An Essay
ON THE STUDY OF
LABOUR IN DEVELOPMENT
by
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This essay seeks to provide an analytical and policy perspective for the series of studies on Wage and Employment Trends and Structures in some developing countries being undertaken under RPO 671-84. It first delineates the types of policy questions for which judgments of labour market behaviour are important. It then outlines the evolution of thought on three broad classes of labour related problems, viz, unemployment and poverty; the general course of labour incomes in different growth processes; and the determinants of the structure of wages. A final part provides an explanation and justification for the use of analytical economic history as a major mode of analysis in studying labour in development.

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III. On Method
Introduction

This essay seeks to provide an analytical and policy perspective for the series of studies on Wage and Employment trends and structures in a number of developing countries. These studies use a currently unfashionable method - analytical economic history - to tell as consistent a story as possible of the evolution of a particular country's labour market. In order to explain this method, as well as to show why standard statistical hypothesis testing has (in large part) been eschewed in these studies, it is desirable to both delineate the types of policy questions a study of labour markets can hope to illumine as well as the reasons why satisfactory answers to them are unlikely to be provided through the usual route of deriving numerical estimates of key parameters in some computerized model. The paper is in three parts. The first delineates the reasons for studying labour markets. The second identifies the varying and often muddled notions underlying differing views on labour market performance and problems in developing countries. The third shows why the usual forms of statistical estimation are inappropriate in studying various dynamic aspects of labour in development and provides an explanation and justification for the use of analytical economic history as a method in forming the necessary judgments on the evolution and current functioning of developing country labour markets.
I. WHY STUDY LABOUR MARKETS?

There are few areas in the study of developing countries where, despite an immense outpouring of ink, there is so little consensus on either the 'facts' of labour in development, or what they purport to show about the development process. Alternative views on the particular ways in which labour markets function in LDC's are nevertheless of great importance in developmental policy because they provide the spectacles through which various policy alternatives in other areas are both evaluated and formulated. For ultimately discussions of economic policy are about different arguments (not numbers or arithmetic), which is the purpose of economics, and its handmaiden-applied economics, to illuminate.

As an illustration consider the early debates initiated by the celebrated writing of Lewis and Nurkse on the feasibility of LDC's pulling themselves up by their bootstraps, through the mobilisation of the alleged surpluses of labour time and implicit "savings" that were thought to be associated with so-called disguised unemployment in the rural areas of the Third World. Rapid industrialization based on these surpluses of labour and 'savings' was the 'strategy' recommended and indeed followed by some developing countries. Subsequent analytical discussions (see Sen, Jorgenson, (19), Dixit, Zarembaka) clarified the implicit assumptions about the leisure-income preference maps of rural workers as well as the institutional and market setting, which underlay these views. Nevertheless tests of the realism of these behavioral assumptions have been rare (but see Lal (1976)). In the empirical debates the protagonists are often found to be talking past each other (see the survey by Kao et. al). Nevertheless a view on the existence of surplus labour is of some importance both in
determining the viability of the 'big push' type development policies and also more modestly, but of greater practical relevance, in the estimation of shadow wage rates for project appraisal (see Little-Mirlees, UNIDO, Squire-van-der-Tak, Lal(1974, 1980)).

Answers to two other issues of current public policy concern in the economics of developing countries, are also related to alternative views of how labour markets function in particular developing countries.

The first concerns the spread effects of what has been termed capitalist growth. In any actual historical growth process, private rates of return will be high in certain sectors or activities which will then become the growing points in the economy. A concentration on these sectors might lead to high overall growth rates but, it is alleged, the resulting income expansion will be confined to these "capitalist" sectors and will not "trickle down", to other groups in the economy. This view in turn depends implicitly upon particular assumptions about the functioning of the country's labour markets. If these functioned in the perfectly competitive manner posited in many textbooks, then the expansion of demand for labour in the "growth poles" should be transmitted fairly rapidly into increased demand for labour in other sectors and industries. The income expansion induced by the growing sectors should then "trickle down" fairly rapidly to other groups in the economy. A denial of the operation, or doubts about the speed, of such spread effects of growth amounts to denying that labour markets function in this textbook fashion. This in turn requires some identification of evidence on the obstacles which prevent these spread effects from being transmitted. Whilst policies for promoting these spread effects will be concerned with the means of either removing or circumventing such obstacles in the path of "trickle down".
The above set of issues relates to the question of whether there is "trickle down", or as I prefer to call it "spread effects" from growth. This must be distinguished from another set of issues with which it is often confused, namely the resulting effects on the distribution of income or on the extent of poverty alleviation even when there is "trickle down". Well functioning labour markets, which lead to the textbook spread effects from growth, cannot obviously by themselves eliminate poverty or reduce inequality. Hence it is a confusion to argue (as some do) that the limited extent of poverty redressal or decrease in inequality in the case of a particular country, implies that labour markets are malfunctioning and the "trickle down" processes are not operating.

The final set of public policy issues concern the changing pattern of income distribution in the course of development. As the labour market mediates the earnings of different groups of workers, its functioning is again of importance in both explaining the past pattern of income distribution as well as its likely evolution both with and without certain policy interventions.

Hence, in answering policy related questions concerning resource allocation, poverty redressal and income distribution, a view on the functioning of a country's labour market must be taken, at least implicitly if not explicitly.

From this it might appear that there are clearly formulated alternative theories of the functioning and evolution of labour markets in developing countries which one can "test" with historical time series data on the relevant variables. This is not the case. Though, amongst the existing babel of views one can categorise the following three sets of general explanations of labour market phenomena.
The two dominant "theories" are various versions of the theory of "surplus labour" and "dualism" associated with the names of Lewis, Nurkse, and Ranis-Fei, and the conventional neo-classical theory of wages and employment. Various so-called institutionalist explanations are also sometimes offered on an ad hoc basis for various specific aspects of the labour market in particular countries.

Sometimes, explanations are offered which claim to be alternatives to neo-classical explanations, which on closer examination turn out to be product differentiated variants of conventional theory. Moreover, much of the seeming discord in the field can be ordered into at least some coherence if certain conceptual categories and the logical status of statements made under conventional theory are firmly kept in mind. To this end we begin by a brief excursion through the development of ideas on the role of labour in development in the next section. Besides providing some conceptual focus for what follows, this exercise will also help in setting the stage for our explanation of the following section of the seemingly peculiar method of analysis we have adopted: forming judgments on the functioning of labour markets through the study of wage employment trends and structures in our various countries.
II. THE EVOLUTION OF IDEAS ON THREE MAJOR ISSUES

There are 3 major class of issues relating to labour in development, which though inter-related can nevertheless be separated for our purposes. These concern (1) notions of unemployment (both its causes and cures) and its relationship to poverty; (2) the likely trend of average labour incomes in different types of development sequences; (3) the determinants of the structure of wages in an economy, and its evolution over time in response to alternative types of growth mechanisms. We briefly outline the evolution of thinking on these three sets of issues in turn.

(1) Unemployment and Poverty

(a) 'The State of the Poor'

Concerns about unemployment per se in economics, is a relatively recent phenomenon (see Carraty for a historical survey). For the mass open cyclical unemployment in currently developed countries which economists since the mid 19 century have observed and whose dynamics they have been keen to explain, was a by product of the rise and growth of the industrial system and the urbanization that accompanied it. The contemporary concern with unemployment in LDC's, by contrast, is more similar to the concern with poverty, destitution and beggary which characterized the European writings of those concerned with the 'State of the Poor' from the 15th century onwards. For 15th century Europe, in their chronic form these were novel problems as in the preceding feudal societies of the Middle Ages, unemployment and destitution 'normal' states were virtually unknown. For feudal societies were designed to provide a place for every member. "In normal times unemployment was quantitatively unimportant and confined to individuals who had broken loose from their environment or had been cast off by it and who in consequence had become beggars, vagrants and highwaymen ... mass unemployment, definitely unconnected..."
with any personal shortcomings of the unemployed, was unknown to the
Middle Ages except as a consequence of social catastrophes such as devastation
by wars, feuds and plagues" (Schumpeter p. 220).

It was with the breakdown of medieval society (in the 16th century)
and the subsequent agrarian revolution and later (in the late 18th century),
the industrial revolution that, because of the resulting large changes in
production relationships, destitution and unemployment became a major problem
for the newly emerging landless proletariat. Though, over the long run the
new methods of production would raise the over all demand for labour, in the
immediate short run, due to the inevitable bottlenecks in the process of
adjustment, the sceptre of incipient mass unemployment and destitution was
ever present. The ensuing paradox of poverty amidst progress was to haunt
European societies with increasing frequency from the latter half of the
18th century onwards. As the fear of chronic technological unemployment
accompanying the industrial revolution in Europe receded, with the rise in
the long run demand for labour which accompanied the spread of the industrial
system, the latter's cyclical instability became the major
source of open unemployment, for which a 'cure' was not found till the Keynesi
revolution of the late 1930's.

The current unemployment problem in LDC's is rarely identified
as being of this latter Keynesian sort. For problems of insufficient effective
demand are not likely to be serious in economies where governments, having
learnt the Keynesian lesson, are more likely to err on the side of maintaining
inflationary rather than deflationary monetary and fiscal policies. 1/

1/ But see section (c) below.
Not surprisingly, therefore, in the ambiguous notions of 'unemployment' current in development economics, it is the notions current in the pre and immediate post industrial revolution period (16th to early 19th centuries), and which were then more clearly and correctly perceived as the problems of poverty and destitution which are most relevant.

From the breakdown of the feudal system in the Middle Ages, pauperism has been recognized as a social evil in most European countries. Altruism apart, it was the danger to civil order from vagrancy which lent urgency to the need to find means to alleviate poverty, once the link between poverty, crime and vice was perceived. The administrative problem of providing relief to the swelling numbers of beggars and vagrants, from the early part of the 16th century onwards, was usually found in some form of public poor relief, of which the Elizabethan Poor Law of 1601 is the most notable instance.

