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New approaches
to
employment planning

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Preface

The principal aim of this paper is to promote reflection among policy-makers on how best to approach employment planning in the context of changing attitudes towards planning in general.

The author provides an overview of current employment planning techniques and argues that, in many cases, such complex planning methods lead neither to a better understanding of the employment problem nor to more refined policy instruments. In contrast, a simple but conscientiously undertaken collection and classification of labour force and wage data can provide policy makers with a wealth of useful information that can be used as a set of tools to undertake various employment planning exercises. An annex indicates how such improved techniques can also be helpful in monitoring special employment programmes, a task that many ministries of labour in developing countries are currently entrusted with in addition to their more general employment planning responsibilities.

Since this paper is written for practitioners in developing and transition countries, academic discussion has been left to a minimum and the reader is referred to other publications for this. It is intended that this will serve as a discussion paper at national and regional seminars and comments are therefore welcome.

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1. Introduction

The main purpose of this paper is to encourage practitioners in the field of employment planning in developing countries to rethink their approach to their work. Rethinking is necessary because the context for planning has changed. In the past employment planners favoured what has been called the *blueprint* approach to planning. Blueprint planning involves "the construction of a unique pattern of future resource allocation, and supporting policies designed to ensure its achievement. Its scope is economy-wide, but it further strives for a unified approach to economic and social problems, including the planning of employment as well as the more narrowly economic macroeconomic variables... At the end of [the planning] process, a document - 'the Plan' - is approved and published, and is intended to guide future action. The 'blueprint' is made in order to control: it is not just 'indicative'" (Toye 1995:28). Such planners constructed economy-wide models, disaggregated by sector and often by occupation, and used them to forecast levels of employment or demand for labour far into the future. They used the results of such models to project levels and rates of unemployment, and to advise apparently omnipotent governments on which sectors should be favoured with allocations of resources from the centre on employment-generating grounds and which should be shunned.

In most economies this approach never made much sense. The simplifying assumptions used in most models did not reflect reality; few of them were based on sufficient data to allow more than "planning without facts"; and few decades were free of the major disturbances that falsify detailed forecasts. The number of countries, also, in which resources were allocated predominantly by planning decision from the centre rather than by anarchic market forces was relatively small.

Today the blueprint approach to planning is even less justifiable. The pace of technical change has accelerated to such an extent that the coefficients in forecasting models can no longer be assumed to be fixed for even a few months, let alone for five years or more. And the number of countries in which serious central planning is taking place has been reduced almost to zero. A few still indulge in pseudo-planning (with Five Year Plans, and detailed projections of virtually everything), but the allocation of non-government resources is influenced as little as it ever was by such practices.

Employment planners are now mainly concerned not with micro-management of the economy, but with advising on the identification and implementation of policies that will favourably affect the demand for labour in relation to its supply. Such policies will include: price reforms, affecting interest rates, exchange rates, wage rates and unit labour costs; institutional reforms, affecting international trade regimes, industrial licensing procedures and ownership, labour markets, and financial systems; and special programmes to increase the demand for or reorient the supply of labour.

For this purpose a *minimalist* rather than blueprint approach to employment planning is appropriate. This involves identifying topics for, commissioning, and using the results of policy-oriented *research*; it also involves constant *monitoring* of changes in labour markets. Information gained in both of these ways is used to: identify employment problems as they emerge; analyse the causes of these problems; appraise policy options for the solution of the problems; and monitor and evaluate the impact of any policy measures taken. In other words, the planner needs to know what is happening in today's labour markets and why, rather than to persist in trying to peer through an imperfect telescope into an increasingly uncertain future.

The structure of the book is as follows. In *chapter one* the nature of the employment problem and what this means for the planner are discussed. Following Sen (1975) three aspects of the employment are distinguished and related to various measures of underutilisation: active and inactive unemployment, active and inactive visible underemployment, invisible underemployment, and surplus labour.

In *chapter two* the traditional model-based approach of the blueprint employment planner is described and evaluated. Employment projections and manpower forecasts, input-output models, macro-economic models, and computable general equilibrium models are briefly reviewed. The limitations of this approach are identified and emphasised.

The alternative to forecasting is monitoring labour markets, and *chapters three and four* review the usual approach to this, based on labour-force concepts and measures. Examples are given of their use both to illuminate a country's employment problem at a point in time and to analyse changes over time. They are found to be more useful for the first purpose than for the second.

Chapters five to eight set out what is regarded as the more interesting and useful approach to monitoring, using wages as an indicator of what is happening in labour markets. Examples are given of the use of: data on inter-regional and inter-personal wage differences to raise policy issues on the usefulness of monitoring changes in the structure of earnings over time with particular reference to changes in differentials between more and less qualified workers; data on changes in real consumer wages as an indicator of changes in the labour market seen from the point of view of labour, and of their combination with data on wage employment to produce an aggregated index of labour welfare; data on changes in real producer wages (or, even better, in real compensation cost per employee) as an indicator of labour market changes affecting employers, more useful when combined with information on wage employment and even more useful when additionally combined with information on productivity.

In *chapter nine* the issue of labour costs and international competitiveness is addressed. Examples are given of the use of data on hourly compensation costs in international currency units, of the combination of data on real effective exchange rates with those on compensation costs and value added per employee to yield an index of real labour cost per unit of output, expressed in foreign currencies, and of the use of such an index to identify possible areas for policy action.

Finally, in *chapter ten*, the book's conclusions are summarised, and the implications for data collection are discussed.

The emphasis throughout is on the use of examples to show what can be done. This is not intended to be a practitioner's cookbook, but enough information is given to enable the measures described to be applied in any economy with the necessary data. They should also help to identify the priorities for collection of new data. The main hope, as has been emphasised, is that they will encourage practitioners to explore new approaches to monitoring labour markets, and to devising and implementing policies based on such monitoring.

An annex to the book discusses planning and evaluation special employment programmes which often are an important component of activities of the Ministry of Labour (such as training for the unemployed, and public works schemes). Emphasis is again on minimalist planning, based on regular and rigorous monitoring and evaluation, within a cost/outcome framework.

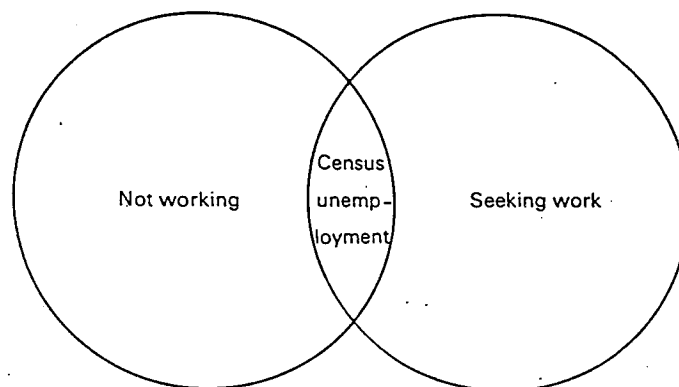
2. Concepts: Three aspects of the employment problem ¹

The role of the employment planner is to provide advice that will help to alleviate an economy's employment problem. This "employment problem" is complex in nature. In any economy, industrialised or developing, it will have three aspects², difficult to capture in a neat, single indicator.

- (a) It will have an *income* aspect. That is, some people will be suffering a loss of income because they are, involuntarily, not working, or working fewer hours than they are capable of.
- (b) It will have a *recognition* aspect. That is, some people will be extremely unhappy with the role that they have found in the labour market, because it is below their potential or expectation. Even though they may have to work to keep themselves and their dependents alive, they will be vigorously seeking what they regard as a "real job".
- (c) It will have a *production* aspect. That is, some sectors of the economy will have too many workers in relation to the number technically required to produce current levels of output. Some workers could be removed from their current activities in these sectors without affecting output.

The usual measure of the employment problem, the open or *active unemployment rate*, only captures some of these aspects. It includes only those who are *both* not working *and* seeking work. As Sen comments, "it is ... a bit amazing that people qualifying in the [Indian] census as 'unemployed' manage to get a living" (Sen 1975:121). He points out that the definition only covers the area of overlap between the two circles of those not working and those seeking work in Figure 1.1, which is likely to be very small.

Figure 1.1. The census view of the unemployed



¹ An earlier versions of this chapter was included in Godfrey (1993).

² See Sen (1975) and Godfrey (1986) for further discussion.

The extent to which people can afford to meet both of these criteria will vary between countries and between income groups. In general in developing countries it is a combination which is difficult to sustain. As already discussed, in the absence of a social security system, most of those who are seeking work have to find some way of keeping themselves alive which places them outside the ranks of the unemployed on the standard definition. And most of those who can afford to be wholly unemployed are likely to be relatively well educated and from relatively prosperous families.

The extent to which the active unemployment rate captures all aspects of a country's employment problem also depends on the extent to which those without work look for it. This will vary between countries, regions and time-periods. There is no point in looking for waged work in an area where, or at a time when, no such work is available. Thus in depressed areas or bad times there may be a hidden labour reserve outside the labour force. Should work become available the number seeking it would increase dramatically.

In principle some of these difficulties can be dealt with by relaxing one or both of the definitional criteria.

Statisticians have already experimented with relaxation of the seeking-work criterion, defining as *inactively unemployed* those who are not working, not seeking work but *available for work*. The practical difficulty here is in defining availability for work in a precise, unambiguous and surveyable way. After all, anyone's availability for work will tend to depend on the kind of work in question, its location and level of remuneration.

Another route towards a more useful definition is that of relaxing the not-working criterion. Anyone working fewer than normal hours while actively seeking additional work could be described as suffering from *active visible underemployment*. By analogy with the discussion of the previous paragraph, if the seeking-work criterion were also relaxed, part-time workers not seeking but available for extra work could presumably be described as the *inactive visibly underemployed*. Care has to be taken with this concept, as the huge estimates of visible underemployment current in some developing countries often include many who are *voluntarily* working shorter than normal hours.

Even trickier is the concept of *invisible underemployment*, which involves relaxing the not-working criterion altogether while retaining the seeking-work criterion, to cover those working a full normal week while desperately looking for a "real" job, thus approximating the second (*recognition*) aspect of underutilisation.

The danger of this concept is that it encourages the use of income criteria in the definition of underemployment. For instance, Hopkins (1983:473) defines as underemployed all those "who do not earn enough to provide either themselves or their families with an adequate standard of living because they are unable to find work of a sufficiently remunerative and productive nature". He estimates the total number of such underemployed in developing countries (excluding China) at 448 million in 1982 (51 per cent of the total labour force), of whom 23 million were in Latin America (an "underemployment rate" of 27 per cent), 11 million in low-income Latin America (29 per cent), 17 million in oil-producing Middle East and Africa (24 per cent), 294 million in Asia excluding China (57 per cent), 27 million in Africa (44 per cent), and 76 million in tropical Africa (91 per cent).

For several reasons it does not seem to be useful to use 'poverty problem' and 'employment problem' as if they were synonymous. Certainly, from the welfare point of view, "an individual's share in income, not employment *per se*, is what ultimately counts" (Rucker 1985:1979). And promoting employment is usually an excellent way of alleviating poverty in a situation in which most of the poor have nothing to sell but their labour.

But poverty is still distinguishable from underutilisation of labour. For one thing, the immediate welfare of the employee is not the only reason for concern about the employment

problem; the waste inherent in the underutilisation of an abundant resource is another. Secondly, income is not the only source of welfare; attitudes towards leisure, pride in work and the extent to which status attaches to a "real job" are also important, among other things. Thirdly, an individual's share in income depends not only on total household income but on arrangements for intra-household distribution. Fourthly, employment is not the only source of income. Profits, interest, rent and transfer payments make it possible for an unemployed person to be rich. All this means that there can be poverty in the absence of an employment problem, and there can be an employment problem at relatively high levels of average income. In the end it seems less confusing to locate the employment problem firmly in the labour market and to subject the poverty problem to separate analysis.

This leaves those looking for a definition and measure of "invisible underemployment" with a difficult problem. Faced with the task of counting the number of people who are dissatisfied with the work that they are doing, to the extent of not regarding it as real employment and using it only as a base for job-seeking, it is tempting to follow the line of the labour statisticians and describe it as "primarily an analytical concept" not amenable to statistical measurement. The best that can probably be done is to use the number of those who report themselves to be seeking work while working to place an upper limit³ on the level and rate of such underemployment.

The pursuit of the third (*production*) aspect of the employment problem has to take a different route. Many economists would deny that it is worth pursuing at all. Two questions raised by this concept of *surplus labour*, removable without any fall in output, which cause particular difficulties, are: how can the possibility of zero marginal productivity of labour be reconciled with the presumption of positive marginal disutility of effort? And why would employers take on additional workers once marginal product had fallen below the wage?

The first worry is based on a misunderstanding of what the concept of surplus labour involves. As Sen showed many years ago (1962:13), zero marginal productivity of *workers* (what is at issue here) does not imply zero marginal productivity of *labour*, as long as the strict *ceteris paribus* assumption is relaxed to the extent that man-hours per worker in agriculture rise after surplus workers have been removed. And, in this case, marginal disutility of effort (presumably equal to the marginal productivity of labour in equilibrium) could be positive also (Sen 1975: 33-35).

The simplest answer to the second question is that the analysis is not intended to be applied to wage labour but to "family employment in peasant communities" (Nurkse 1953:33). In this case the purpose of production is not profit or surplus maximisation but maximisation, or achievement of a given level, of output, and it makes sense to take on extra workers as long as they are either adding to output or reducing the number of man-hours per worker required to produce a given level of output.

So surplus labour is a legitimate concept. But that does not make it easy to measure, as will become obvious in chapter three.

2.1 The blueprint approach

Blueprint employment planners do not usually concern themselves with the subtleties of the nature of the employment problem. They commonly work with the simple concept of "employment", which includes all those who are in the labour force and not unemployed. Using models of varying degrees of sophistication, they project employment and compare it with labour supply; they measure the impact on it of various changes in policy or in

³ Presumably an upper limit, in that not everyone who is seeking work while working will be in this category. On the other hand some who are seeking work may not wish to reveal this to an interviewer.

economic performance; and, on this basis, they advise policy makers about resource allocation and policy to promote employment.

This chapter briefly reviews the main types of models used, including employment projections and manpower forecasts, input-output models, macro-economic models and computable general equilibrium models. The emphasis of the chapter is on critique rather than detailed explanation.

2.2 Productivity-based projections

The simplest of the projection approaches to employment planning is based on the relationship between labour productivity, output and employment.

Labour productivity is usually defined simply as value added, or gross domestic product (GDP), per person employed (rather than per hour worked), as follows.

$$(2.1) \quad P = Y/E$$

where P is labour productivity, Y is GDP, and E is number of persons employed.

Thus, by definition, growth in GDP is the product of growth in the number of persons employed and growth in productivity, as follows.

$$(2.2) \quad (1 + \delta Y) = (1 + \delta E) \cdot (1 + \delta P).$$

It follows, then, that employment growth depends on growth in output and productivity, as in the following equation.

$$(2.3) \quad (1 + \delta E) = (1 + \delta Y)/(1 + \delta P).$$

For practical purposes this reduces to

$$(2.4) \quad \delta E = \delta Y - \delta P.$$

Thus the simplest method of projecting employment growth is to start from an assumption about the likely rate of growth in GDP and make another assumption about productivity growth. From equation (2.4), if an economy grows at an annual rate of 5 per cent per year and productivity grows at 2 per cent, then employment will grow at an annual rate of 3 per cent.

Alternatively, the output and/or productivity changes needed to achieve a given target for employment growth can be calculated from the same equation. Thus, if the target for employment growth in an economy is 3 per cent, and productivity is expected to grow at 2 per cent, then output will need to grow at 5 per cent. Or, with the same employment target, if output is expected to grow at 5 per cent, then productivity must grow at 3 per cent.

2.3 Regressions based on international cross-section data

A more direct route to the same destination is to use international cross-section data to determine the share of employment in each sector in the target year. The data assembled by Zymelman (1982) are still commonly used for this purpose. For instance, Robertson (1991) obtains the following regression results for the manufacturing sector from Zymelman's data on value added (in constant US\$) and employment in 1970.

$$(2.5) \quad \log_n \text{REMG} = -2.135 + .4092 \log_n P \quad (R^2 = .52)$$

$$\quad \quad \quad (-16.3) \quad (4.7)$$

where

$\log_n \text{REMG}$ is logarithm of the share of total employment accounted for by the manufacturing sector;

$\log_n P$ is logarithm of aggregate GDP per worker.

Given assumptions about rates of growth of total GDP and total employment, this and similar equations for other sectors can be used to calculate employment by sector in the target year.

2.4 Employment-elasticity-based projections

A method of projection that uses national rather than international data is based on the assumption of constant employment elasticity, where employment elasticity is defined as the relationship between growth in GDP and growth in employment, as follows.

$$(2.6) \quad \epsilon = \delta E / \delta Y$$

where ϵ is employment elasticity, and δ is rate of growth.

The procedure for estimating employment elasticity, and using it as a basis for projecting employment, is as follows.

- (a) Calculate growth rates for GDP and employment by sector for a period (which may be determined by availability of reliable data) long enough to smooth out year-to-year fluctuations.
- (b) Use these growth rates, in equation (1.5), to calculate employment elasticities by sector.
- (c) Project, or set targets for, growth rates in GDP by sector over the planning period.
- (d) Assuming that employment elasticities will be constant over the projection period⁴, apply them to the assumed growth rates of sectoral GDP, to estimate projected (or targetted) employment by sector.

2.5 Forecasts of manpower requirements

Analogous methods are often used to make disaggregated projections, of an economy's demand for manpower by educational and occupational category, more or less as follows:

- (a) The first step is to disaggregate GDP by sector in the base year.
- (b) Next, the number employed in each occupational category is added to the number of 'vacancies' to give a figure for the stock of workers in that category 'demanded' by each sector in the base year.
- (c) Targets are set for growth of GDP or realistic assumptions are made about likely sectoral growth rates over the planning period.

⁴ Which, as Stavenuiter points out (1986:5), implies that future output growth will be distributed between employment growth and productivity growth in the same proportions as in the past.

- (d) Assumptions are made, on the basis of either past experience or international cross-section regressions, about the likely growth rate of productivity of each occupation in each sector.
- (e) Subtracting these category-specific productivity growth rates from the sectoral GDP growth rates yields a figure for rate of growth of demand for each category due to economic growth.
- (f) The increase in demand due to replacement of (i) non-citizens, (ii) wastage due to death, retirement and other forms of separation from the labour force, and (iii) net emigrants, is then added in, to give the total increase in demand (or demand for new entrants) for each occupational category.
- (g) Finally, on the demand side, the figures for increase in demand by occupational category are converted into figures for increase in demand by educational levels, by means of an occupation/education matrix, reflecting either the actual pattern in the base year or the planner's assumptions about how the educational requirements for each occupation will change over the period.

2.6 Comparisons with labour supply projections

The aggregated increase in employment over the planning period, whether derived from productivity-based projections or employment-elasticity-based projections, is usually compared with the expected increase in labour supply over the same period, derived from demographic projections of the labour force. For this purpose, assumptions have to be made about: (a) the expected rate of growth of population; (b) the proportion of the population that will be of working age; and (c) the proportion of the working age population that will participate in the labour force.

For example, in Indonesia the population in 1999 is officially projected at 211.7 million, of whom 159.0 million (or 75 per cent) between the ages of 10 and 64. If a participation rate of 61 per cent is assumed for this age group, this yields a labour force of 96.8 million in 1999. This compares with a total employment figure of 91.6 million derived from simple projections, implying an unemployment rate in 1999 of 5.4 per cent. For comparison with the more detailed manpower demand forecasts, an estimate is made of the numbers likely to join the labour force over the same period, (a) by educational qualification and (b) by occupation/skill level. A comparison of demand and supply projections then yields estimates of 'shortages' and 'surpluses' over the period.

2.7 Input-output models

A more complex approach to employment planning, but based on essentially similar assumptions, uses input-output models to calculate the direct employment effect of changes in final demand (ie the sum of household consumption, government consumption, private and government investment, and exports), and the indirect effects on employment in input-producing sectors of a final demand change.

An input-output table shows, in a schematic way, all the transactions undertaken in an economy in a specified period. Its columns show the payments made by the production sectors for inputs. These inputs include both primary inputs (labour and capital) and intermediate inputs (materials from other production sectors). The rows show the destination of each production sector's outputs. Outputs are bought, either by production sectors as intermediate inputs ("intermediate demand"), or by households, investors, the government, or customers in foreign countries ("final demand"). Total domestic output can be calculated by deducting imports from the sum of all sectors' final demand and intermediate demand. Table 2.1 shows the structure of an input-output table.

Table 2.1 The structure of an input-output table

		Output	Intermediate demand			Final demand	Imports	Total domestic output
		Production sectors						
Input		1	2	3				
Intermediate input	Production sector	1	X_{11}	X_{12}	X_{13}	F_1	$-M_1$	X_1
		2	X_{21}	X_{22}	X_{23}	F_2	$-M_2$	X_2
		3	X_{31}	X_{32}	X_{33}	F_3	$-M_3$	X_3
Primary inputs			V_1	V_2	V_3			
Total inputs			X_1	X_2	X_3			

Production sector 1 buys intermediate inputs from production sectors 2 and 3 and from within its own sector (x_{11} , x_{21} , x_{31}). It also uses primary inputs (V_1). The payments made for primary inputs constitute the sector's value added. The outputs produced by sector 1 go either to intermediate demand (from other sectors or from within sector 1) or to final demand. Thus, for sector 1, its total domestic output (X_1) is equal to intermediate demand for its outputs ($x_{11} + x_{12} + x_{13}$) plus final demand for its outputs (F_1) minus imports (M_1), and is also equal to its total inputs.

If it is assumed that coefficients of inputs (including labour) to output are fixed, it is possible to use this structure to derive the implications for employment of changes in final demand. Employment effects of such final demand changes can be both direct and indirect. An increase in final demand for a sector's output will have a *direct* impact on the demand for labour to produce that output. The increase in the sector's output will also generate additional *indirect* demand for labour in sectors producing the inputs that it requires. The direct and indirect effects on the demand for labour of changes in final demand can be measured with the aid of an algebraic model and data on production sectors' input structure and the labour intensity of their domestic output.

Stavenuiter (1987:9) presents a useful numerical example of the input-output approach to employment planning, based on Indonesian data. He reduces the number of sectors in the 1980 input-output table from nineteen to three. The first sector (A) consists of agriculture, forestry and fisheries; the second (M) of mining, manufacturing, utilities and construction; and the third (S) of trade, transport and financial, government and other services.

He uses this framework to measure the impact on employment of two developments - a 17 per cent real reduction in budgetted government expenditure over a two-year period (1986/7-1987/8), and a change in the structure of exports (declining slightly in total) between 1980 and 1985.

The projected cut in real government expenditure, by as much as 31 per cent in the case of those parts of government spending that are employment-generating, is found likely to lead to a reduction in demand for labour equivalent to the loss of 2.6 million jobs, much more than could be productively absorbed as a result of projected economic growth. Stavenuiter suggests (p.47) a consequent need for a much more labour-intensive growth strategy.

Even though the real value of exports fell at an annual average rate of 1 per cent over the 1980-85 period, they are found to have generated an increase in employment over the same period at an annual average rate of 6 per cent. This is due to a shift in composition of exports towards goods produced by more labour-intensive methods. This shift occurred not only between categories of exports, from agriculture and mining to manufacturing, but also

within categories, from oil, gas and refinery products to coal and quarrying products in the case of mining, and from metals and electrical equipment to textiles, wood products and processed foods in the case of manufacturing.

Another area suggested by Stavenuiter (p.62) for use of a partial, comparative-statics, input-output approach of this kind is measurement of the impact of changes in pricing, subsidy and tax policies on the level and pattern of household consumer spending and hence on employment.

