

Most of the empirical studies on segmented labour market use multiple regressions on aggregated statistical secondary data collected at national, industrial or occupational level. In other words, segmentation economists continue to use neoclassical econometric tools of analysis in attacking neoclassical models of labour market analyses. This results in two major weaknesses in the presentation of the segmentationists' case:

(i) It is argued that the available statistical data from official sources used in the segmentation studies, have not been collected or categorized in a manner which enables it to be easily amenable to segmentation hypotheses, particularly to the dualist taxonomy. This is the reason as to why crude impositions of new groupings have been made on existing data. For instance, Osterman (1975), in his study, employs a test of duality in which he first classifies occupations according to his personal judgment about the autonomy and stability of occupations. Andrisani (1973) simply selects the three-digit occupations and industries where median earnings are below the thirty-third percentile of the labour force to define secondary workers. Cain (1975), therefore, argues that the empirical 'proofs' of segmentation hypotheses are tautological in nature and results produced by regression analysis are distorted.
(ii) Perhaps, the most important distortion that appears in the segmentationists', particularly dualists', presentation of their case is in their attempt to demonstrate the existence of an essentially micro level phenomenon, the internal labour market, with data collected at a macro level. However, for the neoclassical economists, the firm represents a 'black box': certain laws, largely those based on the concepts of marginality and declining returns to scale govern their approach to the process of production and the allocation of labour. Therefore, empirical works done on internal labour market are no more than the measurement of aggregate indices of what are assumed to be the internal activities of firms and attitudes of entrepreneurs and workers. Doeringer's and Piore's as well as other segmentationists' descriptions of internal labour market contain considerable obscurities, for the industrial sociologists, a certain amount of naivety (Addison, 1976; Brown, 1976; Mann, 1973). Furthermore, the multitude of regulative processes that exist in the work place and the nature of their relationship with various product market conditions, with technology and the forms of organizational structure developed by management and the unions across different situations as well as to ascertainable differences in attitudes among particular forms of labour and the types of employer, have not been well explored in segmentation literature.

Cain (1976) also argues that the segmented labour market economists have attempted to estimate the conventional human capital model on members of the 'secondary segment'. They employ a regression model and implicitly test whether the model yields a positive effect of human capital variables, say, education on earnings and whether the effect is significantly lower than that found among the members of higher segments, i.e. primary segment. However, Cain argues, these tests almost invariably suffer from a methodological flaw—that of fitting the regression to a sample which is truncated on the values of the dependent variable—with the result that the estimated coefficients (effects) of the independent variables are biased. This objection is further explained by Fields (1980). Fields argues that stratifying the labour force by the dependent variable demands running separate regressions for workers with income below and above certain predetermined amount. This kind of stratification produces estimates of the effect of education on income that are strictly invalid. The estimates are biased downwards for low income workers for the following reason: one of the effects of the education is to increase peoples income and hence raise them from the low income sample to high income sample and this effect is left
out when the samples are stratified by the dependent variable. Figure 2.2 and 2.3 illustrate this problem. Further, Cain & Wachter also point out that truncating earnings would bias education coefficients to zero in the secondary segment, and this will also affect the primary segment sample, since that group is also very select. This therefore lends support to the proposition that education level is highly significant in determining earnings in the primary segment.

Another important aspect of stratifying the sample by the dependent variable is that it leads to incorrect inferences. Fields illustrates this in Figure 2.4 based on his study of Bogota labour market. He observes that:

The benefits of education for low income workers would be misstated if separate earnings functions were run within poverty and non-poverty groups; in the sample as a model; each year of education raises income by about 15 percent, yet, within the higher income sample, the income gain is accentuated because low income workers are systematically excluded; and in the low income sample, the apparent effect of education on income is negative; segmentation by the dependent variable understates the effect of education on income for every segment and ought not be done (Fields, 1980).

Thus, neoclassicists argue that due to this methodological flaw of segmentation studies, it is difficult to refute the human capital hypothesis; that is, education has a positive impact on earnings.
Fig. 2.2: Bias from stratification of labour force by endogenous income-determining variable

Fig. 2.3: Illustration of truncation bias: Stratification of labour force by dependent variable

Fig. 2.4: Estimated education-income relationships for whole sample and truncated samples in Bogota

2.5.3 Technical Problems

In the empirical literature, one comes across the technical problem of matching data collected for one purpose to the requirements of proving another hypothesis altogether. Labour force statistics of both developed and developing countries do not generally provide a precise means for determining the boundaries of different segments. Workers with 'disadvantaged' characteristics are not necessarily used as categories for the collection and collation of macro statistics. Therefore, the researcher is forced to resort to small and unsystematically produced micro studies and to composite aggregations or to generalizations made from these often unrelated data bases. Some of these problems are mainly ones of technique or lack of uniformity in technique. This is clear from the different methods used in different countries to collect employment and unemployment statistics.

Similarly, the empiricists, while estimating the relative earnings differentials between different segments, employ different definitions of earnings. Some use 'basic weekly pay' others 'basic pay', and when all possible bonuses and fringe benefits have been added, the differences between these figures may be considerable. Clearly when making such comparisons a 'consolidated hourly rate' would be the best unit across industries and occupations (Addison, 1976). However, these data are rarely obtainable. Apart from these criticisms, Wachter (1974) further argues that the dualists' interpretation of the internal labour market as operating largely without regard to efficiency is not valid. To Wachter, the internal labour market is "best viewed as an efficient institutional response by firms to the basic market imperfections arising from the costs of information and of specific and on-the-job training". Furthermore, he argues that the dualists' view of underemployment in the secondary sector is an article of 'faith' and, therefore, empirically untestable. Thus, according to Wachter (1974), the dual labour market models contribute to some aspects of understanding the functioning of labour markets but in general they do not form an acceptable alternative to neoclassical formulations.