(b) Wage Fund and Neo-Classical Theories of Unemployment

Various explanations were provided for low end poverty and the associated 'unemployment', which need not concern us (but see Garraty and Schumpeter op. cit.) except for one which even today continues to have a stranglehold on the imagination of many people. This was the Malthusian 'principle of population'. As Schumpeter aptly puts it, this is because "the most primitive of all theories of unemployment is that people cannot find work at living wages because there are too many of them." (Schumpeter p. 273).

This view formed the basis of the subsistence theories of wages which continue to live in contemporary development economics in the form of assertions about horizontal (perfectly elastic) supply curves of labour, as witness the long run developmental theories of the dualists or labour surplus theorists.
discussed below. However, now, the Malthusian biological theory of long run labour supply has been substituted by simple assertions of a horizontal supply curve at some 'conventional' minimum level of wages. Moreover in the 19th century, Marx had replaced the Malthusian explanations by the notion of a "reserve army of the unemployed" who exerted downward pressure on wages leading to the same iron law of subsistence wages.

These notions of disguised unemployment and 'surplus labour' imply a continuing excess supply of labour till the stage in the process of development when the surplus has been withdrawn and the real wages of worker start rising (the so-called Lewis turning point). Till then, though there is no overt unemployment, nevertheless, the poverty of the masses will remain unalleviated and be associated with the "slack" in the labour market exhibited by the perfectly elastic supply of labour at the 'conventional' wage rate.

Clearly in such a model with a perfectly elastic supply of labour at a fixed wage, (which we can term a Fixwage Model) there can be no question of full employment till the 'surplus' labour is worked off and the only relevant question is how, when and through what processes of growth will the economy reach the Lewis turning point which can then be identified with "Full Employment" (see Lal (1978)). No, however, is there any short run involuntary unemployment of the Keynesian type in such a world. The so-called unemployment problem is in fact the long term problem of the development of a "fix wage" economy, which in turn subsumes the issues contained in our second set of 'boxes', namely the path of real labour incomes in the course of development.

Whilst the subsistence wage theory determined the supply curve of labour, the other important component of the classical theory of wages and employment – the wage fund – determined its demand.
The wage fund doctrine held that, the demand curve for labour was a rectangular hyperbola so that the total wage bill was constant. This wage fund was predetermined by the total amount of circulating capital required for production, in the form of the real wage bill of goods and services to be advanced by capitalists to workers. Dividing this constant real wage fund by the volume of employment would yield the average real wage. This doctrine was of importance in countering the mounting pressures (from the mid 19th century onwards in England) from the rising trade unions to artificially raise wages. The classicals argued that this would not be a solution to low end poverty as with the given wage fund, an artificially higher wage would merely lead to lower levels of employment.

With the marginal revolution at the end of the 19th century, the marginal productivity theory replaced the wage fund doctrine as the leading theory of factor pricing and more specifically for the demand for labour. Whilst on the supply side, utility maximization in the leisure-work domain determined the supply prices of different types of labour. Moreover, in the resulting models of the Labour market, full employment was guaranteed by the flexibility of wages. These models can then be termed as Flex wage Models.

In the perfectly competitive world, posited in Walrasian general equilibrium theory, it is easy to show that because of cost minimisation by firms (which is the technological analogue of the profit maximising behavioural assumption) the wage rate will equal the value marginal product of labour. An excess supply of labour would imply that wage payments in excess of labour's marginal product were being made somewhere in the economy. The appropriate remedy would be a wage cut to get back to full employment. The crucial assumption in this chain of argument, as Keynes noted, was the implicit assumption that
"consumer demand curves are invariant to the prices paid for the factors of production. Since the product demand curves are drawn upon the basis of fixed money incomes, marginal productivity analysis proceeds by treating the level of income as a datum" (Blaug, p. 462). But wages besides being costs are also incomes, and a general cut in wages will, on Keynesian grounds, lower effective demand for goods and services. So that there can be no guarantee unless public policy maintains the level of aggregate demand, that wage cuts will eliminate unemployment.1/

(c) Economic Structure and Keynesian Unemployment

But this does not mean that Keynesian type involuntary unemployment is also likely to occur in LDC's. In fact, there is an important reason which is related to their economic structure, why Keynesian unemployment is unlikely to be a serious problem in most developing countries. As is well known, some stickiness of money wages is necessary for Keynesian unemployment to occur and to persist. If the labour market behaved as a purely casual labour market where on each "day" there was a spot market for labour which established a market clearing equilibrium wage, there could be no involuntary Keynesian unemployment. To explain the occurrence of Keynesian unemployment, therefore, it is necessary to delineate the characteristics of the economic structure which make spot market trading of labour services infeasible.

In identifying these characteristics it is useful to outline the major contrasts between the most common forms of labour in pre and post industrial societies. As is well known, a major characteristic of pre industrial societies (as of most current LDC's) is the predominance of

1/ Or else the full employment level of aggregate demand is maintained automatically, through the positive real balance effect on aggregate expenditure, of the fall in wages and prices on the real value of a given money supply.
self-employment, as compared with the importance of wage and salary employment in post industrial societies.

A self-employed worker combines in his person and personal enterprise (or in his household) all the characteristics of a firm, which due to the division of labour are separated in industrial firms. These are labour, entrepreneurship, and capital. A variation in the demand for the output, these 'factors of production' produce, will be reflected in an "as if" instantaneous change in the value marginal products of the various 'factors'. There cannot be any 'involuntary' unemployment therefore of the self-employed.

By contrast in a wage labour system where individuals have specialised functions to facilitate the division of labour, the variations in a firm's output demand (or price) will alter the derived demand for the various factors. If each of these factors were hired each day in a spot market, then again a market clearing price for their services would be established on each and every day and there would be no Keynesian type involuntary unemployment. 1/

An important feature of post industrial production processes, however, is that they require labour with firm specific skills (see section (3) B. below). This entails firstly that both employers and employees thereby have an interest to maintain a fairly long term employment relationship. For the employer loses any investment he may have made in the firm specific human capital of a worker, if the latter leaves. Whilst the value of the

1/ This is the implicit model of the labour market underlying various monetarist challenges to Keynesianism see Lal (1977), (1980).
worker (and hence his wage) is higher to the firm in which he has acquired some firm specific human capital than in another firm. This means that there is an inherent 'small numbers' bargaining situation (akin to bilateral monopoly), when the returns from (and costs of) firm specific human capital need to be shared between employers and employees. It is this (along with problems of moral hazard see section 3 (B) below and Lal (1980a)) which leads to the infeasibility of spot contracting and the resulting instantaneous adjustments of real wages in the face of changing demand and supply conditions in the markets for most types of industrial labour. The alternative labour contracts that will then be devised (see 3 (B) below and Lal (1980a)) will have the Keynesian feature that in the face of unforeseen short run changes in the demand for a firm's output (or in its price), employment will be variable but money and (assuming price stability) also real wages will be sticky.

It is industrialisation therefore, with its accompanying need for specialised wage labour with firm-specific skills, which creates the type of fix-wage labour markets in which Keynesian type unemployment can occur. By contrast, in the typical labour market form in pre industrial societies, with much self-employment and where a large part of wage employment is of the casual spot-contracting kind, the labour market will work in the flex price manner posited by conventional textbook competitive theories, in which Keynesian unemployment will not occur. Thus in the process of development, as a country's economic structure comes to be dominated by modern industry its aggregate labour market behaviour is also likely to shift from being flex price to fix price. As most LDC's in this sense, are still at a stage of development where their labour markets are (except in the
relatively small so-called "formal" sector) flex price, they are unlikely to suffer from the type of involuntary unemployment emphasised by Keynes. 1/

(3) Search Unemployment

A different tack has been taken in more recent writings on LDC labour markets in explaining high levels of (in particular) open urban unemployment in many LDC's. Recognising that this unemployment is not due to, and hence cannot be cured by Keynesian methods, theorists have provided explanations in terms of expectational models of job search in labour markets where there is assumed to be an institutionally fixed high wage sector. These models do not deny the marginal productivity theory of factor demand but like the subsistence wage theories (which are also not inconsistent with marginal productivity theory) imply a rigid wage in one sector. Depending upon the recruitment patterns for labour in the high wage sector, in a general equilibrium model, where in all other respects perfect competition rules, 'equilibrium' open unemployment can be shown to occur.

(4) Conclusions

The major conclusion we hope the reader derives from the above discussion on the evolution of views on the causes and cures of unemployment, is the slippery nature of the concept. But in all the varying notions, whether they are related to those associated with poverty as in the 15th and 19th century debates on "the State of the Poor", to the cyclical problems of the Keynesian variety, or the more modern variants of voluntary unemployment associated with job search, two similarities emerge.

First, in all cases the fear is of the transitional "disequilibrium" effects on the levels of living of the 'weaker sections' of the population flowing from some large economic change, such as those associated with the

1/ Though in countries where government (or paternalistic) interventions in the labour market are pervasive, and "wages" are fixed (as in socialist or in slave societies), involuntary unemployment of the Keynesian type may occur.
agrarian and industrial revolutions (both those past and those currently ongoing in many LDC's) and (in modern times) with more mundane changes during the trade cycle.