2.8 Macro-economic models

Apparently more simple than the input-output approach, but in fact deceptively complex, is the use of a macro-economic model for employment planning.

A useful example is the model developed by Jammal (1987) for Indonesia. This assumes an economy consisting of three production sectors (agriculture, non-agriculture and oil), as well as finance, government and foreign sectors. Production sectors are connected to two household sectors (agricultural and non-agricultural) by production functions. Intermediate inputs are determined by the output of the sectors producing them. The model contains forty variables, of which twelve are exogenously determined. Nine behavioural equations are described, including the production functions, the inter-sectoral intermediate input supply functions, export demand functions and a government savings function. Oil exports are assumed to be exogenous, while exports of agricultural and non-agricultural products are assumed to be determined by the real exchange rate of the rupiah relative to the currencies of trading partners.

Jammal uses his model to calculate demand for labour by sector, and presents some sample simulations, including the following two. The first simulation demonstrates the use of the model for long-term projections, over a five-year period with 1983 as the base year. The starting point is a number of assumptions about rates of growth in exogenous variables over the period, as follows: land used for agricultural purposes, 1.4 per cent per year; value added in agriculture, 2.5 per cent; value added in non-agriculture, 4.4 per cent; value added in oil, 0 per cent; Imports, 1.75 per cent; Investment, 3 per cent; oil exports, 0 per cent; exchange rate, 6.5 per cent; and capital inflow, 1 per cent. Given these assumptions and the empirically estimated behavioural equations, the result is an annual average growth rate for the economy over the period of 3 per cent. Dependence on oil as a source of government revenue declines. As a result, government savings drop and private savings make up a larger share of both domestic savings and investment. Productivity in both sectors rises, more rapidly in agriculture. And the composition of exports shifts away from oil towards agriculture and manufacturing. Most important for our purposes, employment grows at an annual rate of 1.3 per cent (1 per cent in agriculture and 1.7 per cent in non-agriculture), implying employment elasticity of 0.43.

The second simulation demonstrates the use of the model for medium-term policy analysis. The impact on employment (and on other variables) of changes (by Rp. 100 billion in each case) in each of seven variables (an increase in agricultural exports, an increase in manufactured exports, an increase in oil exports, a substitution of imports by domestic production, an increase in government savings generated by oil revenues, an increase in government savings generated by non-oil taxes, and an increase in investment) is simulated, one at a time.

The most important aspect of these results for our purposes is that *the multiplier effect on employment is much more significant than the first-stage effect*. Therefore, techniques which ignore the multiplier effect (like the input-output approach discussed above) underestimate the employment impact of policy changes. Moreover, the multiplier effect is

large in sectors other than that initially affected by the policy change. For instance, an increase in agricultural exports has a large multiplier effect on non-agricultural employment, and vice versa. Oil exports have no direct effect on employment but have an impact through the multiplier. This suggests that to put too much emphasis on labour-intensity in a particular sector and the sectors to which it is linked may be misleading.

On the other hand, the effects on employment of these various policy changes, measured in this model, do not go beyond the multiplier effect. For instance, import substitution and manufactured export promotion have identical effects on employment, on these calculations, but this does not take into account the differential effect on competitiveness and subsequent growth of the two policies. Similarly, an increase in investment has a lower impact on employment than export promotion or import substitution, because it involves some substitution of capital for labour, but the impact of this investment on subsequent output and employment is not taken into account.

2.9 Limitations of the blueprint approach

The limitations of the blueprint approaches to employment planning discussed in this chapter may already have become obvious.

All are highly aggregated. Macro models usually contain a fairly small number of sectors for simplicity's sake. The projections approach generally uses only a one-digit classification of sectors. Input-output models often contain a larger number of sectors (the full Indonesian model has sixty-six), but even in this case sectors are not homogeneous as far as input structure and labour intensity are concerned. Stavenuiter (1987:18) points out that, even at the 66-sector level of disaggregation, the wood and wood products sector contains sawn timber and plywood as well as furniture and woven rattan products. Thus, in a simulation, exports of \$1 million worth of sawn timber would show up as having the same output linkage and employment effects as a million dollars' worth of rattan furniture exports, whereas in reality the impacts would be very different.

A weakness common to all of the approaches is the absence of prices of any kind. Both demand for and supply of products or factors of production are implicitly assumed to be unaffected by changes in prices. Both the projections and the input-output approaches work with fixed coefficients. In both, the growth of output, from which all else follows, is exogenous.

In the projections approach, the rate of growth of employment in each of a number of sectors is determined by either the rate of growth of productivity or the employment elasticity in that sector. In the more complex input-output approach the employment impact of a change in output (or final demand) is split into direct and indirect, but the principle is the same.

This is a crude misrepresentation of the direction of causation, which sets up a false conflict between increasing productivity and increasing employment. It leads employment planners to talk about the threat posed to jobs by "too fast" growth in productivity⁵, whereas in practice the process is entirely opposite: productivity growth generates output growth and hence growth in demand for labour. In the real world, with prices and wages, the level of a sector's employment is not determined mechanically by its level of output. Rather, there is a complex interaction between the numbers employed, their average wage, their productivity, the product price, consumers' incomes and tastes, exchange rates, etc. etc.. A

⁵ For instance, in Hungary, "if growth of output is slow, productivity growth rapid and there is no restructuring, the outlook for employment is very poor... In contrast, if output grows faster, productivity only improves slowly and there is some restructuring, then the outlook is considerably better..." (Hare 1993:26).

productivity increase lowers unit labour cost and thereby leads to an increase in employment rather than, as in these simplistic models, a fall.

The macro-modelling approach is slightly less crude in its determination of employment. At least its sectors have production functions, with output dependent on numbers employed rather than the other way round. But it too has no prices and assumes most coefficients to be fixed.

Neither the input-output nor the macro-modelling approach⁶ is comprehensive in its coverage of impacts on employment. The input-output approach excludes the effects of the income multiplier. The macro-modelling approach does not distinguish direct from indirect (backward-linkage) effects. Both approaches ignore dynamic effects. Input-output models do not capture the impact on output and employment of construction of infrastructure or purchase of a piece of equipment. Neither captures the impact on the incentive to invest and hence on future output and employment of an increase in demand. Thus they are incomplete as tools for employment planning.

One of the most serious weaknesses of all three approaches, particularly in developing countries, is that they work with the concept of "employment". As already discussed in Chapter One, in countries without an unemployment benefit system (where only those who can support themselves can afford to be unemployed in the international-definition sense of both not working and seeking work), the total number of employed is supply-determined. A large and varying but indeterminate proportion of those working other than as wage employees⁷ is in distress, working merely to stay alive, while searching or at least being available for a real job. Models which predict or project "employment" say nothing about the demand for labour or about the welfare of the labour force in such circumstances.

2.10 Computable general equilibrium models

Some of these weaknesses could be addressed. The model could be expanded to include prices, wages, interest rates and exchange rates, distinguish between direct and indirect effects of demand changes, incorporate an income multiplier, take account of dynamic effects, distinguish between different types of employment, etc.. In the process the model would move closer to becoming the only type of model with any claim to realism in this field - a computable general equilibrium (CGE) model. As Toye points out (p30), such models, incorporating social accounting matrices (SAMs) have been useful not as blueprint planning models but "for simulating policy changes and picking up the broad social impact of economic policies⁸, which sometimes is not intuitively obvious".

The type of CGE model that would be needed would be one that incorporates a multiplier mechanism. Robinson (1991:1514) describes two broad alternative versions of such a model, both with labour markets that do not clear. In one version firms are assumed to be on their demand curves for labour, but the supply side of the labour market is rationed through unemployment. The (endogenous) real wage is the equilibrating variable: the only way to increase real income is through an increase in employment, and the only way to increase employment is to lower the real wage. In the second version firms are not profit-

⁶ Only the input-output and macro approaches deserve to be called models: simple forecasting is based merely on statistical association.

⁷ And maybe some of the wage employees also.

⁸ Input-output and macro-economic models are, as has already been shown, also used for such simulations, but the incompleteness of their coverage limits the value of their results.

maximisers. They set their output prices as a markup on variable costs, and hire labour (at a nominal wage that is assumed to be fixed) in fixed proportion to output, which is determined by demand.

The presentation of these alternatives gives some idea of the degree of stylisation that is usually embodied in them. For instance, recent models have included the following variants of the above assumptions: in product markets, fully flexible prices in all sectors except the modern sector where there is markup pricing and adjustment by quantities, and, in labour markets, flexible wages for agricultural and informal labour but a downwardly rigid nominal modern wage and an exogenous public-sector wage (Lambert, Schneider, and Suwa, 1991, on Côte d'Ivoire); nominal wages that are sticky in the short run and adjust with a lag to past rates of inflation (de Janvry, Sadoulet and Fargeix, 1991, on Ecuador); labour market segmentation, with sector-specific rather than skill-category-specific wages (Thorbecke, 1991, on Indonesia); and resistance to downward movements in expected real wages in non-agricultural labour markets, with the highest degree of resistance in markets for workers with higher levels of schooling (Demery and Demery, 1991, on Malaysia).

Data availability is a constraint on the extent to which modellers are able to estimate parameters econometrically rather than rely on sweeping assumptions. In most developing countries the statistical situation limits the role that such models can play. As Robinson (1991:1522) comments, "they provide an interesting set of comparative policy laboratories, and the results provide insights about the effect of different policy choices While they inform the policy debate, one should be diffident about using the current models to give explicit policy advice to countries". This does not mean that the development of CGE models should be discouraged. Employment problems, after all, are general-equilibrium problems. Researchers should be encouraged to develop such models. But in most countries they are unlikely to form the core of the work of employment planners.

In their absence, the temptation to indulge in "second-best" modelling should be resisted. Certainly, projections should be avoided, not only because of their methodological weaknesses, but because of their irrelevance to the questions actually being faced by today's policy-makers. Macro-models without prices, also, give very little useful guidance, in return for a lot of work. Input-output models may give some insights into indirect employment effects of various policy changes, but, since such effects are likely to be swamped by multiplier and dynamic effects, they will probably be misleading. The planners who will be most useful in the identification and implementation of effective employment policies are those who know most about what is happening *now* in an economy's labour markets.

3. The labour-force approach to analysis of the structure of the employment problem

In chapter one three aspects of the employment problem were distinguished - the *income*, *recognition* and *production* aspects - and the relationship of the usual measures of underutilisation of labour to these aspects was discussed. These measures included *open or active unemployment*, *inactive unemployment*, *active and inactive visible underemployment*, *invisible underemployment*, and *removable surplus labour*. How useful are labour-force data in the analysis and measurement of these kinds of underutilisation of labour? This question is explored in two stages. First, in this chapter, data from labour force surveys are used to show how far they illuminate the structure of a country's employment problem at a point in

time. Secondly, in Chapter Four, data from a series of such surveys are reviewed for the light that they can throw on changes in the employment problem over time.

The structure of the employment problem is of interest to the policy maker, from the point of view of targeting. Which groups within the population, which regions, are suffering disproportionately from which type of employment problem, and with what policy implications? In some countries, for instance, open unemployment is a problem affecting mainly the younger, more educated, first-time job seekers. This is usually a sign that accurate and up-to-date information is needed (by teachers, trainers, students, parents and employers) to help to speed up the transition from school to labour market. In others, older, unskilled workers are affected more, in which case retraining tied to specific reemployment may be useful.

Underutilisation often has a gender dimension, with women more affected by inactive unemployment and underemployment, suggesting a need to investigate factors affecting the rate and pattern of female participation. Certain ethnic groups may be overrepresented among the unemployed and underemployed, suggesting a need for different types of policy response, depending on whether this reflects primarily discrimination in the labour market or relative lack of education and skills. Large regional variations in the incidence of underutilisation, common in economies which have undergone radical structural change and in those with historically uneven population density, may point to a need for regional programmes to develop demand for labour and/or to improvements in transport and housing systems to encourage movement.

The main categories of underutilisation relevant to the three aspects of the employment problem discussed in Chapter One will now be examined in turn.

3.1 Unemployment and visible underemployment

In principle there are few difficulties in counting those who are not working or working fewer hours than they would like.

(a) Active unemployment

Within this category attention is usually focussed on the actively or openly unemployed. Table 3.1 (from Sri Lanka) is an example of the type of table that is usually available from the published results of a labour force survey.

A simple cross-tabulation of this kind reveals much about patterns of unemployment. In this case, unemployment rates vary inversely with age and directly with level of education, and the highest rates affect those in the labour-force-entry age groups with the two highest levels of educational attainment. High rates persist into the thirties for those with GCE O Level. It is also known, in the Sri Lankan case, that the highest unemployment rates are found among households in above-average income brackets (Alailima 1991:33).

It is useful for policy purposes to have a less aggregated breakdown of unemployment rates. These would usually have to be specially retrieved from survey data files. Tables 3.2 to 3.4 (from Indonesia) are examples of the type of table that can usefully be retrieved in this way⁹. From them can be inferred the whole pattern of active unemployment rates, by sex, age group, level of education, and urban or rural location.

These tables represent the minimum degree of disaggregation in a cross-tabulation by age and education that is needed in order to be able to analyse the structure of active unemployment in some detail. For instance, in this case, Table 3.2 shows a relatively low

⁹ Most government statistical offices do not publish labour force survey results in such a disaggregated form, so it is likely that they will have to be specially retrieved.

national unemployment rate - at 2.6 per cent, well below the rates prevalent in the world's industrialised economies. The reason for this is, as already discussed, that in a country without a comprehensive social security system, few people can afford to be *both* not working *and* seeking work. Partly for this reason, as Table 3.2 also illustrates, unemployment in Indonesia (as in Sri Lanka) is primarily a problem of *better educated youngsters (presumably from richer families) looking for their first job*. Even if the rates for upper secondary school leavers in the 15-19 age group and for higher education graduates in the 20-24 age group are ignored (since virtually none of those in these categories will have completed their education by these ages), the very high rates for recent upper secondary school (SMA) and academy and university graduates are striking. And unemployment among those with primary schooling (SD) or less is virtually negligible.

Tables 3.3, 3.4 and 3.5 are the type of cross-tabulations that are needed to identify differences between genders and between urban and rural areas¹⁰. A comparison of Tables 3.2 and 3.3, for instance, suggests that there is little difference between overall *male* and *female* unemployment rates, although for some categories of educated young women, rates are higher than for men. A comparison of Tables 3.2 and 3.4 shows that unemployment is primarily an *urban* problem. The overall rural unemployment rate is only 1.4 per cent, compared with the urban rate of 7.3 per cent, and 45 per cent of recent urban SMA (general) graduates are unemployed. As can be inferred from a comparison of Tables 3.4 and 3.5, women in this category in urban areas fare particularly badly, with an unemployment rate of over 50 per cent.

Tabulations of this kind draw attention to questions of interest to policy-makers. Research would be needed to clarify the situation but, in both countries covered by the tables, it looks as if open unemployment is primarily a consequence of the disparity between the high rates of output from the middle to upper levels of the education system and the lower rate of increase in the demand for labour in the types of jobs that such educated searchers have been led to expect. The consequent process of *adjustment of expectations* is painful and slower than would be needed for quick entry into economic activity and hence lower unemployment rates. In such a situation the only effective policy response would be to increase the demand for labour or to accelerate the process of adjustment of expectations by providing accurate and up-to-date information about the changing state of the labour market to teachers, trainers, students, parents and employers.

(b) Inactive unemployment

It is arguable, along the lines of the first section of this chapter, that the concept of active unemployment is insufficient to capture the reality of unemployment in a labour-surplus economy. This would certainly be the view of international labour statisticians, who have suggested that "in situations where the conventional means of seeking work are of limited relevance, where the labour market is largely unorganised or of limited scope, where labour absorption is, at the time, inadequate, or where the labour force is largely self-employed, the standard definition of unemployment ... may be applied by relaxing the criterion of seeking work"¹¹.

¹⁰ Given more space, the full set of nine tables could be displayed, i.e.: urban and rural, male and female; urban and rural, male; urban and rural, female; urban, male and female; urban, male; urban, female; rural, male and female; rural, male; rural, female.

¹¹ Resolution of the thirteenth international conference of labour statisticians, Geneva, 1982.

This leads to the concept of "inactive unemployment" which covers those who are not working and, while not actively seeking work, are available for work. As an example of the use of this concept, the Labour Force Survey in Malaysia defines the inactively unemployed as those "who were not looking for work because they believed no work was available, or if available they were not qualified, and those who would have looked for work if they had not been temporarily ill or had it not been for bad weather, and those who were waiting to report for work within thirty days from the date of interview, those waiting for answers to job applications and those who have looked for work prior to the reference week".

The Indonesian labour force survey questionnaire does not go into comparable detail, but it does ask those who deny seeking work whether they would be willing to accept a job if it was offered to them. Those not working and not seeking work who answered "yes" to this question might approximate to the "inactively unemployed". Cross-tabulations similar to those used to analyse the structure of active unemployment are useful in the case of inactive unemployment also. Tables 3.6 to 3.9, accordingly, give examples of average inactive unemployment rates in three Indonesian provinces for which data are available¹²

Inspection of this table and of comparable tables (not shown) for urban and rural males, urban males and females, and urban males suggests that inactive unemployment is only slightly less important than active unemployment, but with a rather different pattern of incidence¹³, with over-representation of women in urban areas. Such information directs policy-makers' attention towards an analysis of the causes of inactive unemployment, and whether the constraints are on the supply side (e.g. limited or intermittent availability) or the demand side (e.g. gender stereotyping by employers).

The kind of information that can be obtained from a labour force survey about ethnic incidence of unemployment is illustrated by an example from Hungary (from Kertesi 1994). In September-November 1993, the inactive unemployment rate in the gypsy community there was 43 per cent, compared with 13 per cent for non-gypsies. At the same time the survey revealed the following contrasts between gypsies and non-gypsies in the labour force.

As can be seen, gypsy labour-force-members are heavily overrepresented in categories which are at a disadvantage in the labour market: males, the young, the old, the unschooled and less educated, and those living in communities with high local unemployment rates. All these categories, regardless of ethnic origin, have a tendency towards higher than average unemployment rates. Kertesi isolates the contribution of ethnic origin to the probability of being unemployed by means of a logit model. He finds that only about a half, at the most, of the difference in predicted unemployment rates between gypsies and non-gypsies can be explained by their characteristics (including those listed in Table 3.7). He finds it hard to avoid the conclusion that the large residuals are a sign of some kind of discrimination on the part of employers. Analysis of this kind directs attention towards two types of policy: breaking the vicious circle of early dropout from school by gypsy children, consequent confinement in adulthood to unskilled activities, unemployment and low incomes, further reinforcing the tendency to early dropout in the next generation; and combatting discrimination on the demand side.

¹² The provinces are Aceh and North and West Sumatra. Ambiguities in the wording of the questionnaire led to zero returns in other provinces.

¹³ Assuming that the situation in the three provinces is representative of the national situation.

(c) Visible underemployment

If underemployment is defined, as it often is, as working less than 35 hours per week, it tends to yield staggeringly high estimates of underemployment rates in developing countries. On this basis, for instance, the overall rate in Indonesia in 1986 was 40 per cent (of the labour force), with a range from 15 per cent for urban men to 31 per cent (urban women), 34 per cent (rural men) and 61 per cent (rural women).

The trouble is that this definition of underemployment ignores the question of whether or not those who are working short hours are doing so *involuntarily*. Further cross-tabulations, similar to those used so far, are needed to clarify the situation. Table 3.8 accordingly gives examples of *active* visible underemployment (i.e. working less than 35 hours a week and actively seeking work) rates by age, education, sex and location.

This table suggests that, at least in the Indonesian case, the number of part-time workers who are *looking for more work* is tiny. The active visible underemployment rate (defined here as a percentage of the total number of workers) is only 1.2 per cent for the country as a whole. More detailed cross-tabulations (not reproduced here) show that the rate is higher in rural than in urban areas and higher for males than for females. Also, though to a lesser extent than in the case of unemployment, it tends to be higher for the younger and better educated than for the older and less well educated.

As discussed earlier in the chapter, the definition of visible underemployment can be extended to include those working few hours who are not actively seeking more work but who are available for it should the opportunity arise - the so-called *inactive visibly underemployed*. Similar cross-tabulations could be constructed to analyse the scale and incidence of this condition also.

In general, tabulations of this kind draw attention to the danger of misspecifying the nature of the employment problem in a developing country. If it were the case that a high proportion of those working less than 35 hours a week would like more work, this would direct attention to a huge hidden labour reserve, particularly in rural areas. However, if this primarily reflects the way that work is voluntarily organised in sectors that offer relatively low incomes but few hours of work per week, this could be a false conclusion.

3.2 Invisible underemployment

Another refuge for those who cannot afford to be unemployed is to work normal or near-normal hours, but merely in order to keep alive while vigorously searching for a "real job" which would more fully utilise their capacities. People in this category will not be counted as unemployed on the standard definition since, although they are seeking work, they are working. We have described them as the *invisible underemployed*.

Similar cross-tabulations are useful in this case also. Tables 3.9 summarises Indonesian labour force survey data on those who are seeking work while working 35 hours or more weekly, by age, sex and educational attainment. These numbers, as has already been suggested, presumably put an upper limit on the level and rate of invisible underemployment.

As can be seen, in the Indonesian case the numbers involved are fairly small (1.1 per cent of the workforce). The usual range of cross-tabulations shows that full-time working as a base for job-seeking seems to be more popular in all sectors with males, particularly in urban areas, than with females (whose main refuge from active unemployment may be withdrawal from the labour force as conventionally defined into inactive unemployment, discussed above). The younger and more educated are overrepresented among the invisible underemployed, but not to the same extent as they are among the unemployed. Labour force data should also make it possible to classify the invisible underemployed by the sector in

which they work. In the Indonesian case the highest rates are found in the services sector, but among urban males the highest rate is in the trade sector (2.2 per cent).

Although the numbers and rates are small in this particular case, this is an interesting measure which can alert the policy-maker to dissatisfaction among those who are ostensibly working but actually looking for a job.

3.3 Surplus labour

Aside from the question of whether there is an excess supply of labour in the market, in the form of unemployed or underemployed people who are ready to respond to new employment opportunities as they emerge, there is the question of whether some sectors simply have "too many" workers in relation to the number technically required to produce current levels of output. The policy implication here is that, if there is surplus labour of this kind, it represents a hidden saving potential, in the sense that surplus people could be removed from their present activity without affecting output and put to work on developmental projects of various kinds.

(a) In agriculture

The usual approach to measurement of such surplus labour, in the case of agriculture, is broadly as follows. The removable agricultural labour surplus (in man-hours) is defined as the difference between *labour available* and *labour required*; where *labour available* consists of the total agricultural population, less those too old or too young to work, housewives (or househusbands), students, prisoners, etc., *multiplied* by the number of full working days available for agriculture in the period (allowing for days off on weekly restdays and national holidays!), *multiplied again* by the number of hours per day normally worked; and *labour required* to produce a given agricultural output is calculated by applying labour coefficients to output or acreage figures.

The main problem with an exercise of this kind concerns the norms on which it is based. However typical the "typical" hectare that is chosen as the basis for calculating labour coefficients, variations from it in crop mix, land quality, farm size, agro-climatic zone, technology, system etc will greatly affect demand for labour per hectare on individual farms and thus in the aggregate. An alternative approach (based on Mehra 1966), which avoids the need to set technical norms, essentially compares the use of labour on farms which employ wage labour with its use on farms which do not. The basis of the method is the assumption that farms which employ wage workers do not have any surplus family workers available (otherwise they would not need to employ wage labour). So if family farms are using more workers per hectare than wage-labour farms (similar in every other respect) they are using more than they need. The assumption (as with Sen) is that surplus labour in agriculture takes the form *not* of the expenditure of more man-hours or man-days than necessary but of the spreading of the necessary number of man-hours or days more thinly than necessary over the number of family workers that is available.