Secondly, these perceived unemployment problems (except for those associated with notions of 'surplus labour', on which more below) are all short or medium run problems in the following sense. They are the result of immobilities, bottlenecks and other rigidities which prevent any real world economy from instantaneously reaching a new 'equilibrium' when some major economic or institutional parametric changes occur. For in any actual historical process of change, we would not expect infinite speeds of adjustments (particularly in terms of spatial mobility and or relative price/wage changes) to emerging imbalances between the demand and supply of labour in different lines. It is the nature of the obstacles in the path of such adjustments as well as the speed with which they are removed, that will determine the quantitative importance of the transitional disequilibrium phenomenon such as unemployment. As such, in understanding and clarifying the 'unemployment' problems of contemporary LDC's, it is particularly important not to confine one's attention to a particular short period of time but to look at the phenomenon in a longer historical perspective. Only then can we determine whether (in some sense) these problems are endemic, because the adjustment processes are inherently sluggish in particular economies, or whether man-made (and hence removable) obstacles are preventing speedy adjustments.

(2) Labour Incomes and Growth

Marrying the subsistence wage theory of labour supply with the wage fund theory of labour demand yields the classical theory of growth and development of Smith, Ricardo and Mill (and also a part of Marx') which
rightly led to the labelling of the resulting economics as the dismal science. We need not concern ourselves with the precise mechanisms of the resulting classical growth model, as the Malthusian elements, and the diminishing returns to land built into it are no longer found to be persuasive by scholars. Nevertheless, the belief in a horizontal supply curve of labour from a traditional to a modern sector lives on, in the influential dual economy models of Lewis and Ranis—Fei. Moreover, the wage-fund doctrine is also seen to be alive in the literature on the optimal development of a dual economy, and its by-products in the theory of the optimal choice of techniques and the determination of shadow wage rates.

(a) Full Performance versus Full Employment Models

For once a horizontal supply curve of labour is postulated, from an omniscient planner’s viewpoint, the optimal level of current employment will be determined by the share of current output that is available for consumption. Assuming all wages are consumed, and all profits saved and invested, the volume of current employment, given the exogenously fixed wage rate, will be determined entirely by the supply of available consumption goods; whilst the levels of employment in the future will depend upon both the expansion in co-operant reproducible factors of production that current and future savings permit, as well as the overall consumption savings balance at each date in the future. Given an exogenously determined rate of labour force growth, the "fixed wage" assumption, and public distributional preferences about inter-generational equity, the optimal time path of employment, consumption and accumulation could be

1/ Though the general lay public has been bamboozled by many simple-minded projections which include these elements, as in the Club of Rome’s "Limits to Growth" study (See Becketman, Leontief et al. for critiques showing the empirical irrelevance of these models).
determined. This in essence is the model underlying the development of a fix wage economy with surplus labour and the determinants of the time path of the shadow wage rate in the economy.¹ There is in such a world, a clear trade-off between current and future employment levels which are determined by the share of the wage-fund in each period to total output. An increase in employment at any particular date implies that the wage-fund at that date must be greater and hence savings and capital formation lower. The latter in turn will determine how much output of wage goods can be generated in the next period, and thereby the amount of employment that can be offered. In these dualistic models a simple planning interpretation can be given to the notion of 'full employment', which will be the date by when the 'modern' sector would have grown sufficiently to 'absorb' the available labour surplus in the sense that, the marginal product of labour and hence wages in the traditional sector will start rising (see Lal (1978) for a further elucidation of such a concept of 'full employment').

By contrast to the above model, which following Hicks (1973) may be termed a Full Performance (rather than a Full Employment) model, the neo-classical mode of development (as for instance that propounded by Jorgenson (1961, 1967)) does not have a fixed institutional wage (either in the agricultural sector as in the Lew and Ranis-Fei models, or in the high wage modern sector as in various job search models of the Harris-Todaro variety). The wage rate is variable, and there is no disguised unemployment. Thus these are Flex wage models which have Full Employment at all times, even though there may be dualistic features in the labour market, due for instance to the supply price of labour to industrial sector being higher than the alternative marginal product of such labour in agriculture. The most important reason for this dualism is

¹ That this view of optimal employment in a planning framework is closely related to the theories of the wage fund can be seen from Sen (1975) p. 85-6 and Hicks (1972) p. 52.
likely to be the loss in the share of family income that might accompany a rural migrant's move to an urban job. But as in peasant family farming, his share in the family income will be determined by the average product of labour (which will be higher than labour's marginal product) his supply price for urban work is likely to be at least equal to this income he will forego if he takes up an urban job (see Sen (1975) ps. 54-56, for other sources of dualism in the labour market).

As the 'surplus labour' fix wage classical models move asymptotically tow the neo-classical flex wage model after the Lewis turning point, they have different implications for the trend and structure of wages and employment only during the 'surplus labour' phase. Jorgenson (1967a) has presented a brief outline of the different predictions on these scores that the two approaches would make.

First and most important, the assumption of a constant agricultural real wage rate over time (which includes inter-seasonal constancy) is the hallmark of the 'classical' as opposed to the neo-classical approach, which would make the real wage rate variations depend upon the twin influences of the demand and supply of agricultural labour over time. Secondly, "according to the classical approach, the agricultural labour force must decline absolutely before the end of the disguised unemployment phase (that is before real agricultural wages start rising); in the neo-classical approach the labour force may rise, fall, or remain constant "(Jorgenson op. cit p. 65). Thirdly, if the terms of trade between industry and agriculture are roughly constant\[1\], then according to the classical approach, 'labour productivity in the modern sector remains constant during the phase of disguised unemployment,

\[1\] These comparisons are altered if the terms of trade are variable, see Jorgenson, Zarembaka.
whilst on the neo classical approach it is always rising. (There are some other differing implications which are not as sharply focussed, distinguishing the two approaches which need not concern us, but see Jorgenson (1967a) for a fuller discussion).

Thus it can be seen that these two alternative theories have very different implications for the likely trends in average labour incomes, particularly of the 'poor' in traditional activities, during the development process, and one of our purposes is to see which is broadly consistent with the evidence on wage and employment trends in our different countries.

A) The 'Principle of Population'

Before we end this hurried excursion through alternative views on the long run evolution of labour incomes and the structure of employment in the process of development, it may be useful to partially exorcise a ghost which since Malthus continues to haunt those obsessed with the "principle of population".

The underlying fear is of the continuing immiserisation of labour through its excessive breeding in countries with limited land and natural resources. The crudest form of this fear is based on the law of diminishing returns to increases in one factor of production, and the pure arithmetic of calculating per capita income as a ratio of GNP to population. Thus if an infant is born to a cow per capita income goes up but if born to a human it goes down! But men are not merely receptacles for output, they are also producers. So as Kuznets asks "why, if it is man who was the architect of economic and social growth in the past and responsible for the vast contributions to knowledge and technological and social power, a larger number of human beings need result in a lower rate of increase in per capita product? More po

1/ Except of course in India!
means more creators and producers, both of goods along established production patterns and of new knowledge and inventions. Why shouldn't the larger numbers achieve what the smaller numbers accomplished in the modern past—raise total output to provide not only for the current population increase but also for a rapidly rising supply per capita" (Kuznets, p. 3)?

The answer is usually in terms of models in which there are diminishing returns to labour and hence, ceteris paribus, growth in the labour force means a fall in per capita output. But at least since Adam Smith it has been known that, due both to the expansion of production possibilities through foreign trade, and the ensuing worldwide division of labour, as well as the possibility of any increasing returns which may be associated with the domestic widening of the market (with more domestic consumers with the same average purchasing power), this outcome, even in principle, is not inevitable.

Nor is the argument of a relative scarcity of natural resources in many LDC's any reason (in an open economy) to expect an increase in population to lead to impoverishment. As Kuznets succinctly states "The scarcity of natural resources in the underdeveloped countries is primarily a function of underdevelopment, underdevelopment is not a function of scarce natural resources." (ibid. p. 9). Japan, Switzerland and more recently Hong Kong and Singapore have limited or virtually no natural resources compared with Indonesia, Nigeria and the Congo, and yet the former set of countries have succeeded in developing, the latter have not.

In fact once we move to a two good model of an open economy, trading at constant (or improving) terms of trade, then an expansion of the labour force relative to other factors of production need not, following the arguments of the Rybczinski and Stolper-Samuelson theorems, necessarily lead to any fall in the real wage (income) of labourers (see Fig. 1).
Note:

The economy is divided into two sets of goods indexed by factor intensity. The traded goods are capital intensive and the non-traded, labour intensive. Capital and labour are the only two factors of production, in the constant-returns to scale technologies for the two goods and the production possibilities are given by \( T T \).

Initially, the economy is at production point \( P \), the slope of the tangent to which shows the current domestic relative price of the two goods.
Now assume that there is an expansion in labour supply, and no increase in the capital stock. The new production possibilities will then be given by T'T', and we know from the well-known Rybczynski Theorem, that the new frontier will be biased towards production of the labour intensive good such that, the slope at Q on the new production possibility curve T'T' will be greater than that at P, along the ray OX (which shows a constant proportion of the two goods being produced). However, there will be a point P' on the new transformation frontier to the left of Q, at which the slope of the transformation frontier will be the same as at P. This will involve an increase in the proportion of the labour intensive good in total production (as shown by the higher slope of OX' as compared with OX).

But these slopes on the new transformation curve (with increased labour supply) are again the relative domestic product price ratio.

From Samuelson's well-known theorem on the one to one correspondence between the product price ratio and real factor returns, the real wage at point P and P' will hence be the same (as the product price ratio is unchanged). If, however, the product price ratio changes, so that the relative price of the capital intensive good rises, and we get to point Q say (with the same proportion of the goods being produced as at P), then from the Stolper-Samuelson theorem there will be a decline in the real wage (from its level at the pre-growth production point P).

Thus, even in this extreme case, with only labour supply growth (and no increase in the capital stock), the real wage will only decline if the product-price ratio moves in favour of the capital intensive good. If the product-price ratio remains unchanged, (so that the economy moves from P to P' over time) there will be no change in the real wage, but with exante "excess" supply of labour (in the above sense), the output of labour intensive goods will expand (and that of the capital intensive goods will, following Rybczynski, decline).


Moreover, Keynesians have argued that, it is investment which leads to savings and the inducement to invest depends upon the expected profitableness of investment. Amongst the reasons Keynes gave prominence for keeping up the marginal efficiency of capital in the 19th century was "the growth of population and invention, the opening up of new lands, the state of confidence and the frequency of war over the average (say) each decade" (Keynes, p. 307). Whilst, Hicks (1936) in reviewing the General Theory stated: "It does become very evident when one thinks of it, that the expectation of a continually expanding market, made possible by increasing population, is a fine thing for keeping up the spirits of entrepreneurs. With increasing population, investment can go roaring ahead, even if invention is rather stupid; increased population is therefore actually favourable to employment. It is actually easier to employ an expanding population than a contracting one, whatever arithmetic might suggest - at least that is so when the expansion or contraction is expected, as we may suppose to be the case". (p. 252).

As Hicks (1977) notes there are two assumptions of the steady state growth model which colour much economic thought on population growth. The first is the implicit assumption that the inducement to invest does not matter, and hence there can be no Keynesian lack of confidence. This may not be too implausible when we examine long run growth processes. The other assumption, however, is that "a steady-state expansion, in which capital per head was constant and there was no technical progress, would show no gain in productivity. The expanded population would be absorbed, but that would be all. In such a steady state there would be no rise in real income and no rise in real wages. But in this steady-state theory is there not an important element which is neglected? Is it not the case that expansion as such, even population-based expansion is favourable to productivity?" (Hicks (1977) p. 23).
There is at least one plausible economic model of induced technical change in agriculture due to Boserup (for a formalisation see Darby) which turns Malthus on its head. It shows that historically, it is communities confronted with declining per capita food output, as a result of population growth, which have switched to existing (and known) more intensive techniques of production. So that instead of the classical view that rising output per head leads to population growth, Boserup argues that it is (exogenously) rising population growth which leads to rising output per head. (Also see Symons for a growth model in which population growth is associated with long run increasing returns to scale).

Nor is there any historical evidence to suggest that per capita income has declined in any economy with population growth - quite the contrary (see Kuznets for a judicious survey of the evidence). It is true that ceteris paribus, a higher population growth rate will within the conventional neo-classical growth models require higher capital requirements (and hence entail lower consumption per head). But the resulting belt-tightening doesn't seem to be too great as some simple numerical simulations by Kuznets based on historically plausible parameter estimates suggest. He shows that "with a growth in per capita product of 2.0% per year a rise in the rate of population growth as large as that from 1 to 3% per year can be met by a reduction in consumption of about 16% - which means that the sacrifice of half the long-term increase of 2% in per unit consumption for about a decade and a half would bring the country to the high level of per capita product that it would have achieved with only 1/3 of the population growth rate - and thereafter the growth in per capita product would continue at 2%." (Kuznets p. 17).
Lest it be thought that the per capita consumption cut during the transition reflects a pure social loss and no social gain, it should be remembered that there are many ethical systems (such as the Utilitarian and the Catholic!) which would include the number of heads together with consumption per head as positive arguments in a society's welfare function! Thus though there may be various social, ecological or aesthetic reasons for population control, it is by no means firmly established that population growth is necessarily harmful for development, or even more narrowly for the levels of labour incomes.

This should not be taken to imply that a growing population does not pose any economic problems. But those problems are concerned with adjusting to a new rate of growth (and thence level) of population, and are similar to those we cited in discussing the "unemployment" associated with any large dislocating economic change. In particular, given the spread of the concerns associated with the modern welfare state, a rise in the population growth rate will make the task of the authorities in the public provision of various social services (like education) and infrastructure (like housing, roads etc) that much more onerous. It is understandable, therefore that planners' headaches may be worsened by a rise in the population growth rate, but whether their pain should axiomatically be treated as representing social welfare losses is more debatable!

(3) Determinants of the Wage-Structure

The third class of questions in the study of labour in development concerns the determinants of the structure of wages in an economy and its evolution over time during the development process. Adam Smith's chapters on labour in *The Wealth of Nations* are the precursors of the currently dominant set of theories (broadly labelled as "neo-classical"). These theories were given a more rigorous formulation after the "marginalist revolution" and reached their apotheosis.
in the writings of J. E. Clark, Alfred Marshall's Principles and Hicks' Theory of Wages. But there has always been an undercurrent of discontent against these misleadingly labelled "marginal productivity theories" of wages. Though Marx and his followers were more concerned with the first two of the above class of problems (namely questions about trends in real wages and the functional distribution of income during a capitalist growth process), Marxists have generally repudiated "marginal productivity" type explanations for the structure of wages, as part of their general rejection of 'neo-classical' economics, which was seen as an apologia for the existing liberal, bourgeois capitalist system they were seeking to bury.

But not all those who have had doubts about the realism or relevance of neo-classical explanations of wage-structures have been Marxists. There was an influential school of American institutionalist economists—particularly Veblen, and Commons, — who emphasised so called institutional and customary factors in wage determination. Nor were the classicals and neo-classicists such as Cairnes, Marshall or Hicks insensitive to the importance of such factors. But in their theories such aspects were taken into account in terms of what amounted to tautologies (such as Cairnes notion of non-competing groups). It is only more recently as a result of the modern variant of the institutionalist challenge presented to conventional theory by the so called 'dual economy' or 'segmented labour market' theorists such as Doeringer and Piore and L. Thurow, that systematic attempts to incorporate these 'institutionalist' aspects into neo-classical theories of wage determination have been made. These extensions essentially take account of problems concerned with imperfect information and uncertainty on both sides of the market for heterogeneous labour, many of whose characteristics are unobservable. Cost minimising and utility maximising behaviour...
in this context can produce rigidities in both the structure of wages and the level of real wages in the economy in the face of exogenous changes in the demand and supply of labour (see Lal (1979) for a more detailed survey of these more recent theories).

To fix ideas, as well as to partly explain the reasons for the method employed in our wage and employment trends and structure studies it maybe worthwhile to briefly sketch the major components of these new "neo-classical" theories of wage structures as well as their relationship to the older neo-classical "competitive" theories.

A. The Competitive Model

To fix ideas it is best to begin with the purest case of a perfectly competitive world, in which homogenous labor inputs enter into the production process, which is characterised by a convex production set. Then given a convex preference structure which includes the labor-leisure choice of individuals, profit maximisation by producers and utility maximisation by consumers will yield a general equilibrium in which a competitive wage will emerge for the labor input, which will be uniform in all the industries, and which will entail the equality of value marginal product (VMP) of labor with the wage (W), which will also equal the laborers marginal rate of substitution between income and leisure (MRS_{y_l} = \text{VMP} = W = MRS_{y_l}).

As is well known, in this perfectly competitive world there are no problems of (a) information (given the assumption of perfect information on both sides of every market), or (b) uncertainty (if as in the Arrow-Debreu framework, there are contingent claims markets for future contingent

\footnote{This and the following section are based on Lal (1979).}
"commodities"). Hence there are no transactions costs given the assumption of a costless Walrasian tatonment process, in which moreover, there is no false trading at non-equilibrium prices in any market.

In such a world, clearly, there would be no wage differentials. However, the assumption of homogenous labor is particularly unrealistic. Various reasons for this non-homogeneity may be cited. The most important (within this tradition which goes back to Adam Smith) are differences in the level of skills amongst different members of the labor force. These skills, which are acquired either through education and formal or informal "on the job" training, are the human capital acquired by raw labor and give rise to differentials in the productivity of different laborers. Moreover, as

in the case of physical capital, the acquisition of human capital also entails costs in terms of foregone earnings (consumption, output) during the period the capital is being accumulated. Hence it will only be profitable to invest in human capital (as in physical capital) if the returns to such investment are equal to (or greater than) those from alternative forms of investment. This entails that the discounted value of the expected earnings stream from the date the skills are acquired till the end of the laborers working life, must at least equal the discounted costs of the earnings foregone from the sale of raw labor during the period the skills are being acquired. For any given positive rate of discount this must mean that the requisite skills will only be acquired if the skilled wage is higher than that for unskilled (raw) labor, with the differential being greater the longer the required period of training (and hence discounted costs of foregone earnings). The actual differential being determined, by these supply considerations, and the relative value marginal productivities of different skills which
are given by the derived demand for these different labor services within a general equilibrium framework.

Clearly the introduction of human capital considerations, which leads to the non-homogeneity of labor inputs will yield inter industry average earnings differential, for different industries will be combining different skills in different proportions. Moreover, to the extent that, different occupations too, embody different skill mixes there will also be occupational earnings differentials.

An important question in this context, (as we shall see below) is whether the long run supply curve for labor with specific skills, or that in particular occupations with a given skill composition, is perfectly elastic or upward sloping? If workers had (a) the same tastes and (b) discounted the future at the same rate, then the different skills (or occupations with given skill compositions) could be ordered in terms of their wage (earnings) differentials (with raw unskilled labor at the bottom) and the supply of labor would be perfectly elastic at a wage rate for a particular skill (occupation) which would be determined in relation to that for unskilled (raw) labor by the costs of training, pecuniary advantages or disadvantages attaching to different occupations (skills), as well as any rents that accrue to natural abilities. It being noted that, given our assumption of identical tastes of workers, the valuation of these non pecuniary aspects of different jobs would also be identical amongst workers. 2/

1/ Or if there were perfect capital markets.

2/ See A. Rees: p. 166 and following.
In this case, demand considerations will be redundant in determining wage differentials, which will be purely dependent on supply considerations. Changes in the demand for different levels of skills will determine the level of employment in each skill category, but the wage differentials between different skills and occupational categories should be explicable purely in terms of the relative costs of skill acquisition (and some common evaluations of the non pecuniary aspects of jobs). Moreover in this case, changes in earning differentials over time should be explicable purely in terms of changes in the relative costs of acquiring the skills required for particular occupations, and any changes in the common evaluation of the relative non pecuniary valuation of different jobs.