In formal terms, the amount of surplus labour in a family farm of a given type (i.e. given size, crop mix, agro-climatic zone, fertilizer use, irrigation type etc.) will be calculated as follows.

Since wage-employing farms have no surplus labour,

$$R_w = N_w$$

where

R_w is the required number of workers per hectare in farms employing wage labour;
 N_w is the number of workers actually employed in farms employing wage labour.

The number of workers required on a family farm is the number that they would use if their workers worked the same number of hours per day as workers on wage employing farms of a similar type. i.e.

$$\text{if } \frac{L_f}{R_f} = \frac{L_w}{N_w}$$

where

L_f is total number of man-hours of labour expended per hectare per year on family farms;
 R_f is the required number of workers per hectare on family farms;
 L_w is total number of man-hours of labour expended per hectare per year on farms employing wage labour;

then

$$R_f = N_w \left[\frac{L_f}{L_w} \right]$$

and

$$S_f = N_f - R_f = N_f - N_w \left[\frac{L_f}{L_w} \right]$$

where

S_f is the number of surplus workers per hectare in family farms.

In practice, attempts to use labour force survey data to measure the removable agricultural labour surplus are usually rather crude. For instance, Lluch and Mazumdar (World Bank 1985:137) report on an attempt to calculate the extent of Java's labour surplus around 1971, similar to exercises carried out in several other countries, on the basis of land and labour utilisation data. The demand for labour on a "typical" hectare is estimated as follows. 40 per cent of the land is assumed to be *sawah* (flooded rice land), 40 per cent *tegal* (arable land) and 20 per cent under tree crops. The *sawah* and *tegal* are assumed to have 200 per cent cropping intensity. All *tegal* is double cropped with dry field crops; dry season *sawah* is half utilised for irrigated rice and half for rice field. Tree crops are worked throughout the year. The labour input coefficients are : for wet rice, 200 man-days per hectare; for dry field crops, 180 man-days per hectare; and for tree crops, 120 man-days per hectare. The demand for labour services is then calculated, on this basis, at 186 man-days for *sawah*, 144 man-days for *tegal* and 120 man-days for tree crops, a total of 450 man-days. This compares on the supply side with a conservative estimate of full employment labour input in agricultural activity of 540 man-days per hectare (i.e. three workers per hectare available for 180 days each per year). Thus demand for labour falls short of full employment supply in agriculture by about 20 per cent.

being household- rather than establishment-based, do not lend themselves to this purpose. Such surveys collect data about the activities of household members, not about the unit of economic activity. However, a comparison of average hours worked in agriculture by self-employed and family workers with those worked by wage-earners may be of interest. Table 3.10 shows such a comparison for Indonesia.

Care is needed in interpreting a table of this kind. It shows that, on average, hours worked in agriculture by self-employed and family workers for whom it is the sector of primary activity are considerably shorter than those worked by comparable wage-earners. The 13.3% rate of "surplus labour" shown in column (8) for the whole of Indonesia means merely that, if work in the sector were reorganised to allow self-employed and family workers the same average working week as wage-earners, the sector could get by with a workforce that was 13.3 per cent smaller than at present.

However, one of many assumptions underlying such a method of measuring surplus labour is that both categories of workers give priority to their sector of primary activity in allocating their labour, only working outside agriculture if further agricultural work is unprofitable or unobtainable. This makes comparisons between different regions particularly difficult to interpret. For instance, Table 3.10 suggests, surprisingly, that the rate of surplus labour is slightly lower in densely populated Java/Bali (and much lower in West Java) than in the outer islands. However, this may reflect the greater availability to agricultural wage-earners in Java/Bali (and West Java in particular) of lucrative non-agricultural income-earning activities, limiting their time available for agricultural wage work, rather than any tendency towards labour shortage on family farms there.

Thus the picture drawn by the labour force survey data in Table 3.10 of shorter average hours worked in agriculture by self-employed and family workers than by wage-earners is consistent with the existence of surplus labour but is also consistent with other hypotheses. Farm-level data would be needed to clarify the situation further.

(b) Outside agriculture

Agriculture is not the only sector that has to act as a "sponge" and absorb surplus labour when the labour market deteriorates. Any sector for which entry is easy and capital requirements modest can perform this function. Petty trade, services and cottage industry may be the prime examples. In these cases, in contrast to agriculture, an inflow of new entrants, mainly as self-employed or unpaid family workers, will tend not to drive down the numbers of hours worked by each worker (partly because working often includes waiting or looking for customers). Average income is likely to be depressed, however, and productivity at the margin in these overcrowded sectors to be very low.

It would be difficult to devise a practical method of measuring the extent of surplus labour in such sectors. A large number of pedicab drivers waiting for passengers at some times of day or of scavengers working a particular district is not necessarily a sign that "output" would be unchanged, and consumers equally well off, if the number were smaller. In the case of petty trading, by analogy with the method discussed for agriculture, a comparison of enterprises employing wage labour and those using only family labour could be attempted. The symptom of surplus labour in this case would be not a smaller number of working hours per worker in family firms but a larger number of workers in relation both to the number and spending power of customers and to the stock of goods held by traders. So far, however, survey data that would enable such a comparison to be made are not available, and, in general, it is difficult to see how the usual labour-force-survey measures of underutilisation can be of much use for monitoring the situation in this sector.

Statistical Appendix to Chapter 3

Table 3.1 Active unemployment rate by age and education, Sri Lanka, fourth quarter, 1993

	Total	No schooling	Grades 0-4	Grades 5-9	GCE O level/ NCGE	GCE A level+
All ages	14%	4%	5%	12%	22%	24%
15-19 yrs	33%	14%	35%	30%	48%	-
20-24 yrs	34%	0%	26%	22%	50%	59%
25-29 yrs	17%	11%	0%	14%	26%	29%
30-34 yrs	12%	2%	4%	8%	29%	10%
35-39 yrs	4%	8%	4%	3%	3%	6%
40-44 yrs	5%	0%	0%	4%	14%	4%
45-49 yrs	4%	0%	1%	7%	3%	5%
50-54 yrs	2%	0%	0%	0%	0%	42%
55-59 yrs	2%	0%	0%	0%	0%	17%
60+ yrs	1%	4%	0%	1%	0%	0%

Note: These figures exclude Northern and Eastern Provinces.

Source: Labour Force Survey.

Table 3.2 Active unemployment rates by education & age group, Indonesia, urban and rural, male and female, 1986

Age Group	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50+	Total
Education										
None	2.0	0.7	1.3	1.4	0.4	0.4	0.3	0.4	0.2	0.4
Some primary	1.0	2.6	2.0	1.0	0.4	0.4	0.3	0.3	0.9	0.9
SD	1.7	4.4	3.1	0.9	0.6	0.7	0.6	0.4	0.7	1.7
SMP (Gen)	0.0	9.8	12.6	4.6	1.7	1.3	1.0	1.5	1.1	5.8
SMP (Voc)	0.0	15.6	12.5	3.0	2.5	1.1	0.3	1.3	0.6	4.2
SMA (Gen)	-	49.8	38.3	9.9	1.5	0.5	0.1	0.6	0.0	17.7
SMA (Voc)	-	31.5	25.9	7.2	2.3	0.5	0.6	0.6	0.0	9.5
Diploma I/II	-	0.0	13.0	7.0	0.0	4.0	1.0	0.0	0.0	4.9
Acad/Dep III	-	-	44.0	15.7	1.9	0.0	0.0	0.0	0.0	7.7
University	-	-	60.8	28.6	7.4	0.0	0.0	0.0	0.0	9.4
Total	1.3	5.9	10.2	2.7	0.9	0.6	0.5	0.4	0.3	2.6

Note on Indonesian educational categories: SD is the primary-school leaving certificate; SMP is the lower-secondary school leaving certificate; Gen is general, or academic; Voc is vocational; SMA is the upper-secondary school leaving certificate; Diploma I/II and Acad(emy)/Dip III are ascending levels of post-school, pre-university qualifications.

Table 3.3 Active unemployment rates by education and age group, Indonesia, urban and rural, male, 1986

Age Group	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50+	Total
Education										
None	0.7%	0.0%	1.2	2.1	0.2	0.3	0.3	0.0	0.1	0.3
Some primary	0.8%	2.8%	2.4	1.1	0.5	0.4	0.3	0.3	0.4	0.8
SD	1.1%	4.5	3.4	1.0	0.6	0.4	0.6	0.4	0.7	1.6
SMP(Gen)	0.0%	8.3	11.5	3.5	1.4	0.8	1.0	1.8	1.2	4.7
SMP(Voc)	0.0%	15.4	8.4	3.1	2.4	0.8	0.0	1.4	0.8	3.2
SMA(Gen)	-	47.8	35.9	8.2	1.5	0.6	0.1	0.6	0.0	14.4
SMA(Voc)	-	29.5	28.2	7.7	2.0	0.5	0.9	0.7	0.0	0.1
Diploma I/II	-	0.0	9.4	8.0	0.0	5.3	0.0	0.0	0.0	4.0
Acad/Dip III	-	-	30.0	16.9	2.4	0.0	0.0	0.0	0.0	5.6
University	-	-	54.4	28.0	8.5	0.0	0.0	0.0	0.0	7.7
Total	0.9	5.9	11.0	2.8	0.9	0.5	0.4	0.4	0.4	2.6

Table 3.4. Active unemployment rates by education and age group, Indonesia, urban, male and female, 1986

Age Group	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50+	Total
Education										
None	0.0%	1.0%	2.9	8.0	0.0	0.0	2.2	1.9	0.3	1.2
Some primary	7.7%	7.8%	7.2	3.1	0.8	1.3	1.0	1.5	0.8	2.7
SD	5.1%	13.6	9.7	3.1	1.9	1.4	1.5	1.2	2.0	4.3
SMP(Gen)	0.0%	20.8	21.5	7.3	2.0	1.5	1.1	2.4	1.7	8.1
SMP(Voc)	-	23.3	23.7	4.7	5.2	1.5	0.0	3.0	0.0	5.7
SMA(Gen)	-	68.8	44.6	10.2	1.5	0.2	0.0	0.9	0.0	18.9
SMA(Voc)	-	43.1	31.5	10.6	3.6	0.9	1.2	1.2	0.1	12.1
Diploma I/II	-	0.0	18.0	7.9	0.0	7.1	2.0	0.0	0.0	6.0
Acad/Dip III	-	-	50.3	12.8	2.5	0.0	0.0	0.0	7.8	7.8
University	-	-	80.8	26.4	8.1	0.0	20.0	0.0	9.6	9.6
Total	4.1		25.5	7.0	2.1	1.1	1.1	1.5	0.9	7.3

Table 3.5. Active unemployment rates by education and age group, Indonesia, urban, male, 1986

Age Group	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50+	Total
Education										
None	0.0%	0.0	1.4	12.3	0.0	0.0	3.6	0.4	0.1	1.2
Some primary	3.7%	11.2	9.2	4.4	0.8	2.0	1.0	1.2	0.9	3.0
SD	5.1%	16.2	12.2	3.6	1.8	1.0	1.6	1.2	2.1	4.2
SMP(Gen)	0.0%	20.4	20.3	5.3	1.8	0.8	1.5	2.8	2.0	6.8
SMP(Voc)	-	20.5	20.4	5.2	4.6	2.0	0.0	3.5	0.0	5.2
SMA(Gen)	-	67.9	41.5	8.7	1.5	0.2	0.0	0.8	0.0	14.8
SMA(Voc)	-	49.6	35.7	11.5	3.0	1.1	1.6	1.7	0.1	12.2
Diploma I/II	-	-	10.4	8.2	0.0	8.6	0.0	0.0	0.0	4.1
Acad/Dip III	-	-	18.2	15.1	3.3	0.0	0.0	0.0	0.0	6.4
University	-	-	73.0	25.6	9.2	0.0	0.0	0.0	0.0	7.5
Total	4.1	21.2	26.1	7.1	2.1	1.0	1.1	1.4	1.1	6.9

Table 3.6. Inactive unemployment rates by education and age group, three Indonesian Provinces, urban and rural, male and female, 1986

Age Group	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50+	Total
Education										
None	-	-	2.1	2.0	1.3	1.9	-	1.0	0.2	0.6
Some primary	6.1	3.5	2.9	3.4	1.6	1.2	1.2	0.7	0.3	2.0
SD	7.1	3.9	2.4	1.6	1.1	0.8	0.5	0.2	0.2	1.7
SMP(Gen)	-	7.4	5.3	2.2	2.4	0.8	0.8	-	-	3.5
SMP(Voc)	-	8.8	12.2	-	-	-	-	3.0	-	2.6
SMA(Gen)	-	2.7	9.2	2.4	0.4	-	3.1	-	-	4.2
SMA(Voc)	-	19.7	2.7	1.2	1.6	2.1	-	-	-	1.8
Diploma I/II	-	-	-	-	-	-	-	-	-	-
Acad/Dip III	-	-	-	-	-	-	-	-	-	-
University	-	-	-	-	-	-	-	-	-	-
Total	6.4	4.8	4.3	2.0	1.4	1.0	0.8	0.5	0.2	2.1

Table 3.7. Characteristics of labour force members, by ethnic group, Hungary, September-November 1993

	Gypsy	Non-Gypsy
Inactive Unemployment Rate (%)	43	13
Males as % of Total	63	54
15-24 Age Group as % of Total	26	15
54-74 Age Group as % of Total	36	7
No Schooling as % of Total	2	0
Primary Classes 1-7 as % of Total	19	2
Primary Class 8 as % of Total	49	26
Completed Vocational School as % of Total	19	29
Completed Secondary School as % of Total	9	29
Completed Higher Education as % of Total	3	14
In Location with Unemployment Rate Lower than 10 %, as % of Total	23	46
In Location with Unemployment Rate between 10 and 20 %, as % of Total	50	46
In Location with Unemployment Rate over 20 %, as % of Total	28	8

Source: Kertesi (1994:Table 7).

Table 3.8: Rates of active visible underemployment by age and education, Indonesia, urban and rural, male and female, 1986

Age-group	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50+	Total
Education:										
No schooling	0.3	1.0	0.9	1.2	1.0	1.1	0.4	0.7	0.3	0.6
Some primary	0.6	1.8	1.7	1.1	0.7	1.0	0.6	0.4	0.3	0.8
SD	1.6	2.5	1.7	0.9	0.6	1.0	0.7	0.5	0.2	1.2
SMP (Gen)	-	4.8	3.7	1.7	0.7	0.6	0.3	0.9	-	2.1
SMP (Voc)	-	4.4	5.2	4.2	-	1.3	0.7	2.5	0.3	2.2
SMA (Gen)	-	14.3	10.4	2.1	0.1	0.3	0.9	-	-	3.7
SMA (Voc)	-	16.3	9.5	2.0	0.1	-	-	0.3	0.6	2.9
Diploma I/II	-	31.0	1.2	2.3	0.4	-	-	-	-	0.9
Acad/Dip III	-	-	6.3	2.9	1.7	1.3	-	-	-	1.5
University	-	-	11.4	3.9	0.7	1.3	-	-	-	1.2
All levels	0.9	2.8	3.2	1.3	0.7	0.9	0.5	0.6	0.3	1.2

Table 3.9. Rates of invisible underemployment by age and education, Indonesia, urban and rural, male and female, 1986

Age group	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50+	Total
Education:										
No schooling	0.7	0.7	1.4	1.3	0.9	0.7	0.3	0.4	0.2	0.5
Some primary	0.2	1.1	1.1	1.3	1.0	0.5	0.5	0.3	0.3	0.7
SD	0.6	1.8	1.9	1.5	1.1	1.0	0.9	0.9	0.2	1.3
SMP (Gen)	-	1.5	3.5	3.1	2.5	1.0	0.9	0.1	0.5	2.0
SMP (Voc)	-	3.1	5.5	3.4	2.1	0.5	0.4	2.5	1.9	2.2
SMA (Gen)	-	8.6	7.2	2.9	1.9	0.8	0.2	0.2	0.7	3.2
SMA (Voc)	-	4.1	6.0	2.4	0.9	1.0	0.3	0.3	0.6	2.3
Diploma I/II	-	-	7.3	1.2	-	-	-	-	-	1.5
Acad/Dip III	-	-	4.4	2.2	1.9	1.3	-	-	-	1.3
University	-	-	-	5.4	-	1.6	-	0.3	-	1.2
All levels	0.4	1.6	2.6	1.7	1.2	0.8	0.6	0.4	0.3	1.1

Table 3.10. Indicators of "surplus labour" in Indonesian agriculture, 1986.

	Self-employed & family workers*			Wage-earners*		"Surplus Labour"		
	(1) Number (mn)	(2) Av.hrs. per week	(3) Total hrs. per week	(4) Number (mn)	(5) Av.hrs. per week	(6) Total hrs. per week	(7) Number (mn) (1)- (3/5)	(8) Rate (7)/(1)(%)
All Indon.M+F	23.9	31	1036.4	3.5	35	124.3	4.5	13.3
All Indon.M	20.5	34	704.1	2.0	39	80.1	2.7	13.0
Java/Vali.M+F	18.3	30	551.5	2.9	34	100.4	2.2	12.2
Java/Bali.M	11.3	34	386.1	1.6	39	63.6	1.3	11.6
W.Java.M+F	4.2	30	128.1	0.9	32	30.5	0.3	6.5
C.Java.M+F	2.6	34	89.8	0.5	38	19.2	0.2	8.3
C.Java.M	5.5	30	166.5	0.8	35	28.2	0.7	12.2
E.Java.M+F	3.4	35	117.3	0.4	40	17.6	0.4	12.0
E.Java.M	7.1	30	211.7	1.1	35	38.8	1.1	14.9
	4.4	34	150.8	0.6	39	25.1	0.5	12.4

* For whom agriculture is the sector of primary activity.

Source: Labour Force Survey, Indonesia.

4. The labour-force approach to analysis of changes over time

Our discussion so far has exposed the limitations of a labour-force approach to analysis of the scale and structure of the employment problem in a developing economy. When *time* enters the analysis, matters become even more difficult.

Information about trends over time is needed for two purposes: (a) to identify problems; (b) to help to monitor the impact of policy measures implemented to deal with problems. Thus, a fall in the rate of increase of employment, or an increase in the rate of unemployment, in the economy as a whole, among a particular group, or in a particular region, may draw attention to a need for policy action. Once such action has been taken (whether a price change, such as a devaluation, an institutional reform or a special programme) its impact on the rate of growth of employment and on the unemployment rate can be monitored.

4.1 Some problems with the approach

In practice, there can be statistical difficulties in comparing one year's survey results with another's. There are sometimes differences between years in definitions, time reference periods, data collection procedures, comprehensiveness of questionnaires, sample sizes and the seasons in which data were collected. Even minor changes in questions, methods and concepts from one survey to the next (often arising from attempts to improve accuracy) introduce "noise" into the time series which makes it difficult for an analyst to distinguish the underlying signal.

For instance, in Sri Lanka there is no internally consistent series of labour force indicators for recent years. This is only partly because the civil war has prevented enumeration of the labour force in the Northern and Eastern Provinces since the first quarter of 1990 (and Table 4.1 below is therefore confined to the remaining provinces).

Table 4.1. Sri Lanka, labour force indicators, 1990 - 1993

	1990	1991	1992	1993	Rate of change 1990-1993
Population 10 yrs + ('000)	11463	11796	12059	12278	2.3%
Labour Force ('000)	6026	5878	5808	6032	0.0%
Participation Rate	53%	50%	48%	49%	
Employment ('000)	5067	5016	4962	5201	0.9%
of whom: female ('000)	1668	1601	1445	1579	-1.8%
Unemployment ('000)	960	862	846	831	-4.7%
Unemployment Rate	16%	15%	15%	14%	

Note: These figures exclude Northern and Eastern Provinces. Figures for 1990 have been adjusted for geographical comparability.

Source: Department of Census and Statistics, Labour Force Surveys.

If Table 4.1 is to be believed, the labour force in the seven provinces covered by the survey has been stagnant over the past four years, with hardly any increase in employment (a fall in the case of women) and a significant fall in the participation rate. But growth of real GDP (at a rate of 6 per cent annually over this period), and particularly of labour-intensive sectors such as factory industry, construction, trade and tourism, and banking, insurance and real estate, has been fast. Many of the new sectors are likely to have a disproportionate demand for female labour. These labour force indicators do not make sense. The problem lies in increasing underenumeration, arising from the fact that the survey is a household survey, and "household" is defined to exclude those who live in barracks, dormitories or boarding houses, such as the armed forces and (more serious for the purposes of this analysis) the employees of many of the new factories, especially those in Free Trade Zones and some hotels and construction firms. The growth rate of employment and hence of the labour force is likely to have been much higher than that shown in Table 4.1. Wage employment (the more useful measure for labour market analysis), while stagnant in 1990-92, rose to 3.3 million in 1993, according to the survey. This implies an annual average rate of increase in wage employment over the whole 1990-93 period of 5.2 per cent; this, too, is likely to be a significant underestimate.

This means that the Labour Force Survey figures are not only of little use as a guide to overall trends, but also that the figures on trends in sectoral distribution shown in Table 4.2 are likely to be misleading. In particular, the shares of manufacturing, which is shown as stagnant or declining, and of trade and tourism, look to be substantially and increasingly understated.

Table 4.2. Sri Lanka: Sectoral distribution of employed population, 1990-93 (% of total)

	1990	1991	1992	1993
Agriculture, forestry & fishing	47.1	42.5	42.1	38.5
Mining & quarrying	1.8	1.1	1.6	2.2
Manufacturing	13.6	15.0	13.1	13.2
Construction	3.7	4.7	4.8	4.9
Electricity, gas etc.	0.5	0.4	0.4	0.6
Transport, storage etc.	4.1	4.1	4.4	4.1
Trade & hotels etc	9.3	10.8	11.3	11.0
Banking, insurance & real estate	1.1	1.9	1.5	1.4
Services nec	15.9	14.8	16.9	20.9
Not specified	2.9	4.7	3.9	3.2
All sectors	100.0	100.0	100.0	100.0

Note: These figures exclude Northern and Eastern Provinces.
Source: As for Table 4.1.

Similarly, in the case of Indonesia, Korns (1987) draws attention to the sensitivity of the classification of unpaid family workers to the specification of questions on this topic and the procedures for asking them. Another reflection of these problems, discussed by Cremer

(1989), is the fluctuations from year to year in the number classified as "other" non-participants.

Statistical problems of this kind make it difficult to interpret basic labour-force series such as those shown in Table 4.3.

Table 4.3. Population 10 years and over, by kind of activity during previous week, 1982 - 1993

(per cent of total)	1982	1986	1988	1990	1991	1992	1993
Labour force	54.0	57.3	57.6	57.3	57.1	57.3	56.6
of whom:							
Working	52.3	55.8	56.0	55.9	55.7	55.8	55.1
of whom:							
employer/self-emp	10.6	12.2	11.8	11.4	10.7	11.7	12.0
self-emp + helper	12.3	12.9	12.9	13.2	12.8	13.0	12.5
employee	17.3	14.4	14.5	15.5	16.3	16.4	17.0
family worker	12.1	16.3	16.8	15.7	14.9	14.8	13.6
Job Seeking	1.6	1.5	1.6	1.4	1.5	1.6	1.6
Not in labour force	46.0	42.7	42.4	42.7	42.9	42.7	43.4
of whom:							
at school	20.5	21.5	22.1	21.1	20.5	20.3	20.5
housekeeping	18.5	14.4	13.4	14.8	15.4	15.2	15.4
other	7.0	6.8	6.8	6.8	7.0	7.2	7.4
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Total (million)	110.4	122.6	129.4	135.7	137.3	140.8	143.8
Unemployment rate	3.0%	2.6%	2.8%	2.5%	2.6%	2.7%	2.8%

Source: Labour Force Survey, Indonesia.