Clearly, however, workers are unlikely to have identical tastes. Then, even assuming that workers evaluation of the costs of training and their discount rates are the same, if they, however, value the non pecuniary characteristics of jobs differentially, the long run supply curve of labor in each skill (occupation) group will not be perfectly elastic but upward sloping. This implies that given differentials in tastes, the workers who value the non pecuniary advantages (disadvantages) of particular occupations most (least) highly will require a smaller wage (earnings) differential to accept the 'job' than those who value these aspects less (more) highly. 1/

1/ That this argument can be of some importance in the context of developing countries labor markets, has been pointed out, by Scott in his discussion of the unrealistic predictions of the Harris-Todaro type migration models about the induced level of urban unemployment for any given rural-urban wage differential. See Scott et. al.
Furthermore if training costs and discount rates for different workers differ, then this will provide further reasons for the long run supply curve of labor for particular skills (occupations) to be upward sloping. In these more realistic circumstances, the demand for different types of skilled labor will once again be a determinant (together with the upward sloping supply curves) of the relative wages (earnings) of different skills and occupations, and hence explanations of existing or changes in historical earnings differentials will need to be explained in terms of changes in both the supply and demand for labor. We would therefore not expect that, explanations of wage differentials within the simple unicasual human capital approach (which would only be valid with identical tastes and training costs for workers), could explain the whole of the variance in earnings. Most studies of wage differentials in both developed and developing countries, based on estimating so called earnings functions however, have tried to explain these differentials within the simple human capital approach, and not surprisingly because of either a neglect of demand influences or difficulties in finding good statistical proxies for them, have found that the human capital variables do not explain a large part of the variance in earnings. 1/

1/ See Thurow, Wachter, Blaug. There are also difficulties in finding good proxies for the components of human capital like on-the job training. Age and experience are most often used, but are obviously inadequate. Also as Wachter notes: "Other variables in the skill array such as quality of schooling and manual dexterity, are omitted because they cannot be measured; hence the co-efficients on the human capital term may be biased and any scalar measure of skill is severely limited and incomplete." (op. cit. p. 653).
The reintroduction of the second blade of Marshall's scissors - demand - in the determination of skill (occupational) differentials, when there are upward sloping supply curves for different skills (occupations), is also of importance because the market conditions in both product and labor markets now become important. Within the strictly competitive framework, within which the arguments above have been couched, both product and labor markets are assumed to be perfect. If however, the long run supply curves to different skills were perfectly elastic then, as we have argued, irrespective of the assumptions about the nature of product and factor markets, relative wages could be explained purely in terms of the human capital approach. Moreover in equilibrium, irrespective of imperfections in product and labor markets, the equality of the wage and value marginal product for any occupation (skill) would be maintained.

With upward sloping supply curves for different skills (occupations) however, market conditions are of some importance. If perfect competition prevails in both product and factor markets, then clearly even with upward sloping supply curves for different skills their earnings would be equal to their private and social value marginal products. If, however, there are imperfections in either the product or factor markets, this equality will no longer hold. In the case of product market imperfections, (monopoly), though the wage would still equal the private value marginal product, it would be less than the social value marginal product of that type of skill. (Note that this distortion would also exist even if the supply curve of that type of skill was perfectly elastic). More importantly, if there is monopsony in the labor market, then as with an upward sloping supply
curve of a particular type of labor its marginal wage cost is greater than the average cost to the producer, the value marginal product of that type of labor will be equal to the higher marginal cost of labor, which will be greater than the wage paid. As the competitive model usually rules out monopsony, clearly within it, the equality of wages and value marginal products for different skills would so be an important prediction of the model, but if monopsony exists then this equality will no longer hold.

There is one other source of occupational wage differentials which should be introduced within this competitive framework and that is the existence of differences "in scarce natural talents which are more important in some occupations than in others,"\(^1\) and which give rise to intra-occupational rents accruing to the more talented members of the occupation above the average earnings in that occupation. This would be a factor which could be used to explain intra-occupational earnings differentials. However, as Rees emphasizes, within the competitive framework it is not clear why the average earnings within such occupations should involve rents above those in other occupations which need less native ability but as much training. For if in these occupations "new entrants overrate their own chances of winning the large prizes or if they place higher value on the non-pecuniary attractions of such a career, many people of modest talent will enter. As their hopes of success fade, some of these people will not leave the occupation immediately because of the sunk costs of their investment in training. The result can be low rates of pay

\(^1\) Rees op. cit. p. 169.
or frequent periods of unemployment, that drive the average earnings of people in these occupations below those of skilled occupations in which native ability is less important."1/

Thus the competitive model would lay most emphasis on the human capital component in explaining wage and earnings differentials between occupations and because of the differing occupational mixes in different industries also for inter-industrial differentials. There are various additional features which could be grafted on to the model, for instance by differentiating between different components and cost structures of human capital, namely formal training and general and specific on-the-job training. However, as these aspects (for instance specific on-the-job training on which more below) and others which we shall consider later, usually involve the introduction of non-convexities in either the production or consumption sets, they are incompatible (if important) with the existence of a competitive general equilibrium. So they are best considered as neo-classical extensions of the competitive type model which we will discuss later in this part.

The two major predictions of the competitive model would therefore be (a) that most of the earning differentials in an economy should be explicable in terms of the differentials in the supply and demand conditions for human capital, and (b) that average wages (earnings) of different groups should be equal to their marginal value products.

1/ Rees, op. cit. 169-70.
Also within this model (as so far expounded) there should be no reason why employers should prefer one worker with a given mix of skills over another similar worker at the same wage rate. The model would also predict a fairly rapid adjustment through changes in relative wages to any sectoral disequilibria in particular occupational labor markets, with the adjustments take place through rapid price (wage) adjustments and hence little quantity (unemployment) adjustment (except of course for any frictional elements due to immobilities of labor over space, and changing expectations through the process of job search).

B. Neo-Classical Theories

Thus though the competitive theory can take account of some of the factors leading to the heterogeneity of labor (primarily on the supply side of the market), there are others (mainly on the demand side) which it cannot. These missing aspects concern various (often non-observable) characteristics of workers which are important determinants of workers' productivity and hence in the demand for labour. They were aptly summarized by Samuelson as being "the tremendous differentiation of abilities and attitudes as between workers, so that no two are alike - and so that no person can accurately ascertain their differences. This, plus the fact that the performance you get from a man is not something that exists independently of his wage, the wages of others, his past employment experience
and the performance of others, pulverizes the labour market into separate but highly interrelated segments. If each morning people could be hired in an organized auction market the world would be a very different one." (Samuelson p. 1567).

It is the existence of many of these non-observable or non-measurable aspects of work performance, along with the self-consciousness of the phenomena being studied, which make the labour market inherently different from those for capital or commodities. It means that exclusive reliance on the competitive model will be misleading in explaining the structure of wages.

In fact the competitive model implicitly assumes that all labour contracts are in the form of sequential spot contracts. In each period, given the extant demand and supply conditions in the particular labour market, the market for all types of labour is like that for casual labour, with spot rates being set (including recontracting if necessary) at the "new equilibrium rates for already employed workers. But even the most casual empiricism will show that casual labour is only one, and by no means the most important of the labour contractual modes to be found in developed or developing countries. Institutionalist writers impressed by this multiplicity of contractual modes, ranging from various forms of tenancy in agriculture to the highly structured and hierachical internal labour markets in much of modern industry, have concluded that politics, sociology and anthropology are
the determinants of the existing contractual modes rather than any coherent economic factors.

By contrast, modern neo-classical theorists are seeking to understand the departures from the perfectly competitive conditions, in particular environmental circumstances, which would justify the development of particular types of labour contracts as a 'second best' cost-efficient and utility-maximising response on the part of producers and workers. In particular, three fundamental assumptions of the competitive model which we hitherto maintained: namely perfect information on both sides of the market, no uncertainty (or else perfect future markets) and no transactions costs in achieving a competitive market equilibrium, need to be questioned.

Most of the emerging neo-classical literature of labour markets is based on recognising the importance of imperfect information on both sides of the market, the absence of perfect future markets and the relevance of differential transactions costs in determining whether or not a competitive market solution to a particular allocational problem will be viable.

Imperfect information about the 'ability' of the worker and of the working conditions and future prospects of the employer, both are a source of uncertainty on the two sides of the labour market. If it were possible to establish markets in contingent claims (as for instance if there were universal futures markets) such that trades could be made for all conceivable future states of the world for different 'commodities' differentiated not only by physical and temporal characteristics, but also by whether or not certain states of the world obtain at particular dates, then it would still be possible to achieve a Pareto-efficient competitive equilibrium. Economic agents would then be able to maximise their expected utilities according to
their own subjective probability distributions about the various future unknown states of the world (Arrow and Hahn).

However, universal contingent commodity markets are not found because in many cases, particularly concerning the determinants of labour incomes, it is not possible to delineate at all precisely the various future outcomes, nor the 'states of nature' which are their determinants, except at prohibitive cost. It is these latter transactions costs which make it infeasible to establish universal futures markets. A market for a particular 'good' (for instance a future (contingent) commodity) may then fail to exist if transactions costs drive a large enough wedge between the buyer's and seller's price. so that the lowest price at which anyone is willing to sell the commodity is above the highest price anyone is willing to pay for it.

Various 'non-market' forms of allocation may then represent second-best efficient adaptions to this ubiquitous incompleteness of markets. Dreze has characterized the economic risks causing uncertain labour incomes as being either endogenous or exogenous. "The endogenous uncertainties concern an individual's proficiency at work: qualification, creativity, drive, sociability. The exogenous uncertainties concern the demand for the labour services offered by an individual: high demand at times of full employment, but low demand at times of under-employment; a demand which assigns to a particular type of labour a higher or lower value, depending upon business conditions and industrial structures." (Dreze, p. 6)

(a) **Risks Associated With Labour Supply**

We cite a few cases (on the risks associated in the supply of labour) which are relevant in explaining why the sequential spot contracting mode of competitive casual labour markets may not be a feasible alternative when due to particular types of imperfect information, there are risks which cannot be shed because of prohibitive transactions costs.
Consider the case of on-the-job firm specific training which is of importance in much of modern large-scale industry. It is usual to distinguish general training which imparts skills which are of the same value to all firms, from specific training which yields firm specific skills of greater value to the firm imparting the skills than other firms. It is well known that, in the case of general training, the worker will (within the framework of the competitive model) receive his net marginal product both during the training period and after he is trained. He will thus bear the cost of his training. With specific training, however, as the worker cannot command an equal premium for such training outside the firm training him, it would be possible for the employer to bear the initial costs of specific training by paying the worker a wage greater than his net marginal product during the training period, and recouping this investment by paying a wage less than the worker's real product after he is trained.

However, now if for some reason the worker leaves the firm before the employer has recouped his specific training costs, then the employer will suffer a loss of his investment. It may be thought that the employer should offer a worker being imparted firm specific training, a long term contract, which ensures that the employer will be able to recoup his specific training costs. But in practice such long term contracts are rarely observed. Why? There is nothing within the competitive framework to prevent such long term contracts from arising. They are usually infeasible, because for certain types of on-the-job training, the transactions costs of writing, negotiating and enforcing such contracts are prohibitive.

For instance, some forms of on-the-job training require the transmission of valuable information from one employee to another. Thus "both individually and as a group, incumbents are in possession of a valuable resource (knowledge) and can be expected to reveal it fully and
candidly only in exchange for value. The way the employment relationship is structured turns out to be important, in this connection. The danger is that incumbent employees will hoard information to their personal advantage and engage in a series of bilateral monopolistic exchanges with the management—to the detriment of both the firm and other employees as well."\(^1\)

Promotional ladders and seniority rules of the internal labour market variety are then seen as an alternative contractual form (for that of sequential spot transactions) in the labour market to overcome these problems. "Access to higher level positions on internal promotional ladders is not open to all comers on an unrestricted basis. Rather, as part of the internal incentive system, higher level positions (of the prescribed kinds) are filled by promotion from within, whenever this is feasible. This practice, particularly if it is followed by other enterprises to which the worker might otherwise turn for upgrading opportunities, ties the interests of the worker to the firm in a continuing way. Given these ties, the worker looks to internal promotion as the principal means of improving his position."\(^2\) Promotional ladders within a collective organisation where wage rates attach mainly to jobs rather than workers, mean that "the incentives to behave opportunistically, which infect individual bargaining schemes . . . (are) correspondingly attenuated."\(^3\) This enables both the transmission of task specific training by one employee to another, and also enables the 'tying in' of the trained worker to the firm.

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1/ Williamson, et. al, p. 257.
2/ ibid, p. 273
3/ ibid, p. 271.
(ii) **Monitoring Job Performance and Providing Incentives**

The superiority of the internal labor market type of wage structure over the sequential spot contracting of casual labor markets for many industries is further strengthened when we take account of the informational imperfections concerned with the monitoring of job performance by workers with the same level of skills, but who differ in their abilities and hence productivities.

This problem of monitoring arises particularly for what Williamson et. al. label "idiosyncratic jobs, or tasks." The characteristics of these idiosyncratic jobs are that they involve specific skills, whose specificity often depends upon specific environmental features of the workplace. "The apparently routine operation of standard machines can be importantly aided by familiarity with the particular piece of operating equipment... Moreover, performance in some production or managerial jobs involves a team element, and a critical skill is the ability to operate effectively with the given members of the team. This ability is dependent upon the interaction skills of the personalities of the members, and the individuals work "skills" are specific in the sense that skills necessary to work on one team are never the same as those required on another." ¹/

Given these differences in 'ability' whether natural or acquired, clearly it will be in the interest of employers to screen workers. If screening costs are low (that is negligible transactions costs), individuals know their own abilities and they and firms are risk neutral, then if a competitive equilibrium exists it must involve screening. ²/

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¹/ Doeringer and Piore, p. 15-16.

²/ See Stiglitz: "Information and Economic Analysis,"
in the firm's interests to screen as it can then tailor remuneration exactly to the specific value marginal products of its heterogenous labor force. But would it be in the interests of workers to accept screening, in this case, for their cooperation is required if they are to be screened. There is an obvious incentive for a high 'ability' person who, ex hypothesi knows his own ability, to be identified as he will then receive a higher wage than the mean wage he would receive if there were no screening. But then it must be in the interest of the next most 'able' person to identify himself from those less able than him, and so on till we reach the least 'able' person in the group, for whom there is no incentive to be identified, but because all the others more able than him have been identified, in practice he too has been screened. 1/

But let us now relax the assumptions that (i) screening costs are negligible (ii) that individual workers know their own 'ability'-and (iii) that they are risk neutral.

If screening costs are positive, then they imply a fixed cost of employing particular workers. In a competitive world (as in the case of general on-the-job training) given that workers are mobile, and that, if one firm screens workers this screening information is equally valuable to its competitors, clearly it will not be able to appropriate the returns from its screening. For all firms will now bid for the workers who have been screened to be the most (next most . . . ) able, and they will receive their value marginal product, but the firm which has undertaken the initial fixed screening costs will obviously have made a loss. Thus in a competitive equilibrium with positive screening costs, these must be borne by the workers if there is to be any screening.

1/ Stiglitz, ibid, labels this the Walras law of screening.
But if, workers do not know their 'abilities' and are not risk neutral, they will never be willing to bear this cost of screening. For suppose the worker is risk averse, and "say at an extreme he thinks his probability of being a low risk (high ability person) is equal to the proportion of low risk (high ability) individuals in the population, then screening simply increases the variance of his income and lowers the mean (if he bears the costs): he will never be willing to pay for it."1/

Thus if screening costs are positive, if workers are not certain of their abilities and are not risk neutral, then a competitive equilibrium with screening will not exist. Or in other words, in a world of imperfect information, and where information on individual characteristics is of value, with positive transaction costs and risk aversion, the class of competitive labor contracts will not exist, but will tend to be substituted by other contractual modes.

For idiosyncratic jobs where these individual characteristics may be of importance, the internal labor market structure may be the most efficient feasible system of labor allocation. This is equally important in 'team type' idiosyncratic jobs, where it may be impossible, except at prohibitive cost to monitor individual performance. "If group but not individual performance is monitorable at reasonable cost, then the group that is being monitored has a public goods problem. If the members of the group monitor each other more easily than the supervisory personnel, then it may be rational for supervisors to contract with the group, not with individuals. The group will then require some internal structure that maintains incentives for individual performance." 2/

1/ Stiglitz, J., Ibid, p. 35.

2/ Spence: "The economics of internal organisation" op. cit. p. 165.
Moreover, even in the absence of the 'joint goods' type problem involved in team work, if individual screening is prohibitive, and monitoring is still desirable, then the particular structuring of wage incentives may be important. "When the individual employee knows more about the job than supervisors, the best strategy may be to structure incentives so that the information is partially or completely revealed in the course of the performance of the job."1/ Thus there are likely to be optimum payment systems (for instance combinations of piece and time rates),2/ and hierarchical authority systems, given the differing attitudes to risk of workers and employers, and the nature of the uncertainties faced.

(iii) Experience Rating and Port of Entry Restrictions.

Finally, imperfections of information and the costs of acquiring them could also explain the practice of restricting entry within promotion ladders of many industries with internal labor markets, to lower level jobs. "It permits firms to protect themselves against low productivity types, who might otherwise successfully represent themselves to be high productivity applicants by bringing employees in at low level positions and then upgrading them as experience warrants. Restricting access to low level positions serves to protect the firm against exploitation by opportunistic types who would, if they could, change jobs strategically for the purpose of compounding errors between successive independent organisations."3/

The reason why markets do not handle this experience rating function too well is not merely because it may not be in the interests of competitive firms to make their ratings public, but also because these experience ratings being partly subjective may not easily be communicable." The

1/ Spence, Ibid, p. 166.

2/ For an analysis of these see Stiglitz: Incentives, Risk and Information." op. cit., and Mirrless, op. cit.

3/ Williamson, et. al., op. cit., p. 274.
advantages of hierarchy in these circumstances are especially great if those who are most familiar with an agent's characteristics, usually his immediate supervisor, also do the experience rating. The need to rationalize subjective assessments that are confidently held but, by reason of bounded rationality difficult to articulate, is reduced.\textsuperscript{1/}

The 'port of entry' restriction to lower level jobs in these industries implies that labor turnover will be highest at these levels (rather than for more 'senior' personnel). Furthermore it would suggest that it is the rate of remuneration for these port of entry jobs (the lowest 'skills') which would tend to be inversely correlated with quit rates for different firms and industries.