At face value these particular figures suggest: a steep increase in the labour force participation ratio in 1982-88 and a slight fall since then; a rise in the employer/self-employed category as a proportion of the total 10-years-and-older population in 1982-88 and a slight fall since then; a similar trend in the case of unpaid family workers, though with a steeper fall since 1988; an opposite trend in the case of wage employees, with the proportion falling in the earlier period and then rising strongly; and, among the non-participants, an increase in the proportion of the population in school in 1982-88 and a slight fall since then, and an opposite trend in the proportion of housekeepers.

The problems of statistical noise already referred to make it difficult to know what to make of these contradictory trends. Even in their absence, the weakness of the employment and unemployment concepts (already discussed in chapter two) would reduce the analytical value of such series. The unemployment rate, it will be noticed, remains virtually unchanged throughout the 1982-1993 period, at between 2½ and 3 per cent. In an economy without a comprehensive unemployment benefit system, as already emphasised, the unemployment rate

does not reflect changes in the labour market situation, and is of no value as an indicator¹⁴. In such an economy those who would otherwise have become unemployed in a downturn swell the ranks of the self-employed and family workers or drop out of the labour force by remaining in school or reverting to housekeeping. *In such an economy the concepts of employment and unemployment should never be used by a labour economist interested in analysing changes over time.*

The only relatively robust labour-force series in such circumstances is *wage employment* and it is worth collecting and analysing information about this. For example, Table 4.4 shows the illuminating differences in trends in total and in wage employment in the case of Indonesia over a ten-year period.

As can be seen, total employment grew at around the same rate as the labour force during the 1980s, but wage employment grew much faster, at an annual rate of 6 per cent, with manufacturing, construction and trade the most dynamic of the larger sectors. Female wage employment grew significantly faster than male - at an annual average rate of 7½ per cent - particularly in manufacturing.

The relationship between labour-force/total-employment growth and wage-employment growth may help to distinguish between dynamic and stagnant labour markets. For instance, over the same period, in which Indonesia's labour force and total employment grew at annual rate of 3.5 per cent while its wage employment grew at 6 per cent, the comparable rates in the Philippines were 3.2 per cent for labour force, 2.8 per cent for total employment and only 3.6 per cent for wage employment. Even female wage employment grew at only 3.8 per cent per year, not much faster than the female labour force.

Wage employment series should be disaggregated as much as is necessary for policy purposes, not only by sector, public/private and gender, but if possible also by education/skill level, age, location (urban/rural) and ownership of enterprise.

4.2. Conclusion on the limits of a labour-force approach

The conclusion of these two chapters, on a labour force approach to analysis and monitoring of the employment problem in a developing economy, is *not* that it is completely useless. On the contrary, it has been found to throw some light on the nature and structure of that problem.

Thus, in the illustrative case of Indonesia, the *actively unemployed* have been shown to represent a small percentage of the labour force, and those mostly young upper-secondary-school and higher-education-institution graduates looking for their first jobs in urban areas. "Seeking work" is a relatively easy criterion to define, and its application suggests that both the *active visibly underemployed* (involuntarily working less than 35 hours a week) and the *invisibly underemployed* (working and seeking work) are fewer in number than might have been expected.

¹⁴ Even in an economy with a comprehensive benefit system the unemployment rate can be a misleading indicator. The extent to which someone who is seeking work can afford to refrain completely from work will depend partly on the generosity of the unemployment benefit system, as it affects both the level of benefit and the terms of access to it. Many governments have found that they can reduce the numbers on their unemployment register by tightening up on benefit. Even in such an economy, the extent to which those without work look for it will also vary. There is no point in looking for waged work in an area where, or at a time when, no such work is available. Thus in depressed areas or bad times there may be a hidden labour reserve of discouraged workers outside the labour force. Should work become available the number seeking it would increase dramatically.

Table 4.4. Employment by sector and employment status, 1980 and 1990

	Total Employment			Wage Employment		
	1980	1990	change	1980	1990	change
	('000)	('000)	p.a.	('000)	('000)	p.a.
Agriculture	28,040	35,931	2.5%	4,359	5,578	2.5%
Mining	369	766	7.6%	130	658	17.6%
Manufacturing	4,361	8,340	6.7%	2,191	5,820	10.3%
Electricity	85	158	6.4%	63	139	8.2%
Construction	1,573	2,886	6.3%	955	2,027	7.8%
Trade	6,611	10,754	5.0%	560	1,416	9.7%
Transport	1,468	2,703	6.3%	747	1,382	6.3%
Banks/Finance	232	545	8.9%	200	516	9.9%
Services nec	7,787	9,901	2.4%	4,752	7,737	5.0%
Not Stated	666	-		132	-	
Total		71,984	3.5%	14,089	25,273	6.0%

Source: BPS, Population Censuses

Those who are *inactive* in the face of their employment problems, whether *unemployed* or *visibly underemployed*, pose greater measurement difficulties for surveyors, because of the elusive nature of the "available-for-work" criterion. The small overall size of the employment problem revealed by the Indonesian labour force survey suggests the possibility of underenumeration and this, if anywhere, is where such underenumeration is likely to be concentrated - the *latent* labour reserve, not working or working short hours and not seeking but available for work.

Labour force surveys are not usually designed to aid measurement of agricultural *surplus labour*. Analysis of other farm based data or implementation of a special survey may be necessary for this purpose. The complex process of measuring surplus labour *outside* agriculture probably also requires special surveys.

The limits of a labour force approach are reached when it moves from analysis of nature and structure to monitoring of trends. Aside from the statistical comparability problems, the concepts of employment and unemployment used in such surveys are dubious in the context of a developing economy. Only if substantial extra survey work were carried out would we be confident that an increase in "employment" between two dates actually represented an improvement in the employment situation. A more revealing (and cheaper) alternative would be to use labour force surveys for occasional benchmark purposes and analysis of *wage employment* and *wage* data to monitor trends from that. This alternative is explored fully in the next chapter.

5. Wages as an indicator

Fortunately another indicator of changes in the employment situation is available which is not only easier and cheaper to collect but also potentially much more revealing of overall trends. *Wage rates* in those parts of the labour market to which entry is relatively easy (demanding little in the way of capital and skills) and competitive should be sensitive to changes in most of the types of underutilisation of labour discussed above. The loss of income from work entailed in unemployment and visible underemployment will tend to lower the supply price of those who do not have other compensating sources of income. Their availability for work and that of the invisibly underemployed will exert downward pressure on real wages. Moreover the existence of surplus labour, while yielding a wage in other sectors which exceeds the marginal product of labour, will also tend to reduce upward pressures. Thus one indicator can in principle encapsulate the impact of a number of changes in the labour market which are complex and otherwise difficult to measure.

In practice, it must be conceded, there will be differences between economies in the extent to which wage rates reflect the underlying labour market situation¹⁵. In East and South-East Asia, labour markets are relatively free of the regulations and institutions that create duality between the organised and unorganised sectors, and the public sector, relatively small in most such economies, has not been a wage leader. In South Asia, on the other hand, various interventions result in duality in the labour market, with wages in larger factories double those in smaller establishments, even when differences in workers' individual characteristics are taken into account. Such segmentation is also typical of many Latin American countries; real minimum and actual wages were substantially eroded during the 1980s, even in the organised sector. Spectacular erosion also occurred in Sub-Saharan Africa, where the model of wage leadership by the public sector and state intervention to push up urban wages no longer applies (if it ever did). All this suggests that care should be taken, in any economy, in selection of the wage rate(s) to be used as indicators. In some economies it may not be possible to find such unequivocal indicators, but, as the following chapters show, analysis of wages will still be useful to explore the changing pattern of segmentation.

Although, in many developing countries, the self-employed are more numerous than wage-earners, the *real wage rate* is preferred, as a labour-market indicator, to the earnings of the self-employed on grounds of collectability. For example, Table 5.1 summarises the results of a one-off survey of Jakarta street traders, pedicab (*becak*) drivers and scavengers, carried out by the Centre for Policy and Implementation Studies (CPIS) in 1987/8.

The two main obstacles to making a regular survey of this kind, of the earnings of the self-employed, a routine part of the programme of a government statistical agency are the difficulty of isolating the returns to labour and the problem of ensuring a comparable and representative sample over time.

¹⁵ See Khan (1994:26-66) for a discussion of regional differences in labour market situations and trends during the 1980s, on which this paragraph is based.

Table 5.1. Daily net income of Becak drivers, scavengers and street traders, Jakarta, 1987/8

Rp per day:	Becak drivers		Scavengers		Garment traders		Cooked food	
	No.	%	No.	%	No.	%	No.	%
<=2,000	12	11	21	21	25	17	24	15
2,100-3,000	28	27	22	22	35	24	41	26
3,100-4,000	26	25	22	22	36	25	41	26
4,100-5,000	17	16	15	15	18	12	16	10
5,100-6,000	11	10	8	8	12	8	13	8
6,100-7,000	7	7	10	10	5	3	10	6
7,100-10,000	1	1	4	4	9	6	7	4
10,100-15,000	0	0	0	0	2	1	4	3
>15,000	0	0	0	0	10	7	2	1
Missing data	3	3	0	0	0	0	0	0
Total	105	100	100	100	152	100	158	100
Mean=	Rp 3,800		Rè 3.900		Rp 7,300		Rp 7,500	

Source: Center for Policy and Implementation Studies, 1988.

In order to isolate the returns to labour it is necessary to deduct costs incurred by the self-employed from their gross income. Although in this case operating costs such as electricity, rent, retribution fees, wages, transport costs and costs of inputs have been deducted from gross revenue, the cost of holding working capital has apparently not been taken into account. This is an important item for traders - these garment traders have working capital of Rp 673,000 on average and even food traders average Rp 302,000. The relatively high *initial* working capital requirements for street trading (averaging Rp 251,000 for garments and Rp 154,000 for food), also, limit entry to these trades and presumably confine those with little capital to the lower net-income end of the market. As for sampling, since most self-employed do not have fixed working premises, it would be difficult to maintain a panel of respondents or otherwise to ensure consistency over time. A regular survey of the self-employed would be so management-intensive as to become a statistical agency's nightmare.

This is not to suggest that collection and quick publication of reliable data on real wages and prices is an easy matter. There are problems of standardising the definition of the nominal wage, to include or to exclude (in addition to the basic wage) allowances, payments in kind, fringe benefits, etc.. More difficult still is the choice of deflator. Consumers change their patterns of consumption over time, often in response to changes in relative prices. The extent to which deflators are revised to reflect such changes in consumption baskets can have an important effect on the course of real wages. There are many headaches in defining and measuring the real wage. Nevertheless, it raises fewer conceptual problems than do most direct measures of labour underutilisation, and looks more amenable to improvement and analysis.

Wage statistics can be useful to employment policy-makers in various ways.

(1) Data on *nominal wages in different regions* of a country are useful for various purposes, for instance for investors considering the relative advantages of different locations, or for the government setting wage rates in labour-intensive public works schemes. A

comparison of *real wages* in different regions of a country can help identify areas in particular need of such schemes.

(2) *Wage data by age, sex, occupation, education, sector* etc., can be useful for a comparison of wages between male and female workers with otherwise similar characteristics and experience, and, more generally, for discovering whether a labour market is competitive or segmented.

(3) Statistics on the level of *wages of unskilled workers*, deflated by a *consumer price index*, often called *real consumer wages*, can indicate what is happening in the labour market *from the point of view of employees*. Since an index of the real consumer wage measures the change in wages in relation to the change in consumer prices, it is a guide to the *economic welfare* of employees over time; it also indicates changes in *incentives to supply* labour. A severe fall in the real consumer wage may thus be a sign of a need for remedial policy action, such as public works schemes. A real consumer wage index can also be combined with the proportion of the labour force in wage employment to produce an *index of labour welfare*.

(4) Statistics on the level of *wages of unskilled workers*, deflated by a *producer price index*, often called *real producer wages*, can be used in conjunction with statistics on wage employment, to monitor changes in labour markets *from the point of view of employers*. For instance, if the real producer wage, so defined, does not increase much as employment increases, this may be an indicator of the continued availability of surplus labour to the market. On the other hand, if the real producer wage increases sharply as employment increases, this may be a sign of an emerging shortage of labour, with consequences for the economy's comparative advantage and development strategy.

(5) *Comparisons of real wages between countries* are a means of checking on a country's competitive position in international markets. For this purpose, real wages need to be expressed in an *international currency*, usually dollars or yen. If possible, this can usefully be taken further, by incorporating trends in value added, to show trends in real dollar (or yen) wage cost per unit of output, again in comparison with a country's main competitors. These comparisons can have important implications for policy on exchange rates, prices, wages and productivity.

These and other uses of wage data for employment policy planning purposes will be discussed in chapters six to nine.

6. Wage differences

Before discussing the use of wages as an indicator of changes in labour markets over time, it is worth examining briefly what they can show about the structure of labour markets.

As in the case of the labour force indicators discussed in chapter three, analysis of wage structure can help to identify regions and groups within the population, which are particularly exposed to employment problems. Regions where real consumer wages of unskilled workers are particularly low may qualify for special attention from public works and other programmes intended to boost the demand for labour; information about nominal wages would then be needed for setting wages in such programmes. Regions where real producer wages are particularly low could be drawn to the attention of potential investors in labour-intensive industries. Analysis of wage structure can also help to identify cases of wage segmentation - i.e. differences in wages between workers with otherwise similar individual

characteristics (age, education, labour market experience, etc.) which may be attributable to, e.g., their gender, ethnic group, employment status, union membership, size/type of firm, or sector in which they work.

Wage segmentation may or may not have implications for policy, according to its causes. For instance, wage differentials between larger and smaller enterprises may reflect biases in the impact of government wage legislation and/or of trade union membership. On the other hand, such wage differences could be due to a wage-productivity relationship. This may be a matter of high-wage employers being able: to select more effective workers for a given task; or to obtain greater 'commitment' from their workers, with lower turnover and absenteeism; or to enjoy higher productivity due to the better health and nutritional standard of their workers. Wage segmentation by gender or ethnic group is usually less ambiguous in its policy implications, but care is needed to make sure that all variations in individual characteristics and experience have been controlled for.

Whatever its implications for policy, if wage segmentation exists, it complicates the use of wages as a labour market indicator, as already discussed; employment planners need to know what kind of labour market they are dealing with before they try to interpret trends in wages, as in chapters seven and eight.

This chapter, accordingly, looks at two aspects of wage structure: regional differences in unskilled wages, and wage differences between various categories of individuals.

6.1 Regional differences in wages

To begin with regional differences, Table 6.1¹⁶ shows, as an illustrative example, data on nominal wages by province in Indonesia. As can be seen, inter-provincial differences in nominal wages are substantial, which should be of interest to investors and organisers of public works schemes.

In general, as can be seen, the highest average nominal wages are to be found in Kalimantan, Sumatra and Irian Jaya, and the lowest in Java, particularly Central Java and Yogyakarta. There are some interesting anomalies, particularly the contrast between male and female non-agricultural wage rates in DI Aceh and the relatively high agricultural wages for males in West Java. As an example of the kind of *policy implication* that can be drawn from such a table, it underlines the *necessity of varying the wage rate between regions on public works schemes*. The use of a uniform rate throughout Java on the Manpower Ministry's public works programme, for instance, invites an over-supply of applicants in Central Java and Yogyakarta and an under-supply in West Java.

Of course, the variations in nominal wages between regions do not necessarily reflect variations in welfare. For this purpose a real wage comparison is needed, as in Table 6.2, which attempts a comparison of real wages for primary school graduates in different provinces.

This particular table should be interpreted with caution, since it uses as a deflator of nominal wages the Manpower Ministry's estimates of the cost of meeting minimum physical needs, based on a basket of goods which is assumed not to vary from province to province. To calculate the Minimum Physical Needs index the cost of the basket in DKI Jakarta is taken as equal to 100. At any rate it makes the point that apparently high-wage areas may not be so if cost of living is taken into account. For instance, Irian Jaya, Riau and East Kalimantan, which are at the top of the list on the criterion of nominal wages, rank much lower in terms of real wages. On the other hand, some areas, such as Jambi, West Sumatra and Yogyakarta, are ranked higher for real than for nominal wages. *For the policy maker,*

¹⁶ Tables are in the statistical appendix to this chapter.

such a table draws attention to areas in particular need of a boost in the demand for unskilled wage-labour - in this case, to judge from their levels of real wages, Central Java, NTB and West Java. It should be noted also that deflation considerably reduces the ratio of the highest to the lowest provincial average wage - from 2.34:1 for nominal to 1.69:1 for real wage.

6.2 Wage differences between individuals

Wage comparisons can help to determine whether a labour market is *segmented*. In other words, do workers with otherwise similar individual characteristics (age, education, labour market experience, etc.) earn different amounts because they differ in one or more respect (gender, employment status, size/type of firm, sector in which they work, etc.)?

To be useful for this purpose, a labour force survey has to collect individual records on household members, including earnings. Even surveys which do collect individual records are often unable to handle more than a few aspects of segmentation. In particular, because of the limited information that they collect, they are usually unable to deal with differences in earnings between wage-earners and self-employed, between those in different occupations, and between those working for different sizes or types of firm, or to control for differences between individuals in length and nature of labour market experience.

Relatively casual comparisons between wages and the earnings of the self-employed are sometimes possible. For instance, the survey carried out in Jakarta in 1987/8 (CPIS 1988)¹⁷ estimated the mean daily net income of pedicab drivers and scavengers in Jakarta at Rp 3,800 and Rp 3,900 respectively, which is likely to be higher than the average for Jakarta wage-earners of a comparable educational level. Although some non-labour costs may remain to be deducted from these figures, they do not suggest that this type of segmentation is a serious problem in Indonesia's capital city.

One type of segmentation for which some evidence is usually available is segmentation by gender. As an example, Table 6.3 summarises data from Indonesia's 1989 labour force survey on earnings by sex, age and education.

In general, as can be seen, women, in this case, earn significantly less than men of the same age and educational level¹⁸. However, the difference diminishes as the level of education increases; females with less than complete primary schooling in the 21-30 age group earn less than half as much as their male counterparts, whereas for female senior secondary school (general) graduates in the same age group the ratio is 94 per cent. Interestingly the relative position of women with vocational qualifications is significantly weaker than that of those with general qualifications. This is an area in which good occupational wage data would be useful. Is the source of inequality between the sexes the payment of lower wages to women for the same work or their over-representation in certain lower-paid occupations?

A special survey carried out in Shashi city, Hubei province, China (ILO 1988) illustrates the importance of collecting detailed data on occupation in order to address this question. It also shows that in the area of wage differentials by gender nothing can be taken for granted. In the year covered by the survey (1986) equal pay for equal work, regardless of gender, was the strict rule in China. Yet, as table 6.4 shows, when education and age group are controlled for, significant differentials between male and female workers are revealed.

¹⁷ See Table 6.1 in statistical appendix to this Chapter.

¹⁸ Although data on length of labour market experience are really needed to test for discrimination.

A comparison with Table 6.3 puts these figures in perspective. For Indonesians in their thirties the lowest male/female differential is 9 per cent (for senior secondary general graduates), the median differential 52 per cent (for junior secondary general graduates) and the highest (for primary school dropouts) 110 per cent, whereas for the Chinese sample the range for the comparable age group is from -4 per cent (other higher) to 16 per cent (primary). Nevertheless, it is a useful illustration of the fact that equal pay for workers doing the same job does not guarantee equity in pay between the sexes. A comparison of data from the same survey (ILO 1988: Tables 5, 6 and 7) on the distribution of male and female employees by occupation and education shows that one of the reasons for differentials by gender is underrepresentation of women in higher-grade and/or higher paid positions, such as party officials, enterprise managers, engineers, technologists, technicians and production workers, and overrepresentation among sales and service workers.

Regression analysis can also be useful to identify the existence of wage segmentation. For example, an earnings function (based on labour force survey data) has been used in Hungary as a means of isolating wage discrimination against gypsies in the labour market (Kertesi 1994). As well as the gypsy dummy variable, the function includes gender, age, schooling, residence and industry as independent variables. The hourly wage rate of gypsies in September-November 1993 is found to be 20 per cent below that of non-gypsies, on average. The regression analysis produced results that are in line with expectations: maleness, education and urban residence have a positive impact on wages, which also vary directly with local unemployment rates and inversely with quality of working conditions. Table 6.5 decomposes the wage gap between gypsies and non-gypsies, distinguishing the proportion that can be explained by individual characteristics and circumstances from the proportion that cannot be explained in this way.

As can be seen, 64 per cent of the gap can be explained by individual characteristics and circumstances: "gypsies are paid less mostly because they are young, poorly educated and live in those regions of the country which are severely affected by economic depression" (Kertesi 1994:30). However, 36 per cent of this gap is *not* explained by these factors, from which is inferred "some kind of wage discrimination".

6.3 Changes over time in the structure of earnings

The structure of earnings changes over time, and is worth monitoring in its various dimensions. Changes in differentials, between regions, ethnic groups, genders, workers of differing employment status, employees of different types and sizes of enterprises etc., are important indicators of labour market developments.

One such differential in earnings that is of particular interest is that between more and less qualified workers. As the supply of qualified people increases in any economy, this differential tends to fall. This is necessary for a shift in comparative advantage to take place from production based on cheap, unskilled labour to production based on skilled labour. For instance, Table 6.6 shows how differentials between occupational classes were compressed in Britain between 1913 and 1978.

Before the first world war male professionals in Britain earned more than five times as much as unskilled manual workers; by 1978 the ratio had fallen to 2.4. In 1980, men with university degrees in the UK earned on average 53 per cent more than men with no advanced educational qualifications; by 1988, the premium (which fluctuates with changes on the demand as well as the supply side) had increased slightly but was still only 65 per cent (OECD, Employment Outlook 1993:Table 5.6).

Table 6.7 shows what has happened to wage differentials by schooling and gender in Indonesia as output from the educational system has increased since 1977.

Differentials have narrowed at all levels, particularly for males, and are rapidly approaching the ratios found in industrialised economies. A male who has completed his upper secondary schooling (taking at least twelve years) now earns, on average, little more than double the wage of an unschooled worker.

If possible, it is preferable to control for age as well as sex, and to look particularly at the ratios among the age groups that are entering the labour market. Table 6.8 shows how these have changed for urban males in Indonesia in recent years.

The series show signs of statistical noise and of fluctuations from year to year reflecting fluctuations in demand, but in general they show falling premia for education among new entrants to the labour market in the face of fast expansion of enrolment and output. Urban labour markets no longer differentiate between those new entrants who have and those who have not completed primary schooling, and extend only a small premium to lower secondary school leavers. At upper secondary level vocational graduates do worse than general graduates. The only category with a relatively resilient premium is university graduates who continue to enjoy a wage about four times that of an unschooled worker at labour-force-entry age. The compression of differentials between secondary school leavers and the less educated suggests that output at this level has more than kept pace with the increase in demand. The still high differentials for university graduates, however, (together with worries about the impact of educational expansion on quality) suggest that the economy may not yet be ready for transition from cheap labour to skill-based development

6.4 Conclusions on wage structure

All this underlines the value of disaggregated wage data in analysing regional wage differences and the various dimensions of labour market segmentation, formulating policy in this field and monitoring its implementation. Such analysis is to be seen as a complement to, not a substitute for the labour force analysis discussed in chapter three. For example, the information (from this chapter) that a disadvantaged ethnic group suffers from wage discrimination has to be supplemented by the evidence (from chapter three) of discrimination in hiring before a comprehensive policy can be designed and implemented. And data on regional differences in wages need to be supplemented by data on differences in underutilisation rates.