(iv) \textit{Summary}

Thus largely dependent upon the technological conditions of particular industries, the informational requirements connected with different tasks, the need for task specific training, the nature of the uncertainties attaching to different activities and the relative degrees of risk aversion of various economic agents, there is likely to be a whole continuum of labor contracts in any economy, stretching from the sequential spot contracting of casual labor markets to the highly structured labor contracts associated with promotional ladders and restricted job entry points of the hierarchical internal labor market in modern industry. The competitive model best provides an explanation of wage differentials where contracts are of the sequential spot contracting variety. But the emerging neo-classical analysis of internal labor markets would seem to provide the explanations for the wage structure in those industries where idiosyncratic tasks are of importance. We would expect to find promotion ladders within such industries as in the context of imperfect information and the importance of task specific on-the-job training costs, such promotion ladders (a) "serve to reward meritorious

\textsuperscript{1/} Williamson et. al., ibid.
performance and to reduce turnover... As a worker moves up a promotion ladder, the gap between his opportunity wage, at the entry point of an alternative firm and his actual wage widens; (b) promotion ladders may be advantageous because "workers may acquire not only specific information about their own jobs, but also specific training for higher level jobs in the firm," (c) "promotion ladders also provide a screening mechanism" (with the twin function of monitoring and providing incentives for job performance).

Most of the above problems arise because of the imperfect information of employers about the 'ability' of their work-force and hence concern risks associated with the supply of labour. Most of the internal labour market solutions can thus be viewed as non-market institutional forms which provide second-best cost-minimising contractual modes in the face of these uncertainties when the first best solution is infeasible because of the prohibitive transactions costs of delineating and enforcing sequential spot contracting competitive contracts.

(b) Risks Associated With Labour Demand

However, there are equally important risks which employees face due to imperfect information about their employers behaviour and prospects which effect both their current and future working conditions as well as the demand for their labour services.

(i) Non Pecuniary Characteristics of the Work Environment

There are important risks which employees face due to imperfect information about their employers behaviour and prospects which effect both their current and future working conditions as well as the demand for their labour services.

Thus different firms are likely to have many non-pecuniary characteristics, which workers can only discover after the individual works for the firm. Risk averse workers will then find that the 'effective wage'
attached to a new job must be sufficiently above that in his old job to compensate him for this risk. Once again it is difficulties in communicating these non-pecuniary characteristics which mean that markets may not be good avenues for channeling this information. This would also explain why a common feature of hiring practices in industries with idiosyncratic jobs, in both developed and developing countries are informal hiring procedures, with new workers (particularly production workers) being hired through existing members of the firm's labor force. The existing worker will be able to provide a better assessment of these subjective elements of jobs in the firm to the potential recruit, whilst the employer, who 'knows' his own employees abilities and judgement, may also be able to rely on their judgement in screening potential workers for the characteristics on which markets cannot provide enough information. Moreover, at least in developing countries where family or other group (caste, tribal) ties are strong, for idiosyncratic tasks which involve team or group effort, and hence pose the problems connected with non-separabilities, it may be efficient for firms to hire additional workers from those with family or other existing group ties with their current work force. This would tend to minimise some of the transaction costs connected with monitoring performance and providing individual incentives for work within team type tasks.

(ii) Uncertain Labour Demand, Implicit Contracts and the Cyclical Rigidity of Real Wages

Another case concerns the observed downward rigidity of real wages in much of the industrial sector in face of cyclical changes in the demand for labour. The so-called 'implicit contracts' model (see Azardias, Baily,

1/ See Alchian and Demestz.
Gordon and Dreze) seeks to explain this phenomenon in terms of the different degrees of risk aversion of firms and workers, and the problems of moral hazard involved in monitoring the changing value marginal product of labour over the trade cycle which would make a competitive insurance type contractual mode infeasible for shifting the workers risks.

Thus if a firm's demand curve and hence price of its output is subject to random fluctuations, the value marginal product of labour for any given level of employment will also be random. If workers are risk averse and are faced with a choice of either a fluctuating wage equal to the random value of their marginal product or a fixed wage lower than their expected value marginal product, they will prefer the latter. This is because the higher risk associated with the fluctuating earnings entails an additional utility loss for risk averse workers as compared with a fixed wage. For if they were risk-neutral, they would be indifferent between the fluctuating random wage and a fixed wage equal to the expected value of the random wage. As they are risk averse, however, they would be indifferent between a fixed wage lower than the expected value of their random marginal value product and the associated random wage.

Employers who are ex hypothesi less risk averse than their workers too would prefer to pay a wage lower than a random wage equal to the fluctuating value marginal product of labour. For suppose they were risk neutral. Then, they would be indifferent between paying labour a wage equal to the expected value of the value marginal product or the random wage, and would then clearly be better off if they could get away paying a fixed wage which was lower than this expected wage. Thus "both parties have incentives to sign a contract specifying a fixed wage unaffected by demand fluctuations. It is an employment contract coupled with an implicit
insurance contract. The worker earns a wage equal to the marginal value product of his labour plus an insurance benefit in case of adverse business conditions, but minus an insurance premium in case of favourable business conditions. The insurance contract is underwritten by the firm itself and not by an insurance company because the firm has immediate access to the information required in order to monitor the contract (the marginal value product of labour). The insurance company would be confronted with a moral hazard problem" (Dreze, p. 10).

C. Summary

Enough has been said, it is hoped to show how these emerging neo-classical theories can provide cost-minimising and utility-maximising rationales for various aspects of labour market behavior which have hitherto been assumed to be the result of vaguely specified and unilluminating 'institutional' characteristics or 'customary' features of labour market behaviour. However, as these theories are based on deriving the second best optimal responses for dealing with uncertainties due to imperfect information regarding both the demand and supply of labour, it is difficult to see how they can be 'tested'. For if as these theories assert it is the non-measurable and non-observable characteristics of work and workers which are the source of uncertainty, statistical proxies for these characteristics cannot be defined. For if such proxies were available we would find employers using them in their labour allocation decisions, and we would then not observe these 'non-market' allocation processes. This raises a host of questions regarding methodology and the 'testing' of alternative theories which has been hovering in the background of our above discussion, but which can no longer be postponed.

We turn to these question of method and knowledge in economics in the next section.

1/ For a fuller discussion of implicit contract theory, and its implications for Keynesian demand management policies see Lal (1980).
III - ON METHOD

There are two crucial differences between much of economics and the experimental natural sciences.

The first is that historical time is irrelevant for the latter but not for the former. (see Hicks (1979), Georgescu-Roegen). As Hick's puts it "it has to be irrelevant for the significance of an experiment at what date it is made, or repeated" (p. 3). Most economic processes by contrast involve change and time in an essential way. These so-called 'dynamic' features of economics are not synonymous with the 'dynamics' (or locomotion) of mechanics, with which it is often confused. This is because economics is concerned with processes which are either irreversible or irrevocable in time as contrasted with the reversible processes of mechanics.

The last point can be best seen in the following analogy due to Georgescu-Roegen. "A movie of a purely mechanical phenomenon - say the bouncing of a perfectly elastic ball - can be run in either direction without anyone's noticing the difference. A biologist, however, will immediately become aware of the mistake if a movie of a colony of protein micelles is run in reverse. And everyone would notice the error if the movie of a plant germinating from seed, growing, and in the end dying, is run in reverse. However, that is not the only difference. If the frames of each movie are separated and shuffled, only in the last case can we rearrange them in exactly the original order. This rearrangement is possible only because the life of a simple organism is an irrevocable process. As to the other two processes mentioned, the second is irreversible. Two important observations should now be made. First, if the movie of the micelles is irreversible it is because the
process filmed consists of a series of overlapping irrevocable processes, the lives of the individual micellae. Second, if the first two movies have in the background an irrevocable process—say, that of a simple plant—then their individual frames too can be rearranged immediately in the exact original order. The point is that only in relation to an irrevocable process do reversibility and irreversibility acquire a definite meaning." (p's 85-6).

The second crucial difference that unlike the experimental natural sciences, economics is concerned with the making of decisions and their consequences. These decisions are the actions of human beings and as we shall see, in the type of causal relationships which must form an essential part of explaining historical processes of development and growth, an important place must be found for the purposive activity represented by these self-conscious human decisions and actions. By contrast, in the material processes studied in the natural sciences there is no similar discretionary activity which needs to be taken into account.

The difference is best illustrated in terms of Georgescu-Roegen's distinction between 'shuffling' and 'sorting'. He illustrates this distinction, and its relevance for distinguishing the natural from the social sciences by the fable of Maxwell's demon in thermodynamics. J. Clerk Maxwell imagined a miniscule demon posted near a microscopic swinging door in a wall separating two gases, A and B, of equal temperature. The demon is instructed to open and close the door 'so as to allow only the swifter molecules to pass from A to B, and only the slower ones to pass from B to A.' Clearly the demon can in this way make the gas in B hotter than A." (Georgescu-Roegen, p. 80).
In the gas molecules surrounding Maxwell's demon, automatic shuffling of molecules is going on in line with the laws of thermodynamics. What the demon does is to sort some of these out, and if he succeeds he defeats the entropy law of statistical thermodynamics! It should be emphasised that whereas the shuffling in the material environment is automatic in that it goes on by itself, sorting requires a human agency. Hence, Maxwell invented a demon, not a mechanical device for this sorting. So whilst "in the material environment there is only shuffling in the economic process there is also sorting, or rather a sorting activity" (ibid. p. 97), which depends upon human actions and decisions (which cannot be reduced to a mechanical analogue).

Despite these two major differences between the experimental natural sciences and economics, the latter has to some extent been successful in taking over some of the methods of the former, and thence been able to parade its 'scientific' nature as being distinct from its sister social sciences and history. But this is the result of a particular method of analysis and form of causal explanation that economists from the beginning of the 'science' have employed.

This is the method of comparative statics and its ahistorical but mechanical analogue, comparative dynamics. It is, nevertheless, a powerful method in the analysis of many important puzzles which have concerned economists. To see its place, as well as its limitations in analysing growth and developmental processes, it is useful following Hicks (1979) to distinguish between three types of causality in relationship to time: 'Sequential (in which cause precedes effect), contemporaneous (in which both relate to the same period) and static (in which both are permanent)' (Hicks (1979)). Much economic analysis, including most of the theories outlined in the previous section are concerned with contemporaneous and static causation. Whilst this is useful and illuminating in many areas - demand analysis, welfare economics, international
trade theory - it is as we will hope to show not much use in answering the type of questions about the evolution of labour markets in the process of development which are concerned with sequentia causation, and which seem to be the source of underlying worry of many observers of the current and future prospects of labour in TDC's.