Statistical Appendix to Chapter 6

Table 6.1. Nominal wages by sex and province, 1989

	M+F primary graduates monthly av wages av 1989 (RP'000)	Male non-agri- culture daily rate Nov 1989 (RP '000)	Male agri- culture 1/2 daily rate av 1989 (RP)	Female non- agri-culture daily rate Nov 1989 (RP)	Female agri-culture 1/2 daily rate av 1989 (RP)
Di Aceh	79.3	4753	1967	1640	1263
N Sumatra	71.8	3670	1945	2179	1641
W Sumatra	69	3429	1550	2683	1467
Riau	102.2	4663	-	1860	-
Jambi	81	2864	-	1897	-
S Sumatra	83.5	4115	1485	3513	1212
Bengkulu	62.4	4377	-	3617	-
Lampung	64.5	2699	1256	1780	986
Dki Jakarta	90.1	4403	-	2934	-
W Java	56.4	3366	1734	2550	972
C Java	48	2634	1016	1405	778
Di Yogyakarta	49.9	2165	728	1648	729
E Java	49.7	3645	1515	2076	955
Bali	69.3	3198	1362	2433	1195
NTB	48.9	3558	1341	-	1100
NTT	71.1	2412	-	2020	-
W Kalimantan	85.3	3249	-	2146	-
C Kalimantan	108.3	3448	-	3493	-
S Kalimantan	78.4	3043	1740	2735	1322
E Kalimantan	97.6	4777	-	3449	-
N Sulawesi	80.4	2802	1786	1716	1663
C Sulawesi	60.7	2260	-	-	-
S Sulawesi	73.4	4604	1525	2124	1434
Se Sulawesi	68.3	2121	-	1639	-
Maluku	78.6	3449	-	3570	-
Irian Jaya	112.2	4722	-	-	-

Sources: Central Bureau of Statistics, Jakarta: Primary graduates, Labour Force Survey; Non-agriculture, Wages Survey; Agriculture, Farmers' Terms of Trade Survey.

Table 6.2. Nominal and real monthly wages of primary graduates, by Province, 1989

Province	Nominal Monthly Average Wages Rp'000	Minimum Physical Needs Rp'000	Minimum Physical Needs Index (Jakarta = 100)	Real Monthly Average Wages Rp'000	Ranking by Nominal Wages	Ranking by Real Wages
Jambi	81	61	89	91	8	1
Jakarta	90	69	100	90	5	2
C Kalimantan	108	84	122	89	2	3
N Sulawesi	80	63	92	87	9	4
W Sumatra	69	58	85	81	17	5
DI Aceh	79	68	98	81	10	6
W Kalimantan	85	73	106	81	6	7
S Sumatra	84	73	106	79	7	8
S Kalimantan	78	71	103	76	12	9
Riau	102	93	135	76	3	10
Irian Jaya	112	106	154	73	1	11
SE Sulawesi	68	66	95	72	18	12
N Sumatra	72	71	103	70	14	13
S Sulawesi	73	75	109	67	13	14
Yogyakarta	50	52	75	66	23	15
Maluku	79	83	121	65	11	16
Bali	69	74	108	64	16	17
E Java	50	54	78	64	24	18
Bengkulu	62	67	98	64	20	19
E Kalimantan	98	107	156	62	4	20
Lampung	65	72	104	62	19	21
NTT	71	80	116	61	15	22
C Sulawesi	61	69	100	61	21	23
W Java	56	65	95	59	22	24
NTB	49	60	87	56	25	25
C Java	48	61	89	54	26	26

Sources: Wages, Central Bureau of Statistics, Labour Force Survey; Minimum Physical Needs, Manpower Ministry, Indicators of Standard of Living of Workers.

Table 6.3. Mean annual wage earnings by sex, age and education, 1989 (Rp '000)

Age Group	15-20	21-30	31-40	41-50	51-60	61-65
No School						
Male	712	890	872	906	775	668
Female	526	386	508	417	627	354
Some Primary						
Male	529	832	914	936	948	733
Female	394	384	435	417	448	321
Primary						
Male	621	861	1035	1216	1255	994
Female	415	506	555	610	1035	291
Jun Sec School Gen						
Male	659	942	1300	1596	1951	1344
Female	482	789	853	1663	1725	1660
Jun Sec School Voc						
Male	506	924	1374	1670	1824	1341
Female	436	652	763	1358	1912	1440
Sen Sec School Gen						
Male	719	1101	1487	2296	2209	2380
Female	720	1039	1358	1669	2300	2254
Sen Sec School Voc						
Male	692	1045	1553	1985	2233	3084
Female	600	913	1213	1744	1929	914
Academy						
Male		1459	1902	2509	2406	2357
Female		903	1497	1855	3003	2500
University						
Male		1760	2321	3052	4025	3116
Female		1419	1925	3294	2406	-

Source: McMahon and Boediono (1991), Appendix A.

Table 6.4. Index of male average wage, by education and age group, state and collective enterprises, Shashi City, China, 1986

(Female Average Wage in Same Category = 100)

Education	Total	Below Primary	Primary	Lower Secondary	Upper Secondary	Tech School	Vocat. School	Poly.	Other Higher
Age:									
All	112	113	112	111	112	104	100	112	111
<30	105	96	105	104	110	101	100	109	113
30-39	111	113	116	111	104	103	-	113	96
40-49	112	110	109	111	108	178	115	111	115
50+	119	135	122	108	93	-	-	85	103

Source: ILO 1988:Table 19.

Table 6.5. Hungary: Decomposing the wage gap between gypsies and non-gypsies, September-November 1993

Factor	% of Gap Due to Given Factor
Demography	6.2
Schooling	45.5
Residence	14.7
Industry	-2.0
Due to These Factors	64.4
Residual	35.6
Total	100.0

Source: Kertesi (1994:Table 13)

Table 6.6. Average earnings, males, 7 occupational classes, Great Britain, 1913-14 to 1978

	1913/4 (£)	Ratio	1935/6 (£)	Ratio	1960 (£)	Ratio	1978	
Professional								
Higher	328	5.2	634	4.9	2034	3.8	8286	2.4
Lower	155	2.5	308	2.4	847	1.6	5435	1.6
Managers etc	200	3.2	440	3.4	1850	3.5	8050	2.4
Clerks	99	1.6	192	1.5	682	1.3	3701	1.1
Foremen	123	2.0	273	2.1	1015	1.9	4685	1.4
Manual								
Skilled	106	1.7	195	1.5	796	1.5	4354	1.3
Semi-skilled	69	1.1	134	1.0	581	1.1	3827	1.1
Unskilled	63	1.0	129	1.0	535	1.0	3390	1.0

Source: Routh (1980:120)

Table 6.7. Wage differentials by level of schooling and gender, Indonesia, 1977 - 90 (Indices, <Primary = 100)

	Male				Female			
	1977	1982	1987	1990	1977	1982	1987	1990
Primary	100	100	100	100	100	100	100	100
Primary	151	142	128	122	149	151	128	126
Lower 2ndary	275	203	170	158	396	290	225	203
Upper 2ndary General	245	249	212	214	380	368	304	287
Vocational	328	262	214	209	483	375	348	319
Tertiary	1033	410	372	366	1428	582	551	508

Source: Manning (1994: Table 1), from Central Bureau of Statistics, National Labour Force Surveys (SAKERNAS), 1977, 1987, 1990, and National Social Economic Survey (SUSENAS), 1982.

Table 6.8: Trends in annual average wage earnings, male urban employees, selected age groups, Indonesia, 1986, 1988, 1990 and 1992

Schooling	Age group	1986		1988		1990		1992	
		Rp '000	index	Rp '000	index	Rp '000	index	Rp '000	index
None	15-20	380	100	428	100	604	100	740	100
Primary	15-20	508	134	546	128	711	118	714	97
Lower Sec Gen	15-20	649	171	1058	247	732	121	916	124
Upper Sec Gen	21-30	1084	285	1106	258	1311	217	1557	211
Upper Sec Voc	21-30	1183	311	1048	245	1272	211	1430	193
Academy	21-30	1495	393	1662	388	1683	279	2363	320
University	21-30	1472	387	2042	477	2161	358	2812	380

Sources: 1986, 1988, McMahon and Boediono (1992: Table III.1); 1990, private communication; 1992, McMahon 1994.

7. Changes in real consumer wages as an indicator of changes affecting labour

A starting point for a wage-based analysis of labour market trends is a disaggregated series of data on *real consumer wages*, which can be used as a labour market indicator *from the point of view of employees*. Since an index of the real consumer wage measures the change in wages in relation to the change in consumer prices, it is a guide to changes in the *economic welfare* of employees over time; it also indicates changes in *incentives to supply labour*¹⁹.

Information in changes in real consumer wages alone can give a broad indication of changes in labour welfare and in the incentives to supply labour but it is better supplemented by information on changes in wage employment. These two indices can be analysed separately or they can be combined in a single index of labour welfare.

These indices can be used purely for monitoring purposes, in the way that the unemployment rate is used in industrialised country. They will provide a much better measure of whether a labour market is improving or deteriorating, from the point of view of labour, than will any of the usual underutilisation indicators reviewed in chapter four. They can be used as a kind of early warning system of a need for policy action. For example, a fall in the real consumer wage of unskilled workers, combined with stagnant or falling wage employment, would signal the need for a boost to the demand for labour, from either a national policy measure or a localised programme. They can also be used to measure the impact of such policy measures or programmes.

7.1 Real consumer wages

Nominal wages have to be deflated by a consumer price index to yield real consumer wages, as follows:

$$W_{rc} = W_n/P_c$$

where

W_{rc} is a real consumer wage index;

W_n is a nominal wage index; and

P_c is a consumer price index.

A series of such real wage statistics for unskilled workers is of particular interest in a developing economy, where unemployment statistics (which play this role in an industrialised economy) have little meaning. To be useful for policy, such a series has to be of adequate statistical quality and not subject to publication delays. In many developing economies, it

¹⁹ Use of the real consumer wage as an indicator of the state of the labour market from the point of view of employees (as in this chapter) must be distinguished from the use of an income criterion in the definition of underemployment (criticised in chapter one). Changes in the real consumer wage are here used as an indicator of whether trends in the labour market are favourable or detrimental to labour. This is not the same thing as defining everyone below a certain income level as "underemployed". Nor (for the reasons given in chapter one) is any necessary connection with poverty implied.

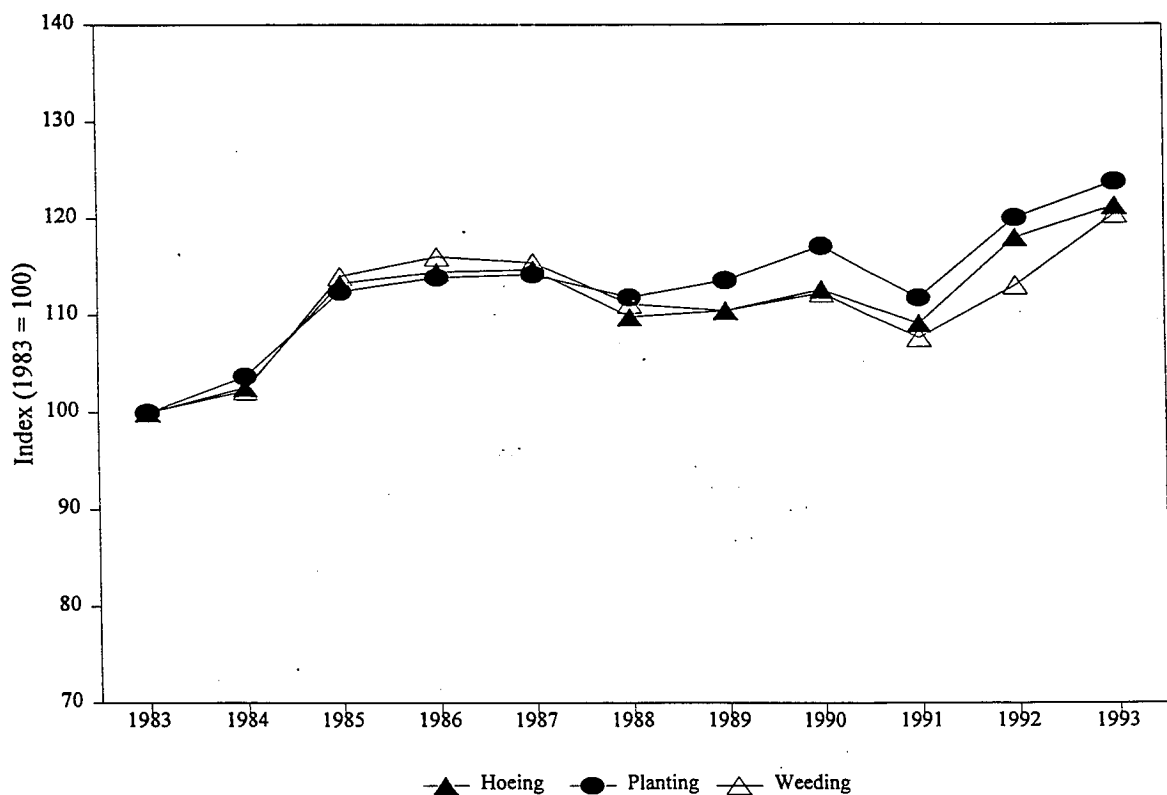
must be admitted, there are few series of wage statistics that meet these criteria: an increase in their number should be a high priority for employment planners.

As an illustration of what such wage series can show, two examples from Indonesia will be presented in this chapter - one on agricultural workers', the other on construction workers' wages - which, though published with admirable speed, barely pass the quality test.

Table 7.1²⁰ summarises the first of these - data from the Farmers' Terms of Trade Survey on agricultural wages and prices in three of the fourteen provinces covered by the survey, Central, East and West Java²¹.

The real wage trends in the three provinces over the 1983 - 90 period were remarkably similar, as can be seen from Figures 7.1 to 7.3, based on Table 7.1. (Insert In all three provinces they rose quite steeply between 1983 and 1985, then fell for three years. Since 1988 they have risen, gently for a few years but sharply since 1991. Agricultural wage-earners seem, at last, to be sharing the benefits of recent economic growth.

Figure 7.1 Real wage trends in agriculture, Central Java 1983-93, deflated by consumer prices



²⁰ Tables are in the statistical appendix to this chapter.

²¹ The columns of data on real producer wages will be defined and discussed in Chapter 8.

Figure 7.2 Real wage trends in agriculture, Eastern Java 1983-93, deflated by consumer prices

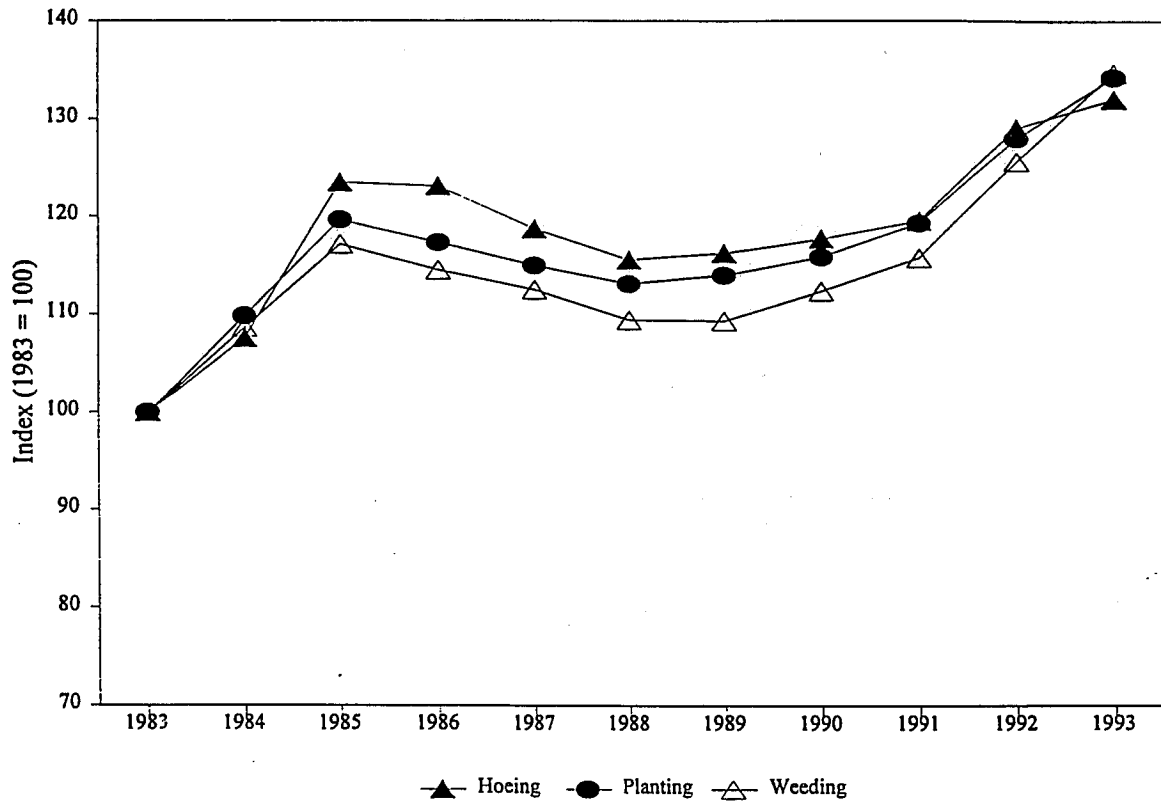
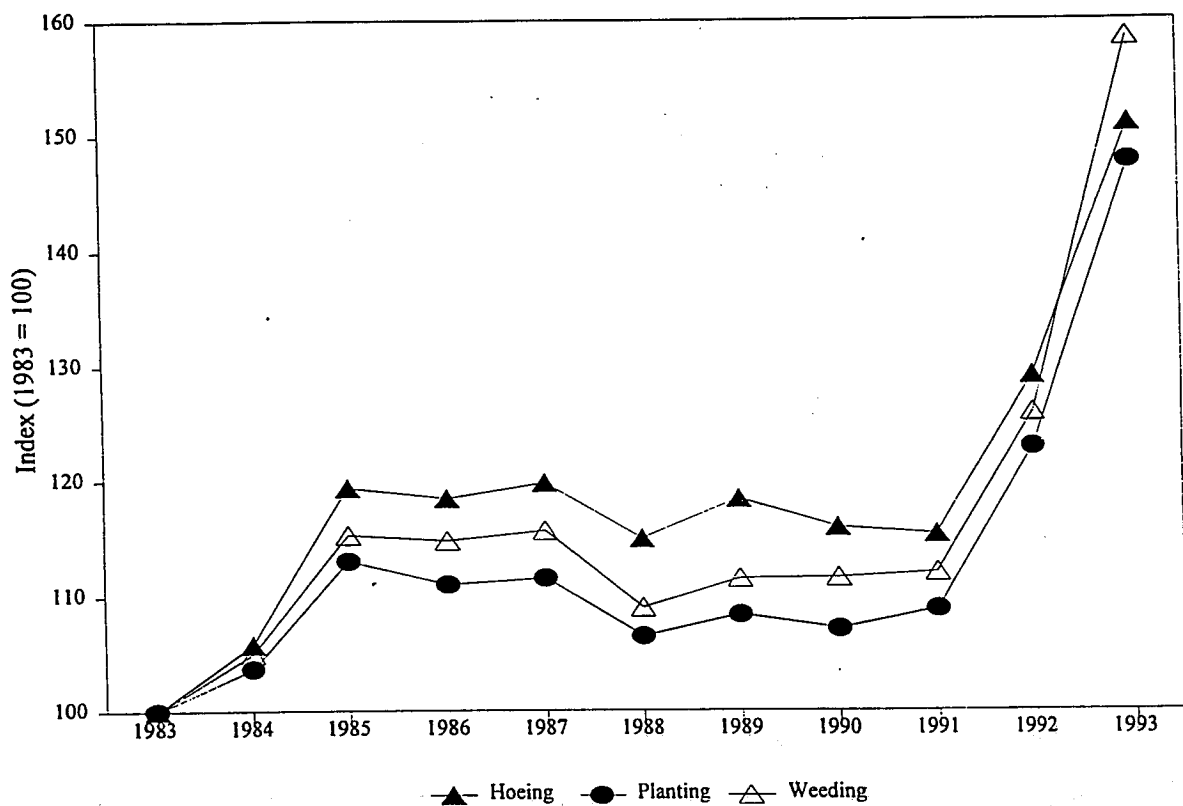


Figure 7.3 Real wage trends in agriculture, Western Java 1983-93, deflated by consumer prices



The other series that can be used for this purpose in the Indonesian case are those from the Central Bureau of Statistics on construction workers. Table 7.2 shows trends in the mean of the two series for real wages of bricklayers in five Javanese cities (selected to correspond with the provinces for which agricultural wage data have just been reviewed).

As can be seen from Table 7.2 and more clearly from Figure 7.4, there was a similar upturn in real wages in 1991-92 in the construction industry. In all cases except Bandung construction wages were lower in real terms in 1990 than they had been five years earlier. In all cases except Surabaya they have risen sharply since then. Clearly something is going on in Indonesian labour markets which is completely undetected by the labour force indicators reviewed in chapter four! Insert Figure 7.4

Two sets of data of this kind, on real consumer wages in agriculture and construction, could form the basis of an early warning system of the welfare implications of changes in labour markets, since they are available with very little delay. However, they would need to be supplemented by comparable statistics on unskilled workers in other sectors.

7.2 An index of labour welfare?

In addition to monitoring of disaggregated labour markets, wage data can be combined with data on wage employment to produce an aggregated index of labour welfare, which could eventually (given an improvement in the quality of wage statistics) play the same role in a developing economy as that played by the unemployment rate in an industrialised economy. The index could be defined as follows.

$$H = W_{rc}(E/L)$$

where

H is an index of labour welfare;

W_{rc} is an index of the real national consumer wage;

E is the number of wage employees; and

L is the number of persons in the labour force

Ideally the index of real national average consumer wage would refer to a specific category of unskilled labour. In the absence of readily available data of that kind, Table 7.3 shows, purely for illustrative purposes, indices of real average monthly wage earnings in manufacturing in five selected countries. These cannot, of course, tell us anything about relative levels of welfare in different countries, only about relative changes over time.

This table shows that relatively low unemployment rates in the US have been achieved at the expense of increases in real wages. Korean and Singaporean labour have enjoyed the largest real wage increases. In the Philippines wage increases reflect insider power and protected markets rather than productivity increases and may not be sustainable.

Table 7.4 shows the other item in the formula for the labour welfare index - the proportion of the labour force in wage employment.

In spite of current emphasis on self-employment and the enterprise culture, an increase in the relative importance of wage employment remains a key indicator of the development of a labour market, as a comparison of the Philippines, Korea and Singapore suggests. One of the signs of the Philippines' problems is that the process has gone into reverse in recent years. That is why this percentage is suggested as the other ingredient in an index of labour welfare for developing countries.

Figure 7.4

Table 7.5 shows the results of multiplying the index of real consumer wages (from Table 7.3) by the percentage in wage employment (from Table 7.4) and expressing the product as an index, as in equation at the beginning of the chapter.

The table shows usefully how wage increases combined with a fall in the weight of wage employment (the Philippines in 1991) are not necessarily in the interests of labour, and how the greatest impact comes from combining the two (Singapore and Korea).

Statistical Appendix to Chapter 7

Table 7.1: Nominal and real wages in food agriculture, Central, East and West Java, 1983 - 1993, indices (1983 = 100)

	Nominal wages			Price indices		Real consumer wages			Real producer wages		
	Hoeing	Planting	Weeding	Consumer	Producer	Hoeing	Planting	Weeding	Hoeing	Planting	Weeding
Central Java											
1983	100	100	100	100	100	100	100	100	100	100	100
1984	115	117	115	112	117	102	103	103	99	100	98
1985	132	131	133	117	123	113	113	114	107	107	108
1986	147	147	149	129	135	115	114	116	109	109	111
1987	166	166	167	145	156	115	114	116	106	106	107
1988	177	180	179	161	179	110	112	111	99	100	100
1989	194	199	194	175	186	111	114	111	104	107	104
1990	214	222	213	190	201	113	117	112	106	110	106
1991	234	240	231	214	224	109	112	108	104	107	103
1992	272	277	261	231	227	118	120	113	120	122	115
1993	300	306	298	247	233	121	124	120	129	131	128
EAST JAVA											
1983	100	100	100	100	100	100	100	100	100	100	100
1984	118	120	119	109	111	108	110	109	106	108	107
1985	135	130	128	109	110	124	120	117	123	119	116
1986	145	138	135	118	128	123	117	115	114	108	106
1987	157	152	149	132	148	119	115	112	106	103	100
1988	169	166	160	147	166	116	113	109	102	99	96
1989	185	182	174	159	167	116	114	109	111	109	104
1990	204	201	195	173	181	118	116	112	113	111	107
1991	231	231	224	194	200	120	119	116	115	115	111
1992	267	265	260	207	205	129	128	126	130	129	127

	Nominal wages		Price indices		Real consumer wages			Real producer wages			
	Hoeing	Planting	Weeding	Consumer	Producer	Hoeing	Planting	Weeding	Hoeing	Planting	Weeding
1993	299	304	305	227	212	132	134	135	141	144	144
WEST											
JAVA											
1983	100	100	100	100	100	100	100	100	100	100	100
1984	114	112	113	107	108	106	104	106	106	104	105
1985	130	123	126	108	109	120	114	116	119	113	115
1986	146	137	142	119	123	122	115	119	118	111	115
1987	166	155	160	134	139	124	116	120	120	112	116
1988	186	172	177	153	162	122	113	116	115	107	109
1989	202	185	190	164	171	123	113	116	118	108	112
1990	220	203	212	180	190	123	113	118	116	107	112
1991	248	235	241	203	215	122	116	119	115	109	112
1992	289	275	282	220	224	132	125	128	129	123	126
1993	336	329	352	237	222	142	139	149	151	148	159

Source: Central Bureau of Statistics, Farmers' Terms of Trade Survey.

Table 7.2. Bricklayers' real wage index (1983 = 100), deflated by consumer price index, Semarang, Yogyakarta, Surabaya, Bandung and Jakarta

	Semarang	Yogyakarta	Surabaya	Bandung	Jakarta
1983	100	100	100	100	100
1984	94	107	111	95	89
1985	113	119	124	136	114
1986	116	112	118	140	108
1987	118	102	121	148	99
1988	117	94	119	146	105
1989	113	89	118	147	100
1990	106	85	113	137	103
1991	111	100	117	167	122
1992	130	139	118	174	142

Source: Central Bureau of Statistics

Table 7.3. Index of real average monthly earnings in manufacturing, deflated by consumer prices, 1985-91

(1985 = 100)	1985	1986	1987	1988	1989	1990	1991
Korea	100	106	115	128	152	168	179
Philippines	100	84	93	102	119	113	113
Singapore	100	96	99	108	118	127	137
Netherlands	100	103	104	105	105	105	106
USA	100	100	98	97	95	94	93

Table 7.4. Wage employment as percent of labour force, 1985-91

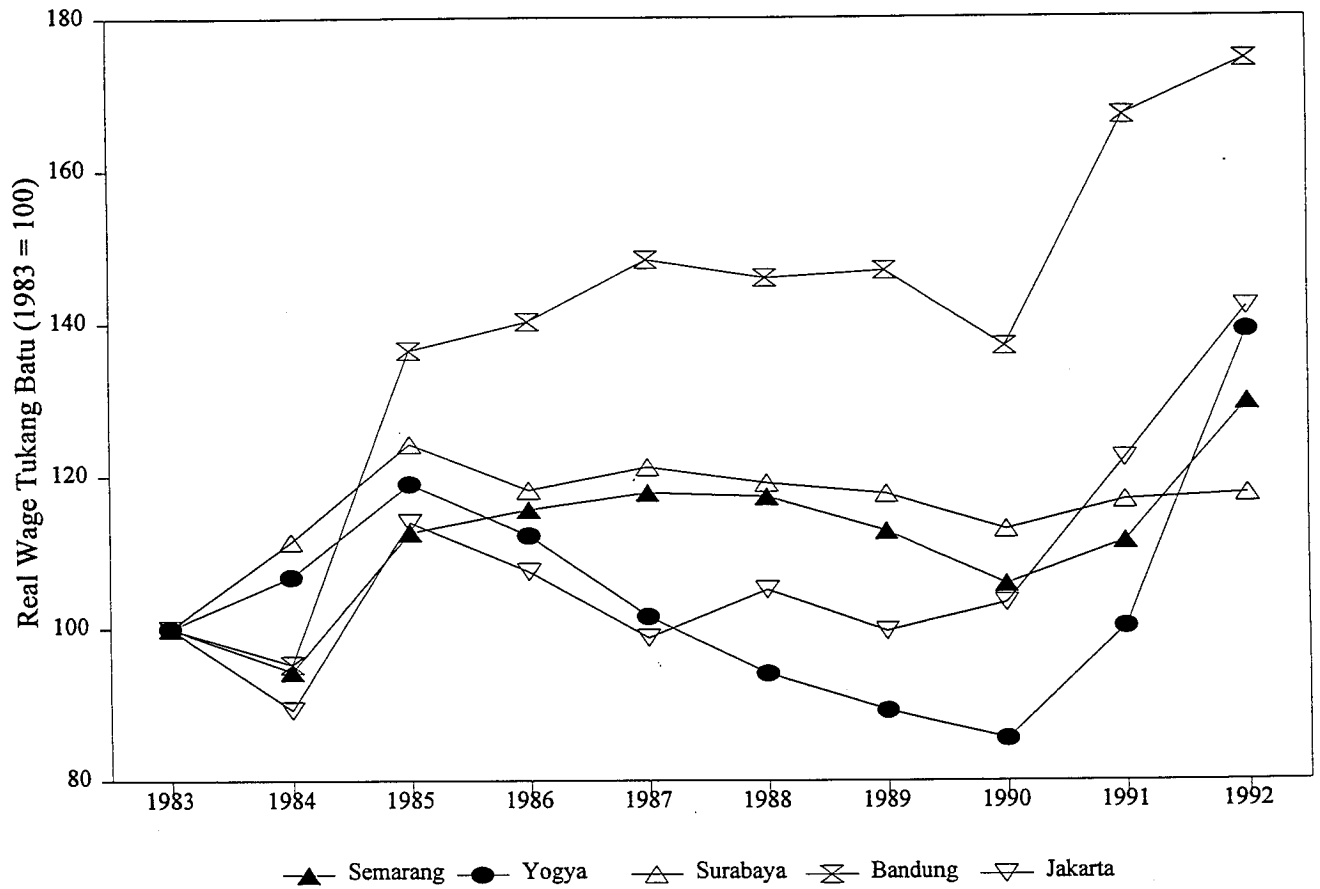
(%)	1985	1986	1987	1988	1989	1990	1991
Korea*	49	50	52	54	58	57	58
Philippines	39	36	39	46	41	44	38
Singapore	81	79	80	83	84	83	85
Netherlands	77	77	85	87	88	90	90
USA*	85	84	86	88	90	90	89

* Non-agricultural only.

Table 7.5. Real wage index, weighted by percentage of labour force in wage employment, 1985 - 91

(1985 = 100)	1985	1986	1987	1988	1989	1990	1991
Korea	100	108	122	140	178	196	212
Philippines	100	79	93	120	126	129	111
Singapore	100	94	98	110	122	131	144
Netherlands	100	104	116	119	121	124	125
USA	100	99	99	100	100	98	97

**Figure 7.4 Construction real wage trends
5 cities 1983-92 (deflated by CPI)**



8. Changes in real producer wages as an indicator of changes affecting employers

Employers in many developing countries are faced with a surplus of unskilled labour. An important function of employment planners is to monitor the labour market for signs of the end of this phase and of emerging labour shortage. A useful indicator for this purpose, showing how the labour market looks to *employers*, is provided by a disaggregated series of data on *real producer wages*. Since an index of the real producer wage measures the change in wages in relation to the change in producer prices, it is a guide to changes in the demand and supply situation in the labour market.

Information on real producer wages needs to be supplemented by information on wage employment and on real value added per employee. If real producer wages increase in a particular sector as wage employment in that sector increases, that is not necessarily a sign of emerging labour shortage. It may reflect labour market segmentation, due, for instance, to the power of trade unions in that sector. However, if real value added per employee is also increasing, that is generally a sign that the wage increase is due to market forces.

Information on these three variables can also be used to check on the impact of policy measures (eg a devaluation and institutional reform package, intended to boost the demand for labour in export manufacturing), and to identify a need for new policy measures (eg in a case where the real producer wage is rising but wage employment is rising only slowly and productivity is falling).

8.1 Real producer wages

Real producer wages, i.e. real wages seen from the point of view of the employer, are defined as follows.

$$W_{rp} = W_n/P_p$$

where

W_{rp} is a real producer wage index;
 W_n is a nominal wage index; and
 P_p is a producer price index.

For example, figure 8.1, based on Table 7.1, show what has happened to *real producer wages* in agriculture between 1983 and 1993 in West Java, Indonesia.

As can be seen, employers were favourably placed between 1985 and 1991, with no signs of steep upward pressure on real wages so defined. The same was true in Central and East Java, as Table 7.1 shows. However, employers faced a sharp rise in real wages in 1992 and 1993. This is not the kind of information that can be obtained from labour force analysis.

8.2 Real producer wages and the level of wage employment

If information on the number of wage employees is additionally taken into account, it is possible to construct curves which show what happens to wages as the level of employment changes. Such a curve can throw light on, among other things, the question of whether an economy is or is not still a labour-surplus economy: broadly speaking, in a relaxed version of the unlimited-labour-supply model, fluctuations in the supply-price of

labour as employment increases should not disqualify an economy from being defined as labour-surplus, as long as those fluctuations are not occurring around a steeply rising trend.

For example, Table 8.1 shows the relationship between the number of male and female wage employees in agriculture and the real producer wage index in each of the three Javanese provinces for the five years, 1986-90.

Figure 8.1 Real wage in agriculture, West Java 1983-93, deflated by producer prices

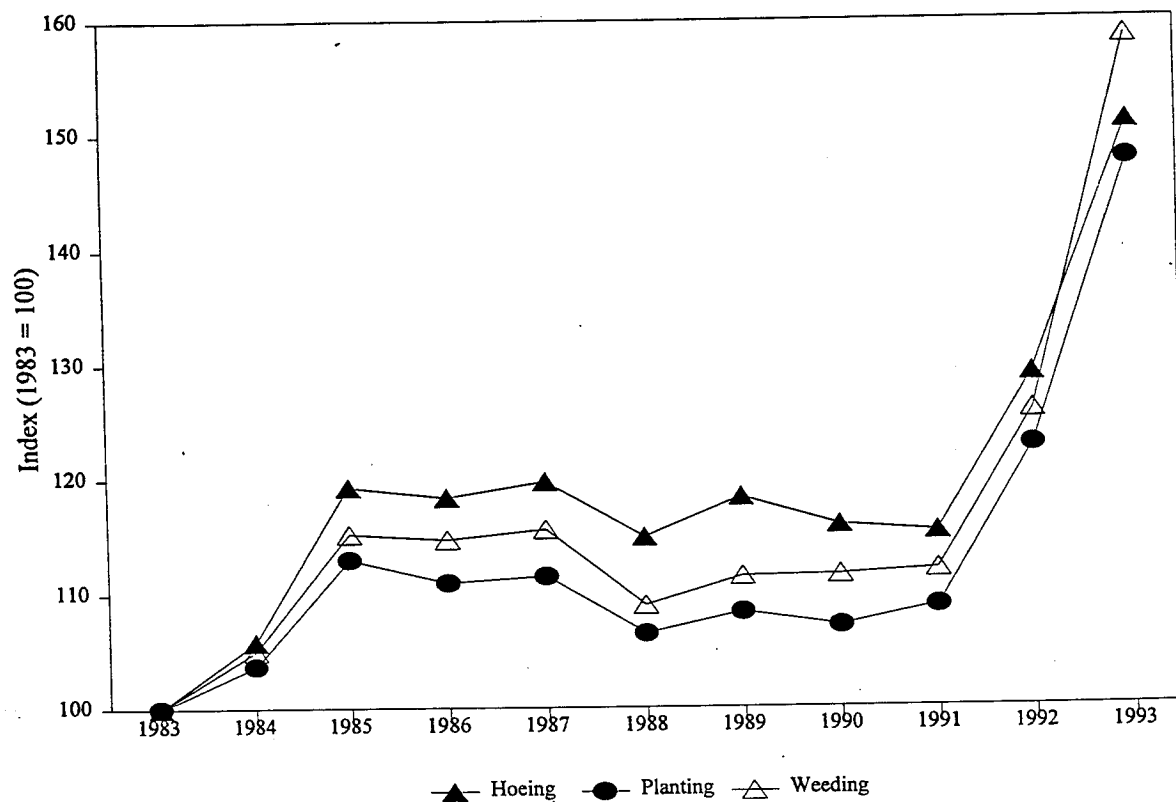


Table 8.1. Numbers Employed and Real Producer Wages in Agriculture, Male and Female, Central, East and West Java, 1986-90

CENTRAL JAVA						
	MALE			FEMALE		
	NUMBERS EMPLOYED	REAL PRODUCER WAGE		NUMBERS EMPLOYED	REAL PRODUCER WAGE	
1990	621194	106	1990	507576	108	
1989	549805	104	1988	485695	107	
1988	548779	99	1989	476640	105	
1987	538518	106	1987	474701	100	
1986	444471	109	1986	369922	110	
EAST JAVA						
	MALE			FEMALE		
	NUMBERS EMPLOYED	REAL PRODUCER WAGE		NUMBERS EMPLOYED	REAL PRODUCER WAGE	
1990	904513	113	1990	607656	109	
1989	862579	111	1989	583861	107	
1988	819057	102	1988	557679	98	
1987	676582	106	1987	467631	101	
1986	645229	114	1986	459872	107	
WEST JAVA						
	MALE			FEMALE		
	NUMBERS EMPLOYED	REAL PRODUCER WAGE		NUMBERS EMPLOYED	REAL PRODUCER WAGE	
1989	767638	118	1989	526927	110	
1990	747592	116	1988	523866	108	
1988	669115	115	1990	475408	109	
1987	601967	120	1987	431025	114	
1986	511387	118	1986	429581	113	

Sources: Numbers Employed, Labour Force Survey; Wages and Prices, Farmers' Terms of Trade Survey.

As can be seen, agricultural wage employment increased in all three provinces between 1986 and 1990 (except for females in West Java between 1989 and 1990). West Java (for which Figures 8.2 and 8.3 present the same information in graphic form) seems to be the best example of the classic labour-surplus economy, apparently able to increase wage employment of both men and women in agriculture without any increase in the real producer wage (partly by pulling in labour from other provinces, particularly Central Java). In Central Java the big expansion in employment between 1986 and 1987 was accompanied by a fall in real producer wages for both sexes; thereafter they rose for women but only slightly. In East Java the big expansion in employment, between 1986 and 1988, also involved a fall in real producer wages, which was barely recouped as employment expanded further. Both Central and East Java in the 1986-90 period look consistent with a relaxed version of the unlimited-labour-supply model.

8.3 From real producer wage to real producer compensation cost per employee

Strictly speaking, where data allow, labour market analysis from the point of view of the employer should be concerned with *labour costs* rather than wages. The labour costs of an enterprise include many elements beside the direct wages and salaries of employees. They include remuneration for time not worked (such as paid leave and severance and termination pay), bonuses, payments in kind, housing subsidies, employers' social security expenditures, payroll taxes and costs of welfare services and vocational training. Table 8.2, from Hungary, gives an idea of the range and relative importance of labour costs.

In general, data on total labour costs are not widely available. Most published statistics refer only to *compensation of employees* (i.e. including wages and salaries in cash or kind and employers' expenditures on social security and pay-roll taxes but usually excluding costs of recruitment, training and plant facilities and services).

If data on nominal compensation costs per employee are available, these can be deflated by an index of producer prices, to obtain a measure of real producer compensation cost per employee, as follows.

$$C_{rp} = C_n/P_p$$

where

C_{rp} is real producer compensation cost per employee;
 C_n is nominal compensation cost per employee; and
 P_c is a producer price index.

Figure 8.2 Real producer wage and male employment in Agriculture, West Java (1986-1990)

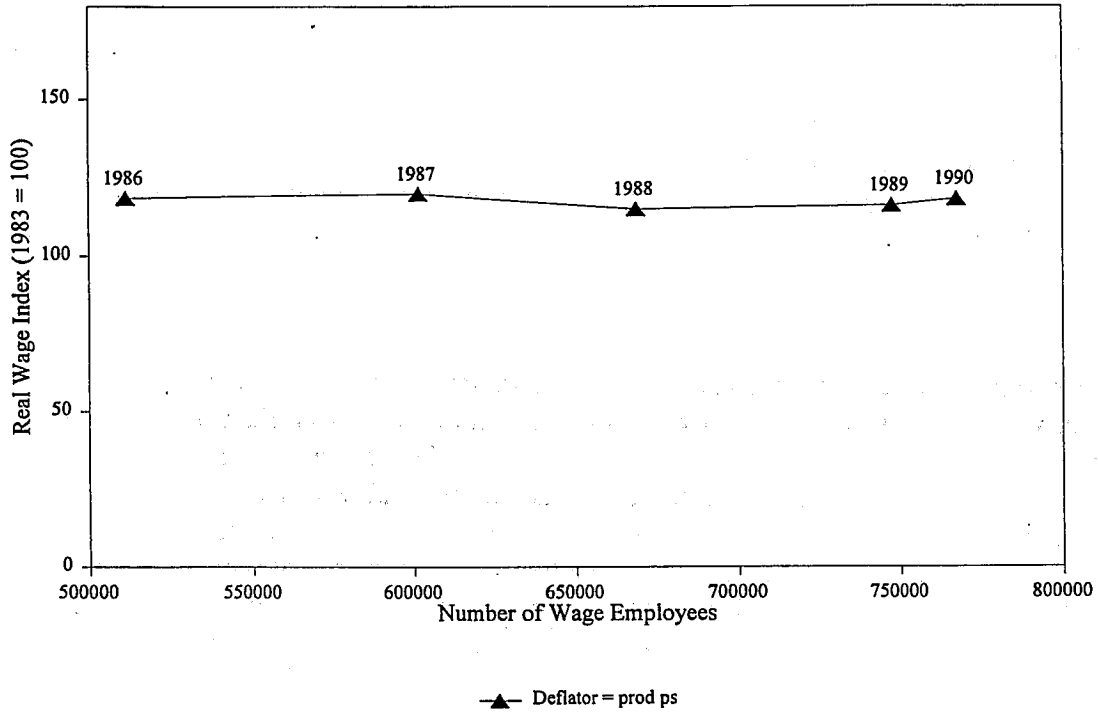


Figure 8.3 Real producer wage and female employment in agriculture, West Java (1986-1990)

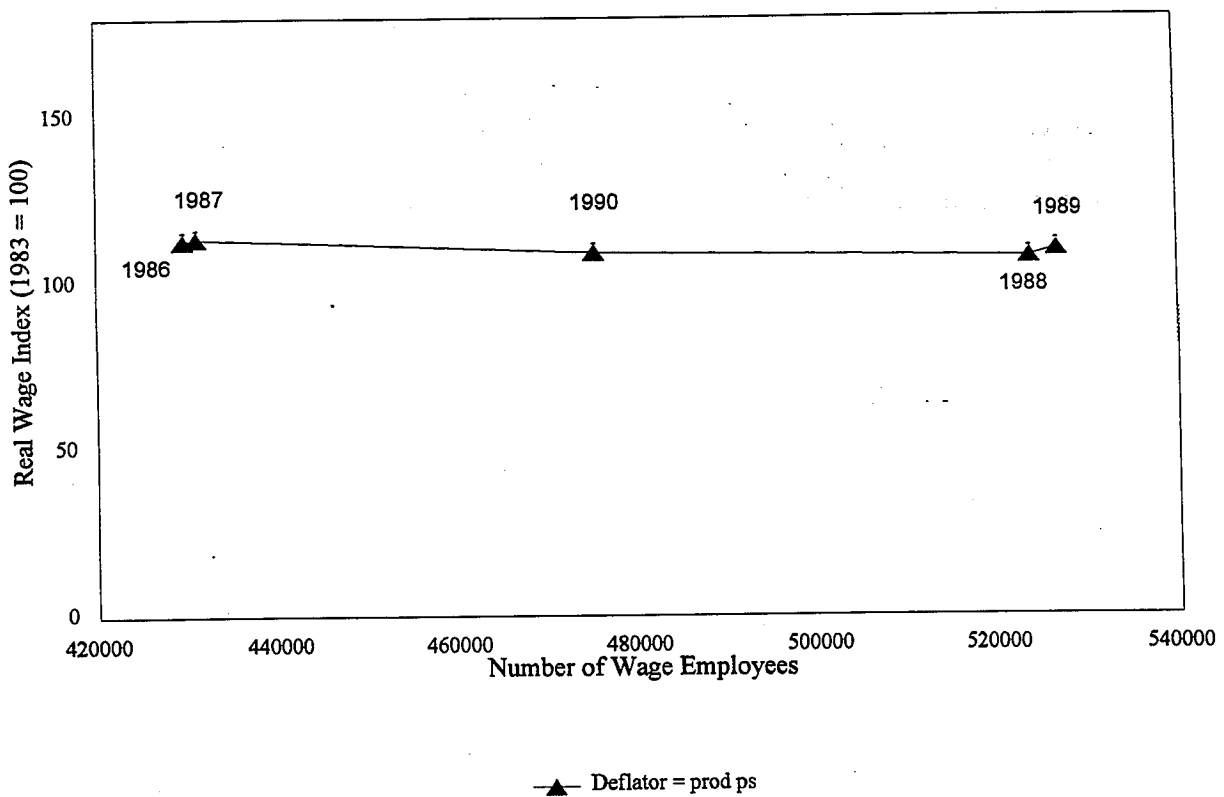


Table 8.2. Structure of labour costs in manufacturing, Hungary, 1992 (%)

Structure of Total Costs		Structure of "Other Expenditures"	
Earnings	56.8	Welfare services	18.6
Compulsory expenditures	29.0	Grants to unions etc.	0.5
Other expenditures	14.2	Travel expenses	14.8
		Special tasks	9.8
		Disability insurance	0.3
		Benefits in kind	3.8
		Early retirement scheme	7.3
		Severance pay	11.5
		Honoraria	2.5
		Sickness payments	5.2
		Training costs	3.5
		Travel to work	7.0
		Jubilee gratuities	1.2
		Private insurance schemes	0.7
		Payments to non-staff	10.1
		Other payments	3.2
Total	100.0	Total	100.0

Source: Central Statistical Office, Budapest, Labour Costs in the Hungarian Economy, 1992.

8.4 Comparison with real value added per employee

Trends in real producer compensation cost per employee can then be compared with trends in real value added per employee (also deflated by producer prices) to indicate trends in the market situation of labour over time. For example, the data necessary for this exercise are assembled, from the survey of large and medium scale industry²² in Indonesia, in Table 8.3.