An obvious example of economic theories based on static or contemporaneous causation are those of the classical stationary state; those of modern steady state growth theorists and, most important, Walrasian general equilibrium theory. This last is, in particular a powerful method which can give important insights of a comparative static kind, by only making the twin behavioural assumptions of cost-minimisation by producers and utility-maximisation by consumers - or what Hicks (1979) has alternatively termed the Economic Principle (viz "people would act economically; when the opportunity of an advantage was presented to them, they would take it" (ibid., p. 43)). Many of the questions which we will be attempting to answer in the course of our country studies can be dealt with adequately by the comparative statics method, because these questions are about states, not processes - e.g. the questions about different wage structures, as well as some of those concerning the course of labour incomes during different growth processes, discussed in the previous section fall in this category.

However, it is important to bear in mind both the nature of the answers provided by the comparative statics method, as well as its limited use in answering questions about processes, if some of the common misunderstandings surrounding the use of these so-called static "neo-classical" methods is to be avoided.
The first thing to note is that, the use of the comparative statics method (and others) depends upon the application of certain theoretical constructs - the most important of which for statics is the notion of equilibrium. "The static economy (in which wants are unchanging, and resources unchanging) is in a state of equilibrium when all the 'individuals' in it are choosing those quantities, which out of the alternatives available to them, they prefer to produce and to consume." (Hicks (1965) p. 15). When we use this static equilibrium assumption in applied work, which attempts to compare one state of the economy (or economies) with another, it does not imply that the economies in question are actually in static or temporary equilibrium. To believe this would be to commit the fallacy of misplaced concreteness. The equilibrium notion is a theoretical construct\(^1\) which enables us to answer some questions relating to static or contemporaneous causality which may be of importance in explaining certain phenomena - for instance why there are internal labour markets and no spot contracting for labour in one place (or the same place at one time) and not in another. What we are doing in these applications of the comparative statics method is comparing the actual performance of the economy over the period in which 'equilibrium' is supposed to hold (in principle) with the hypothetical 'equilibrium' which would have existed if some of the data had been different.

The second important point to note is that in all such applications of the comparative statics method, it will usually be necessary to lock up a number of difficulties involved in actually applying the notion of equilibrium into Marshall's pound of "ceteris paribus". This is particularly

\(^1\) This does not mean that questions about the existence, stability and speed of convergence to equilibrium are uninteresting or unimportant questions. But in the sort of applications of the static method envisaged above they are irrelevant.
important in defining, the period, during which certain changes are postulated to occur whilst others are ruled out by assumption. The distinction between Marshall's 'short' and 'long' periods is an obvious example. It may be the case that one may not be interested in the type of questions the static method enables us to answer, as the questions one wants answered are ruled out by the particular things put in the 'pound'. But this would not be an argument against the answers given by the method, but a plaint that the questions it enables to be answered must necessarily (because of the limitations of the method) be limited.

Whilst the comparative statics method is a useful and powerful one for analysing questions related to static and contemporaneous causation, it is not designed to answer questions relating to sequential causality, that is those concern processes. In explaining these processes – say of the evolution of different types of labour markets, or particular trade cycles, or the nature of unemployment – the twin differences between the phenomena studied by economists as contrasted with natural scientists identified above – viz that these processes are irrevocable and irreversible and involve human agency and actions – cannot be ignored. As is well-known from the debates in capital theory, deep problems arise if we attempt to string along a series of static equilibria into a growth model. In such models which do not (and cannot) move in historical time, there is no way in which the essential elements of a process, (how one gets from here to there) can be shown. To do so it is necessary to trace out the chains of causation in the form of a narrative, much in the way of a historian. In this chain of causation, human agents and their actions enter as important intermediate steps in the chain between certain events (causes) which trigger certain actions which in
turn lead to certain other events which are the ultimate effects. Thus, as Hick's notes, each link in the chain "of sequential causation in economics has two steps in it: a prior step, from the objective cause to the decisions that are based on it, or influenced by it, and a posterior step, from the decisions to their (objective) effects" (Hicks (1979) p. 88).

These two steps in the process, as seen from the viewpoint of what is distinctive about these economic as opposed to material processes, viz, the human agent, can be labelled the recognition lag (between the occurrence of the initial event, and the receipt of the accompanying 'signal' by the human agent) and the reaction lag (between the action taken by the human agent and the ensuing final events which are the effects). But unless the "signal" compels immediate action by the agent after the recognition lag, there may still be yet a third lag, which maybe labelled the decision lag between the recognition and reaction lags.

Not only will these lags determine the speeds of the adjustment process in an economy but also their nature. For broadly speaking most economic changes (the objective causes) are changes in prices or quantities. Similarly most of the actions human agents undertake in response to these signals will effect either prices or quantities. The larger are the reserves or cushions available to the human agent to ignore the signals associated with some particular 'shock' the more likely is it that, the final effect of the initiating change will be on quantities rather than prices. In labour market analysis this is of particular importance in understanding and explaining the nature of unemployment (the first of the cluster of issues outlined in the last section).
For suppose the derived demand for a particular type of labour
falls. There are two sets of decisions which will now impinge upon the
likelihood of the final effects being open unemployment rather than a fall
in the real wage of this group. The immediate effect of the fall in output demand
will be to raise the stocks of the concerned commodity of the producer. If
the fall in demand for output is not temporary, at some stage the producer
will realise that this piling up of stocks at unchanged prices is leading to
a loss of profits, and his financial reserves (which he must have had to tide him
over the temporary loss of profits during this unexpected rise in stockholding)
are not unlimited. He will then seek to both reduce his prices and cut
his output. Only at this stage will he seek to lay off workers. Suppose
however that there is enough flexibility in production methods for the
producer to employ all his workers, but at a lower wage.

The workers, now like the producer, are faced with a fall in the
demand for their services and they will have to make a decision on whether
to accept a wage cut or else look for employment elsewhere at a lower wage.
Whether they can even consider the second option will depend upon their
'reserves' (available to them from either past saving, family contributions or
social provision) to tide them over the period of job-search. Depending
upon one or the other of the decisions made by the workers, the effects will
be a rise in unemployment or a fall in their wages.

Thus in describing an actual process we will have to identify not
merely the three lags between the objective effects of a particular event, (cause)
but also determine the likely responses of the human agents involved. But
precisely because these human responses need not be automatic, they cannot be take
for granted in the same way as we can, the automatic shuffling of molecules
in a gas container. As emphasised at the outset of this section they involve
'sorting' and not mere 'shuffling'. As such they cannot be reduced to a
mechanical analogue.

This however, implies that the empirical knowledge we may obtain
about these processes, from studying the past or current occurrence of
various events must necessarily be imperfect as compared with that in the
experimental natural sciences. Though it maybe useful to use the techniques
of statistical inference in 'estimating' these various lags for a particular
period of time and location, where there is reason to believe that human
agents could have been expected to act in a particular way in the face of
exogenous shocks, it would be inappropriate to place too much faith on the
resulting numerical estimates in making "predictions" about the future course of
historical processes which involve time and the human agency of 'sorting' in
an essential way.

It is essentially for this reason that we do not believe that too much
can be learnt about the process of labour market evolution by the application
of statistical time-series analysis. What is required is analytical economic

1/ But there are other equally serious objections to the commonly mindless use
of statistical time-series analysis in explaining the past, and the faith
thereby placed on predicting the future. (See Keynes, but also Tinbergen
and most importantly Hicks). The major difficulty in applying the probabilistic
calculus in explaining a historical process is that the time series we are us
interested in explaining cannot be taken to be a drawing from a random (or
at least fairly random) sample. As Hicks puts it "when we cannot accept that
the observations, along the time-series available to us, are independent or
cannot by some device be divided into groups that can be treated as independs
we get into much deeper water. For we have then, in strict logic, no more
than one observation, all of the separate items having to be taken together.
For the analysis of that the probability calculus is useless; it does not apply.
We are left to use our judgment, making sense of what has happened as best
we can in the manner of the historian. Applied economics does then come back
to history, after all" (Hicks (1979) p. 121).
history, where we use our judgment to split up the process into "periods", during which there are certain common characteristics of human 'sorters', and the process of 'sorting' can be taken to be relatively uniform over the period. We can then discuss various issues concerning the determinants of the wage-structure and some of the issues about the course of average labour incomes during the period in comparative static terms. But, equally important, we will have to identify the 'events' and the changed responses of the 'sorters' to them (in for instance any of the three lag dimensions distinguished above), which moved one particular economy from one 'period' to the next. Finally, it is the particular characteristics of the 'sorters' and the decisions taken by them (namely various economic agents) within each of our 'periods' which will provide the explanations for various issues concerning unemployment and poverty identified in the previous section.

The resulting method, is a composite of the characteristics identified by Hicks (1965) of two different types of economic history. "One of the standard ways of writing economic history (much practised by political historians in their economic chapters) survey the state of the economy under consideration, as it was in various historical periods, comparing one state with another. This is comparative statics. It is when the economic historian tries to throw his work into the form of a narrative that it becomes, in our sense, dynamic" (p. 11).

It is this method which is used in the series of studies on wage and employment trends and structures. The resulting narrative or 'dynamic' story can only be judged by its plausibility. If these studies can tell an intelligible story of the evolution of a particular country's labour markets, which is not inconsistent with the available evidence, that will be enough, but more it is hoped than if they had been confined to mere statistical hypothesis - testing!
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