²² With twenty employees or more.

Table 8.3: Large and Medium Manufacturing, Compensation Cost and Value Added per Employee, Indonesia, 1986 - 1992

	1986	1987	1988	1989	1990	1991	1992
Nominal compensation cost per employee (Rp'000)	1116	1219	1374	1524	1730	2075	2669
Producer price index (1985 = 100)	101	113	125	132	151	166	174
Real compensation cost per employee (Rp'000)	1105	1080	1098	1152	1146	1248	1535
Value added at current prices (Rp'000 mn)	9348	11279	13882	19046	25171	29926	41438
Real value added (Rp'000 mn)	9216	9994	11098	14396	16679	18005	23834
Number of employees ('000)	1691	1788	2065	2259	2663	2994	3313
Real value added per employee (Rp'000)	5450	5589	5374	6373	6263	6014	7194

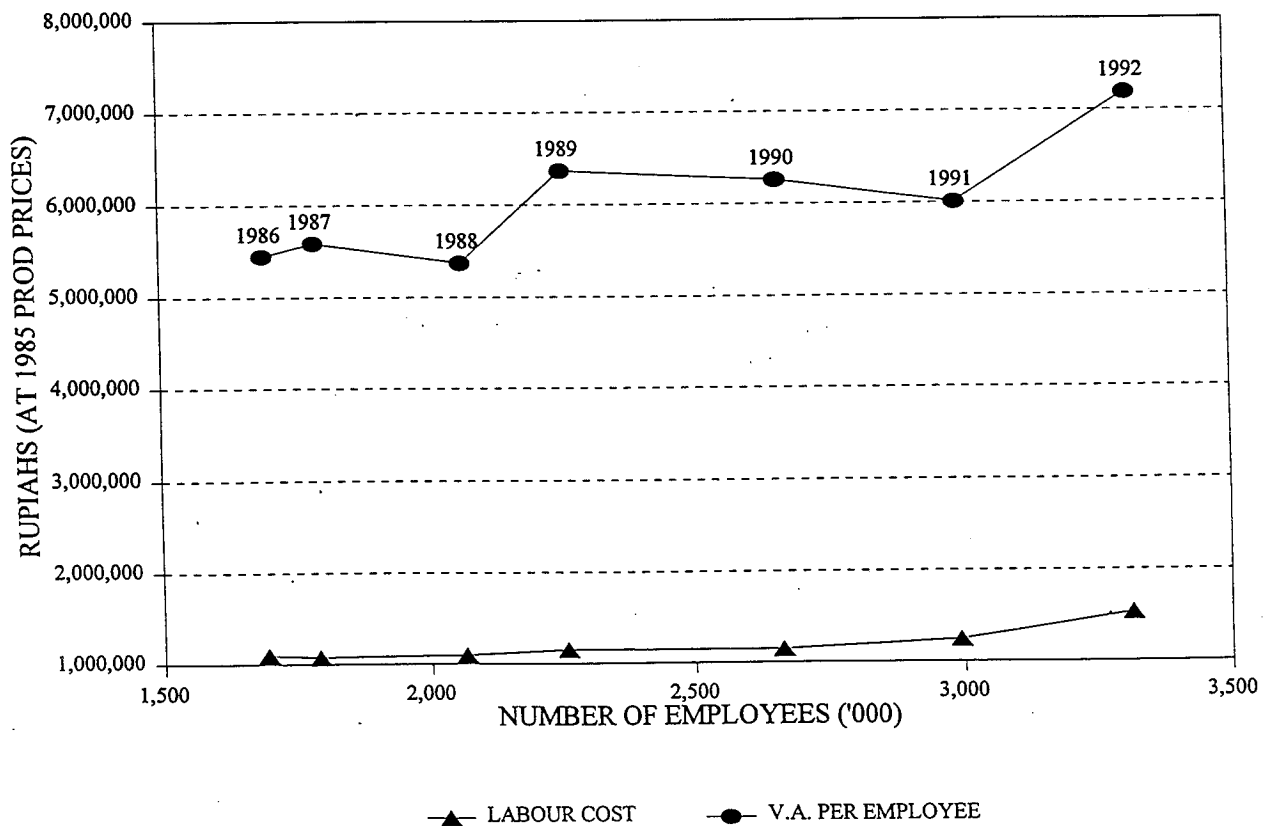
Source: BPS, Survei Industri.

As can be seen, while the number of wage employees in large and medium scale manufacturing has increased steadily, at an annual average rate of 8.2 per cent between 1986 and 1992, both real compensation cost per employee and real value added per employee have also increased. The relationship between these three variables is presented graphically in Figure 8.4.

These data show that there is little doubt about the stage through which the Indonesian labour market was passing prior to 1990. As Figure 8.4 shows, fast expansion of wage employment in large/medium manufacturing (by 15 per cent between 1986 and 1990) was accompanied by a real labour cost increase of less than 4 per cent. In agriculture, also, as Table 8.1 and Figures 8.2 and 8.3 above showed, increases in wage employment in Java over the same period did not involve significant increases in the real producer wage. These data also are consistent with a relaxed version of an unlimited-labour-supply model: in this phase Indonesia was still a labour-surplus economy, in the sense that increases in employment did not set off substantial increases in the supply price of labour.

In 1990-92, on the other hand, as Figure 8.4 shows, a 24 per cent increase in the number of employees in large/medium manufacturing went along with a large (34 per cent) increase in real compensation cost and a 15 per cent increase in real value added per employee. This is consistent with the data on real producer wages in agriculture (shown in Table 7.1 and Figure 8.1) which also rose steeply in 1992 and 1993.

Figure 8.4 Real labour cost, value added per employee and employment in large and medium enterprises



Does all this signify a tightening of Indonesian labour markets, presaging the onset of the rising-real-wage turning point? The data, particularly the fact that the labour cost increase in manufacturing has gone along with an increase in productivity, such that the absolute gap between the two has widened (see Figure 8.4), are consistent with such a hypothesis. It must be admitted that they are consistent with other hypotheses also; as always, data should not be analysed in isolation from their particular political context. But identification of such emerging trends will make an important contribution to employment policy.

Finally, the diagnostic power of such an approach can be further illustrated by a comparison with the Philippines. Table 8.3 assembles similar data on compensation cost and value added per employee in manufacturing there between 1986 and 1991.

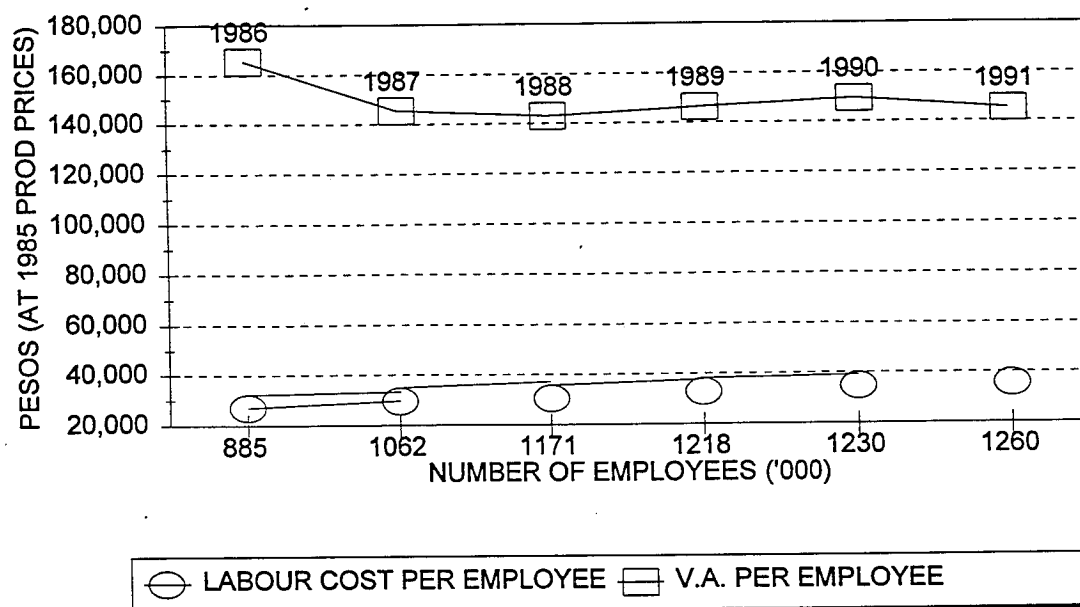
Table 8.3: Manufacturing, Compensation Cost and Value Added per Employee, the Philippines, 1986 - 91

	1986	1987	1988	1989	1990	1991
Nominal compensation cost per employee (pesos)	27777	32556	37643	43163	50749	61967
Producer price index (1985=100)	102	110	123	131	145	173
Real compensation cost per employee	27129	29677	30541	33020	34888	35917
Value added, at current prices (bn pesos)	150	170	207	233	268	316
Real value added (bn pesos)	147	155	168	178	184	183
Number of employees ('000)	885	1062	1171	1218	1230	1260
Real value added per employee	165537	145574	143211	146470	149512	145317

Source: ILO, Yearbook of Labour Statistics; Bot (1994).

Figure 8.5 presents the same data in graphic form. As can be seen, real compensation cost per employee increased in the Philippines over this period, just as it did in Indonesia. The difference is that real value added per employee has been on a downward rather than an upward trend. Thus, the increase in labour costs in the Philippines is likely to reflect labour market segmentation rather than an emerging labour shortage.

Figure 8.5 Philippines: Real labour cost and value added per employee, and employment, manufacturing



9. Labour costs and international competitiveness

At the centre of employment policy in many developing countries is a drive to improve the competitiveness of the economy in international markets. Since the main interest is in markets for labour-intensive manufactured goods, this makes labour costs particularly important. Employment planners need to monitor labour costs not only in their own economy but also in competitor economies. This involves collecting and analysing data on nominal annual compensation cost per employee, nominal value added per employee and real effective exchange rates. The resulting index of real manufacturing labour cost per unit of output (in foreign currencies) is a revealing guide to trends in international competitiveness in labour-intensive products. It can be used to measure the impact of policy measures and to identify a need for new measures. The relative importance of the various factors underlying changes in unit cost can be identified. For instance, an increase in unit cost may be due to an increase in wages, an increase in non-wage labour costs, an increase in the real effective exchange rate, or a fall in productivity. In each case a particular policy change may be indicated.

9.1 Hourly compensation costs in international currency units

In order to check on an economy's *competitiveness in international markets*, it is necessary, first of all, to convert compensation costs into an *international currency*, usually dollars or yen. Thus wage competitiveness depends not only on local labour costs but also on exchange rates.

Table 9.1 compares data on compensation costs (i.e. wages and salaries in cash and kind and employers' expenditures on social security and pay-roll taxes), converted into dollars, from thirteen developed and developing economies.

The table illustrates the enormous range of manufacturing labour costs, between Sri Lanka, at forty cents an hour, and the Netherlands, more than fifty times as much. It also shows the very rapid changes that have been taking place over a six-year period. The steep increase in labour costs since 1987 in the newly industrialised economies, Korea and Singapore, is particularly striking, as is the contrast between the USA (relatively stable) and Western Europe (almost doubling). The varied experience of Eastern Europe is also evident, between Hungary, where labour costs have risen in the new political situation of the 1990s, and Romania, where they have tumbled to Asian levels. The recent rise in labour costs in Indonesia, discussed in the numerical examples of Chapter Nine, is also shown.

9.2 Real effective exchange rates

Underlying the trends in Table 9.1 are changes not only in hourly compensation costs but also in nominal exchange rates. A more thorough analysis of changes in international competitiveness involves the use of a measure, real effective exchange rate, which takes into account inflation both in the country concerned and in its trading-partner and competitor countries.

Table 9.1. Hourly compensation costs for production workers in manufacturing, selected countries, 1986 - 1992
(US\$)

	1986	1987	1988	1989	1990	1991	1992
Indonesia	0.40	0.34	0.36	0.39	0.41	0.47	0.59
India	0.39	0.38	0.37	..	..	..	..
Korea	1.31	1.59	2.20	3.17	3.71	4.46	4.93
Singapore	2.23	2.31	2.67	3.15	3.78	4.35	4.95
Sri Lanka	0.29	0.30	0.31	0.31	0.35	0.40	0.40
Mexico	1.06	1.01	1.25	1.48	1.64	1.95	2.35
Austria	10.28	13.09	13.93	13.59	16.95	17.41	19.65
Netherlands	12.21	15.15	15.84	15.05	18.30	18.44	20.72
Czechoslovakia	1.33	1.49	1.81	1.87	1.62	1.17	1.32
Hungary	1.25	1.28	1.51	1.55	1.77	1.93	2.42
Poland	1.30	1.05	1.18	1.36	1.05	1.63	1.73
Romania	1.34	1.35	1.44	1.42	1.13	0.80	0.56
USA	13.26	13.52	13.91	14.32	14.91	15.60	16.17

Sources: For exchange rates, IMF International Financial Statistics. For hourly compensation costs: for Indonesia, BPS, Survei Industri; for Hungary, national sources; for Czechoslovakia, Poland, Romania, ILO Yearbook and Bulletin of Labour Statistics, and US Department of Health and Human Services, Social Security Programmes throughout the World; for others, US Department of Labour, Bureau of Labour Statistics, Office of Productivity and Technology, Hourly Compensation Costs for Production Workers in Manufacturing, 1993, June 1994.

There are various definitions of real effective exchange rate, but the most widely accepted is that of the International Monetary Fund, as follows.

$$E_{reh} = \frac{E_{nh}}{E_{no}} \cdot \frac{P_h}{P_o} \cdot 100$$

where

E_{reh} is index of real effective exchange rate;

E_{nh} is index of nominal exchange rate of home currency;

E_{no} is index of weighted geometric average of exchange rates of selected partner or competitor countries;

P_h is index of cost (eg value added deflator) in home country;

P_o is a weighted geometric average of the corresponding cost indices in selected partner or competitor countries.

Table 9.2 shows trends in real effective exchange rates for fourteen selected economies between 1986 and 1992.

Table 9.2. Index of real effective exchange rates, selected countries, 1986 - 1992 (1986 = 100)

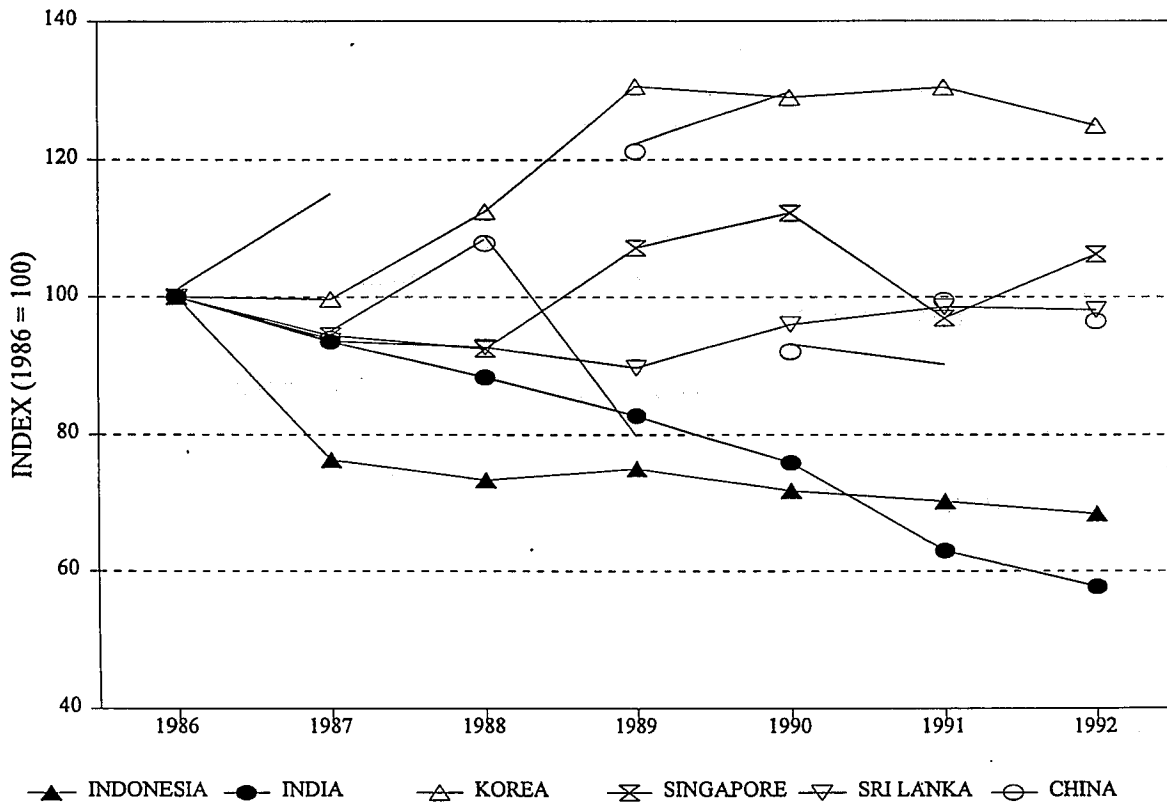
	1986	1987	1988	1989	1990	1991	1992
INDONESIA	100	76	73	75	72	70	68
CHINA	100	94	108	121	92	99	96
INDIA	100	93	88	83	76	63	58
KOREA	100	100	112	131	129	130	125
SINGAPORE	100	94	92	107	112	97	106
SRI LANKA	100	93	93	90	96	98	98
MEXICO	100	103	125	122	124	134	..
AUSTRIA	100	81	78	76	77	74	75
NETHERLANDS	100	103	104	101	105	103	107
CZECHOSLOVAKIA	100	105	95	91	124	79	..
HUNGARY	100	90	92	93	97	110	116
POLAND	100	73	66	74	63	97	97
ROMANIA	100	106	106	97	71	57	47
USA	100	85	79	84	80	78	72

Source: IMF, International Financial Statistics.

Figure 9.1 shows the same information in the form of a graph for six of the economies in the table. As can be seen, several economies (Indonesia, China since 1989, India, the USA) have followed a deliberate policy of real effective devaluation, aimed at increasing the international competitiveness of their products. Others (Korea, Singapore, Sri Lanka, the

Netherlands, Hungary, Poland) have, in contrast, been participating in international markets with stable or rising real effective exchange rates.

Figure 9.1 Real effective exchange rate (Index, 1986-92)



9.3 Real labour cost per unit of output

The data on exchange rates can be combined with those on compensation costs and value added per employee to yield indices of real manufacturing labour cost per unit of output, expressed in foreign currencies.

Real labour cost per unit of output in foreign currencies is equal to: real annual compensation cost per employee multiplied by the real effective exchange rate divided by real value added per employee. More formally

$$U = \frac{W_{nh}}{V_{nh}} \cdot E_{reh}$$

where

U is real labour cost per unit of output in foreign currencies;

W_{nh} is nominal annual compensation cost per employee in home economy;

V_{nh} is nominal value added per employee in home economy.

E_{reh} is index of real effective exchange rate.

The calculation of real labour cost per unit of output can, therefore, be reduced to four steps.

- (1) Calculate nominal annual compensation cost per employee in the home economy.
- (2) Calculate nominal value added per employee in the home economy.
- (3) Divide (1) by (2).
- (4) Multiply (3) by the real effective exchange rate.

This calculation can usefully be illustrated, one step at a time.

The first step is to compile data on nominal annual compensation cost per employee in the home economy and, if possible, for the economies with which a comparison is to be made. For example, Table 9.3 assembles such data for manufacturing in fourteen selected economies.

Table 9.3. Index of nominal annual compensation cost per employee, manufacturing, selected economies, 1986 - 92. (1986 = 100)

	1986	1987	1988	1989	1990	1991	1992
INDONESIA	100	109	123	137	155	186	239
INDIA	100	102	106	..	..	..	..
KOREA	100	112	134	171	207	256	301
SINGAPORE	100	102	108	127	141	155	167
SRI LANKA	100	118	125	146	180	213	233
MEXICO	100	203	421	543	694	885	1097
AUSTRIA	100	104	108	110	121	127	133
NETHERLANDS	100	103	106	110	117	120	125
CZECHOSLOVAKIA	100	102	130	133	137	160	174
HUNGARY	100	108	136	157	193	246	316
POLAND	100	122	227	850	4135	6867	9391
ROMANIA	100	91	95	98	115	278	783
USA	100						

Sources: ILO, US Department of Labour and national sources.

The increases in compensation cost in the table reflect both increases in real wages and in non-wage labour costs and inflation. Mexico, Poland and Romania, in particular, have had very high rates of increase in prices and wages.

The next step is to divide nominal value added in the sector by the number of wage employees to get nominal value added per employee, as shown in Table 9.4.

Table 9.4. Index of nominal value added per employee, manufacturing, selected economies, 1986 - 92. (1986 = 100)

	1986	1987	1988	1989	1990	1991	1992
INDONESIA	100	114	122	153	171	181	226
INDIA	100	119	141	163	..	..	..
KOREA	100	113	116	121	128	150	159
SINGAPORE	100	107	120	128	139	133	145
SRI LANKA	100	115	151	249	152	161	179
MEXICO	100	253	540	621	786	1009	..
AUSTRIA	100	101	107	115	125	129	114
NETHERLANDS	100	98	103	106	105	110	112
CZECHO	100	102	104	104	109	166	177
HUNGARY	100	110	119	134	156	205	242
POLAND	100	132	225	722	4211	5289	7655
ROMANIA	100	101	107	101	93	212	631
USA	100	108	116	125	133	136	145

Sources: UN, ILO, Asian Development Bank, and national sources.

Once again, inflation rates have been a major influence on the numbers in this table which conceal wide differences in physical productivity trends.

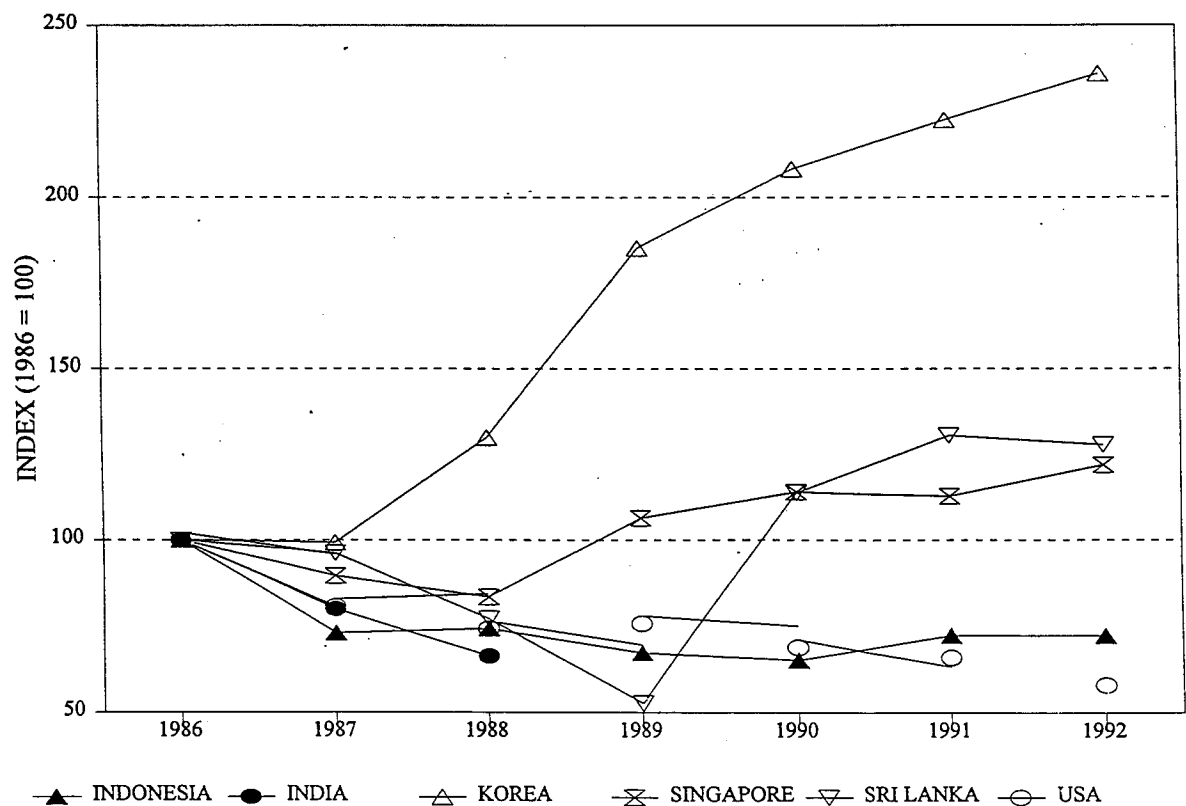
The final stage is to divide the figures on compensation cost in Table 9.3 by the figures on value added per employee in Table 9.4, and then to multiply the resulting figures by the real effective exchange rate from Table 9.2. This yields the indices of real manufacturing labour cost per unit of output (in foreign currencies) shown in Table 9.5.

Figure 9.2 presents the same information in graphic form for six of the countries in the table. This index is a revealing guide to trends in international competitiveness in labour-intensive products and needs to be carefully observed by policy-makers in economies engaged in that trade. It has differing implications for economies at different stages. Thus, economies that are moving out of cheap-labour manufacturing, like Singapore and Korea, have less need to worry about an upturn in the index than does an economy still relying on cheap labour, like Sri Lanka. The possibility that Indonesia may be beginning to move from the one stage to the other is again suggested. The different directions being taken by different Eastern European economies are also illustrated, with Hungary and Poland seeing an increase in unit labour costs and Romania a steady fall. Perhaps the most striking aspect of Figure 9.2 (and a reminder that not only structurally-adjusting, developing economies can take this route) is the spectacular fall in US unit labour costs, due partly to productivity increases, but mainly to real effective devaluation of the dollar.

Table 9.5. Index of real manufacturing labour cost per unit of output (in foreign currencies), selected countries, 1986 - 1992. (1986 = 100)

	1986	1987	1988	1989	1990	1991	1992
INDONESIA	100	73	74	67	65	72	72
INDIA	100	80	66	..	..	..	..
KOREA	100	99	130	185	208	222	236
SINGAPORE	100	89	83	106	114	113	122
SRI LANKA	100	96	77	53	114	131	128
MEXICO	100	83	97	107	109	118	..
AUSTRIA	100	83	78	72	74	72	87
NETHERLANDS	100	109	107	104	117	112	120
CZECHOSLOVAKIA	100	105	119	116	157	76	..
HUNGARY	100	88	105	109	119	132	151
POLAND	100	67	66	88	62	126	119
ROMANIA	100	95	94	93	87	75	58
USA	100	80	74	76	69	66	58

Figure 9.2. Real unit labour cost (foreign currencies) index, 1986-92



9.4 Factors underlying unit labour cost trends

Calculations of this kind are the starting point for further analysis of factors underlying the trends and of possible areas for policy action.

In the case of Hungary, for instance, real labour cost per unit of output in manufacturing rose, according to Table 9.5, by 39 per cent between 1989 (the year of the change in political regime) and 1992. Underlying this, on the cost side, have been:

- a real increase in employee's average earnings of 5 per cent;
- a real increase in the non-wage labour costs discussed in section 1 of this chapter of 26 per cent (implying a real increase in total compensation cost per employee of around 11 per cent);
- an increase in the real effective exchange rate of 25 per cent; and on the output side:
- virtually no change in real value added per employee.

Such figures draw attention to areas for policy action. In Hungary's case, for instance, the problem does not seem to be primarily one of excessive wage increases, although even a 5 per cent real increase is quite surprising against a background of collapsed demand for labour and mass unemployment.

The increase in non-wage labour costs is of greater concern, although it is necessary to look at any alternative proposals for financing social expenditure within a general-equilibrium framework.

The wisdom of allowing a 25 per cent increase in the real effective exchange rate at a time when the demand for labour was in need of a boost also needs to be looked at.

And finally the data suggest that attention needs to be paid to productivity. The fact that it has not fallen so far is largely due to cuts in the workforce. The next, more positive phase will begin when productivity gains from improvements in technology and methods are accompanied by increases in employment. Such productivity increases should always be welcomed rather than feared by those who want to solve a country's employment problem.

10. Conclusions

10.1 Summary

The general conclusions are that a blueprint approach to employment planning, with emphasis on detailed forecasting, is no longer useful, and that monitoring of labour markets is to be preferred. Such monitoring is best based on a combination of analysis of labour force data on the structure of an economy's employment problem and of tracking of trends in wages, wage employment and productivity. In general, the uncritical use of the concepts of "employment" and "unemployment" is to be avoided in developing economies.

The blueprint approach has been found, in chapter two, to have many weaknesses, including excessive aggregation, absence of prices, a tendency to set up a conflict between increasing productivity and increasing employment, exclusion of dynamic effects, and reliance on the flawed concept of "employment". In principle, a computable general equilibrium model could be developed which would address all or most of these weaknesses and could be used to simulate the medium-term effects of various policy changes. That would be a useful, academic exercise, but, given data and other constraints, practitioners in most developing countries will have to get along without such a model in the foreseeable future.

In this situation they should forget about 'second-best' modelling, particularly forecasting. The world has changed. Planners' influence on the detailed allocation of non-government resources in most economies is negligible and to pretend otherwise is to indulge in pseudo-planning. Rapid technical change, moreover, makes nonsense of models which assume fixed coefficients. In today's world it is much more important for employment policy-makers to know what is happening in today's labour markets than to persist in trying to peer through an imperfect telescope into an uncertain future.

The usual approach to monitoring, based on analysis of labour force concepts, described in chapters three and four, reveals only part of the picture. It throws some light on the nature and structure of an economy's employment problem: the characteristics of the active and inactive unemployed and the various categories of underemployed, for instance. But statistical comparability problems, and the flaws in the concepts that it is working with, make the labour force approach of little use for monitoring changes over time. Such problems are so severe that, in an economy without a comprehensive unemployment benefit system, the concepts of employment and unemployment should never be used by a labour economist interested in analysing changes over time. The only relatively robust labour-force series in such circumstances is *wage employment*, and this is the labour-force concept on which analysts should concentrate.

The most useful, and most neglected, single indicator for analysing changes in labour markets over time is *wages*, even in economies where the self-employed are still more numerous than wage-earners. Wage rates, it has been argued in chapter five, in those parts of the labour market to which entry is relatively easy and competitive, should be sensitive to changes in most types of underutilisation described by the labour-force approach. Analysis of wages, also, as chapter six showed, can help to specify the degree to which labour markets are *not* competitive, exploring regional differences and dimensions of segmentation. Changes in differentials can also be usefully monitored over time, as chapter ten demonstrated in the case of differentials between more and less qualified workers.

It is helpful to distinguish indicators of changes in labour markets from the point of view of *labour* from indicators of changes from the point of view of *employers*. Changes in real consumer wages are, as chapter seven shows, a sensitive indicator of changes affecting labour. The possibility of combining such wage data with data on wage employment to produce an aggregated index of labour welfare, which could eventually play the role that the unemployment rate plays as an indicator in an industrialised economy, looks promising.

For monitoring changes affecting employers, the real producer wage is a more useful measure, as chapter eight shows. Trends in such wages are a useful guide on their own. If combined with information on wage employment, they can show what happens to wages as the level of employment changes, and indicate whether an economy is still in an "unlimited labour supply" phase. Better still, data on total labour costs or, at least, compensation costs per employee, should be used, or, deflated by a producer price index, real producer compensation cost per employee. If trends in this measure are compared with trends in real value added per employee, a much clearer picture of labour market changes and phasing is obtained. The comparison of the Indonesian and the Philippines' manufacturing sector is particularly revealing in this respect.

Another useful exercise, attempted in chapter nine, is to monitor changes in an economy's competitiveness in international markets for labour-intensive products. The comparison of hourly dollar compensation costs for production workers is interesting enough, but it is more revealing for this purpose to construct an index of real labour cost per unit of output in foreign currencies. Deconstruction of such an index, moreover, is an invaluable aid to identifying areas for possible policy action.

10.2 Data needs

Shortage of data may limit the extent to which all of the measures described in these pages can be put to immediate use. Even where data exist their quality may need to be improved and their speed of publication increased. It may be useful, therefore, to draw up a list of the (high-quality and timely) data that are needed by today's employment planner, for use in discussions about new priorities with departments responsible for collecting statistics. Table 10.1 summarises this.

Table 10.1: Data needed for a new approach

-
1. Number of wage employees, by age, sex, sector, ownership and size of establishment, broad occupational category, full-time/part-time, permanent/temporary, region.
 2. Wages, per hour, day, week, month, year, by age, sex, sector, ownership and size of establishment, broad occupational category, full-time/part-time, permanent/temporary, region.
 3. Consumer price indices, by region, income group or class.
 4. Producer price indices, by region, sector.
 5. Compensation costs per hour, day, week, month, year, by wage/non-wage, category of worker (production/non-production), sector, ownership, size of establishment.
 6. Value added by sector, ownership, size of establishment.
 7. Exchange rates, nominal and real effective.
 8. Unit labour cost data on competitor/partner countries.
 9. Social & private, direct & indirect costs of special employment programmes.
 10. Labour market outcomes (employment & before- & after-tax earnings) for programme participants & control group.
 11. Information on assets built by public works programmes & output & incomes flowing from them.
-

This list implies a need for a combination of individual-record surveys, whether household or establishment based, (for 1 and 2) and aggregated surveys of establishments (for 1, 2, 4, 5 and 6), as well as the usual consumer price and exchange rate data. It also implies a need to collaborate with employment planners in other countries (for 8). As far as special employment programmes are concerned,¹ as well as collection of cost data (for 9) it draws attention to the central role of tracer studies, supplemented by surveys of a sample of workers in their workplaces (which could be combined with the surveys required under 1 and 2) and surveys of the unemployed (for 9). Special surveys of the impact of public works programmes will also be needed (for 10 and 11). In general, this data collection agenda looks quite daunting, but the good news is that a lot of existing labour surveys could be discontinued or shortened!

10.3 Helping to make policy

Finally and most important, how would this information be used by policy-makers? In short, it would be used in four ways:

¹ Discussed in the Annex following this Chapter.

- (1) to identify employment problems as they emerge;
- (2) to analyse the causes of these problems;
- (3) to appraise policy options for the solution of the problems; and
- (4) to monitor and evaluate the impact of any policy measures taken.

(1) Identification of problems could take various forms. For instance, it may be observed that the national average consumer wage for unskilled labour is tending to fall, while wage employment of the same category of labour is rising only slowly. At the same time the data show severe regional problems of wage and wage-employment depression and similar problems among a particular ethnic group.

(2) Further analysis of the data (backed up, if necessary, by specially commissioned research) could go some way to revealing the causes of these problems. For instance, they may show that, while real consumer wages are falling, real compensation cost per employee (deflated by producer prices) is rising, partly because producer prices are rising less fast than consumer prices, partly because non-wage labour costs are increasing (due to payroll taxes and other levies on employers). Productivity (value added per employee) is stagnant, to the detriment of the demand for labour. At the same time, the real effective exchange rate is constant, so that trends in real labour cost per unit of output, expressed in foreign currencies, are unfavourable in comparison with competitor economies, to the detriment of exports of labour-intensive manufactured goods. Regional problems may be due to specialisation in commodities with temporarily unfavourable price trends, or to chronically excessive labour/land ratios. Ethnic problems may reflect the low levels of education of the group in question compared with national averages.

(3) A range of policy options, for appraisal by policy makers, is suggested by this analysis. Both nationally and in particular regions, the demand for labour needs to be boosted. At the national level this might imply a need for a reduction in non-wage labour costs; an increase in labour productivity (for instance, through improved production methods, management practices and training); a more competitive exchange rate policy; institutional reforms, such as reform and privatisation of state enterprises, streamlining of investment and production licensing procedures, and improvements in the efficiency of the financial system; and a well-designed guaranteed employment scheme for those in most desperate circumstances. At the regional level, encouragement of migration from low-wage to high-wage regions might additionally be considered if the problem is chronic. Programmes for disadvantaged ethnic groups could most usefully concentrate on raising levels of education (among adults as well as children).

(4) For monitoring the impact of such policy measures the initial focus would be on the combination of data on changes in real consumer wages with data on wage employment at the national level. The hope would be that real consumer wages would at least stabilise, while the increase in wage employment would accelerate. The impact of policy measures on trends in real producer wages and real compensation cost per employee, value added per employee, real effective exchange rates and real labour cost per unit of output would also be monitored. The regional and group impact of policy measures would also be measured. And any special employment schemes would be subjected to rigorous monitoring and evaluation, within a cost/outcome framework.

All this may look mundane in comparison with the exciting times of blueprint planning, when models were used to generate forecasts, which then appeared in national plans that were supposed to be obeyed. Times have changed. In most countries, in any case, such plans scarcely influenced events: whether the demand for labour increased fast or slow, this was generally attributable to factors other than the quality of a country's projections. The agenda for employment planners suggested here may be less glamorous but they are certainly

more useful - the collection and analysis of information needed to make policy, rather than the construction of facades to conceal its absence.

ANNEX

Evaluation and monitoring of special employment programmes

Policies, such as factor price and institutional reform, intended to improve the efficiency of the labour market and increase the demand for labour, may need to be backed up by *special employment programmes*. These take several forms. The most common is the **training** programme, aimed at imparting employable skills to unemployed youth. Typical of this approach are the 150 Skill Development Centres operated by Indonesia's Department of Manpower, with a total enrolment of about 36,000 in 1989/90 (World Bank 1991), offering short courses in mechanical, electrical and electronic, automotive, construction, business, agricultural and miscellaneous craft skills to unemployed school leavers. Another special programme that is organised in many countries is the labour-intensive *public works* programme. Sometimes (eg in Maharashtra and some other Indian states) this takes the form of a guaranteed employment scheme, offering guaranteed work at a low wage to all who want it.

The emphasis on minimalist planning and on what is going on in labour markets (rather than on spurious, projection-based, national "needs") is relevant in looking at these programmes also. Regular and rigorous monitoring and evaluation are required, within a cost/outcome framework. Cost-ineffective programmes are not only a disappointment to those who take part in them: they make the employment situation worse by diverting resources from uses which could have added to the demand for labour.

The cost/outcome framework

Cost/outcome analysis, as its name suggests, involves a comparison of the cost of a course of action with its outcome. This analysis can be carried out before a decision is taken, in which case it is part of an *appraisal*; or it can be carried out after outcomes have begun to occur, either repeatedly (*monitoring*) or after the lapse of some time (*evaluation*). It is usually applied to projects which involve some capital expenditure. However, it can be used equally well in cases where no capital expenditure is involved.

Cost can be defined from several points of view. In the case, for instance, of an evaluation of a training course which has not involved any capital expenditure, the cost to the *individual* of taking the course is the fee (if any) that has to be paid *plus* the value of whatever the individual has had to give up in order to participate in the training (principally, his/her after-tax earnings, which would be zero in the case of the unemployed). From the *government* point of view, the cost of the course is measured by its net implications for government expenditure. However, the relevant cost concept for social cost/outcome analysis is cost from the point of view of society as a whole, or *social opportunity cost*. This is defined as what society has to give up in order that the training should take place. In this case cost will include not only actual expenditure on staff of all kinds, power, telephones, repair, maintenance, training materials, etc., but also the cost of resources for which no payment is involved, such as the time of volunteer teachers, trainees etc. if that time has an alternative productive use. It will also include the cost of indirect as well as that of direct inputs, such as the provision of special transport for participants. Inputs will be valued initially at market prices, then adjusted for inflation and for any differences between market prices and social opportunity cost (for instance, taxes should strictly be deducted from prices of inputs, and subsidies added to them).

On the *outcome* side, in the case of a special employment training programme, the main interest is in what happens in the labour market to those who have received the training. Thus the *impact* of the course either on *earnings* or on *employment* has to be measured, usually by comparing the experience of the trained with that of a control group. In industrialised economies the impact on employment is a common measure. In developing countries the nature of the employment would probably have to be specified.

If earnings differentials are used as a measure of benefit in this way, several conceptual problems arise. This practice is, of course, derived from the marginal productivity theory of wages, whereby a profit-maximising employer will not expand his workforce if an extra worker would add more to his costs than to his revenue. In a perfectly competitive labour market, thus, the wage is equal to productivity at the margin; hence the use of wages or earnings to measure productivity or benefit. However, the profit-maximising calculus does not apply to all employers. The public sector, for instance, has quite different objectives, and some adjustment of public sector wages may be necessary for our purposes. And if, as is sometimes the case, labour markets are not perfectly competitive, the wage may be lower than marginal productivity even in the profit-maximising sector.

Even if earnings broadly reflect productivity, not all of a differential in earnings, between those who have been through a particular course and a control group who have not, is necessarily due to what has been learned on the course. In particular, social class, family background and academic potential or previous achievement may affect access to, performance in and the labour market consequences of education and training. This means that care must be taken in selection of control groups. For instance, comparisons between rates of return on academic schooling and those on vocational schooling are often unfair because the control groups used do not reflect the differing backgrounds of the students at the two types of school.

There are also important *indirect* effects that are not captured by this measure and that have to be taken into account. On completion of their courses, graduates may be placed in jobs that were held by others up to that point or may fill vacancies that would have been filled by others in the absence of the training programme (the *displacement* effect). In the extreme case in which a trained worker merely bumps a less trained worker out of a job, taking over but not increasing the lifetime earnings stream associated with that job, the net social benefit from the training is zero. However, there may also be a *replacement* effect if the slot in the labour market vacated by the worker who joins the training programme and subsequently moves into a higher occupational category is filled by another worker who would otherwise have remained unemployed. This should be counted as an extra benefit. So too should the *demonstration* effect, whereby the skills acquired by trainees are later diffused to others who have not undergone the training; *social* effects, such as reductions in fertility levels; and *dynamic* effects, such as the opening up of employment opportunities for complementary workers who would otherwise be unemployed, the attraction of foreign investors and technology, and the reduction in inflationary pressures.

All this means that earnings differentials are at best a partial measure of the outcome of a training course, and that employment planners should take at least qualitative account of these various problems and indirect effects in assessing the implications of differentials.

Comparison of cost and outcome can take several forms. The simplest is a *unit cost* calculation. If capital expenditure is involved, capital cost per student place and total (current + annualised capital) cost per student and per graduate can be calculated. If, as is being assumed in this case, no capital expenditure is involved, the relevant unit cost concepts are *current cost per student* and *per graduate*.

A slightly more complex measure would be in terms of *cost-effectiveness*. For instance, in the case of training courses which are aimed at improving the chances of unemployed

people of finding jobs, a relevant cost-effectiveness measure would be extent of *improvement in employability* per unit of currency expended.

More ambitious still would be some kind of *cost/benefit* calculation. Broadly speaking, this consists of comparing the stream of costs attributable to the training with the stream of benefits resulting from it. This comparison can take the form of a *benefit/cost ratio*, a *net present value* calculation, or an *internal rate of return*.

The benefit/cost ratio is the discounted present value of the stream of benefits from the training (measured by its impact on the before-tax earnings² of a trainee) *divided by* the discounted present value of the stream of costs (direct and indirect) attributable to the training. The net present value is the discounted present value of the stream of benefits *minus* the discounted present value of the stream of costs. The discounted present value of streams of benefits or costs can be calculated with the aid of a present value table (see Hunting et al. 1986:Table 3.2), or on a personal computer by means of the LOTUS financial function @NPV.

The internal rate of return is the discount rate at which the present value of the stream of benefits is exactly equal to the present value of the stream of costs. It can be calculated by trial and error or, more simply, on a personal computer by means of the LOTUS financial function @IRR. It is probably the most useful measure for planning, as it does not involve making assumptions about the social rate of discount.

Unit cost per graduate is substantially lower in Department C's institutions, less than half than is achieved in the other two cases. The *success rate of trainees* is the percentage of those who entered the course who have succeeded in getting a job by the time of the survey, a few months after the end of the course. The *success rate of the control group* is that of a group of people with all the same characteristics as the trainees (age, sex, education, social class etc.), save that they did not participate in the training. In the case of training of unemployed the control group would ideally be selected from those who became unemployed at the same time as the trainees. The *effectiveness* of the training is, then, measured by deducting the success rate of the control group from that of the trainees, to show what difference the training made to success in the job market. And *cost-effectiveness* is measured by the number of percentage points difference in success rate per 1,000 rupees of cost.

Unit cost and cost-effectiveness

Table A.1, based on Sri Lankan data, illustrates the use that can be made of *unit cost* and *cost-effectiveness* measures.

² If the individual in question is not a wage-earner but an own-account worker or employer, then, strictly speaking, his/her entrepreneurial returns should be estimated and deducted from total earnings to give returns to labour.

Table A.1. A comparison of unit cost, effectiveness and cost-effectiveness of three types of training, Sri Lanka, 1994

	(1)	(2)	(3)	(4)
	Unit cost per graduate (Rs '000)	Labour market success rate of graduates (%)	Labour market success rate of control group (%)	Indicator of cost-effectiveness [(2)-(3)]/(1)
Dept A's institutions	23.9	80.6	50	1.28
Dept B's institutions	24.8	63.5	50	0.54
Dept C's institutions	10.7	59.3	70	-1.00

Source: Columns (1) and (2), Vocational Training Reform Project Preparation Report; Column (3), Labour Force Survey.

Thus, the success rate in the labour market of Department C's graduates, while lower than in the case of Department A, is not much different from Department B's. However, on cost-effectiveness, Department A ranks far below the other two departments and actually achieves a negative result. This is because, although its costs are lower, its effectiveness is lower still. Its training apparently *reduces* the employability of those who participate in it! Therefore, the indicator of cost-effectiveness is negative for Department C, and Department A's training is by far the most cost-effective of the three on this measure.

This draws attention to a problem with the effectiveness measure. As already discussed, in an economy without a comprehensive unemployment benefit system many cannot afford to be wholly unemployed for long. Most of those who participated in Department C's training courses would have otherwise settled for what they could find in the labour market, even if it was badly paid, casual wage labour or self-employment. It looks as if the immediate effect of the courses is to raise their expectations and encourage them to wait for an opportunity in line with those expectations, to the detriment of the 'employment' effectiveness measure. This suggests a need for a more subtle effectiveness measure, which distinguishes between types or qualities of employment. For some purposes, success rate could be defined as the percentage who succeed in obtaining wage employment, but in the case of training aimed specifically at self-employment this would not suffice.

Social cost/benefit analysis

Cost-benefit measures are much more satisfactory from this point of view. Table A.2 shows how each of these measures, benefit/cost ratio, net present value, and internal rate of return might be calculated for each of three (fictitious) courses.

Table A.2 A Comparison of Social Benefits and Costs of Three Types of Training for Unemployed School Leavers

	(a) Private unit cost (\$)	(b) Mean annual earnings of trainees (\$)	(c) Mean annual earnings of control group (\$)	(d) Difference in earnings (b-c) (\$)
Computer Programming				
Year 1	200			
Year 2		1200	1150	50
Year 3		1250	1185	65
Year 4		1300	1230	70
Year 5		1350	1275	75
benefit/cost ratio at interest rate of 5%				
		1.09		
benefit ratio at interest rate of 10%				
		0.92		
net present value at interest rate of 5%				
		18		
net present value at interest rate of 10%				
		-15		
internal rate of return				
		7.5%		
Agricultural Extension				
Year 1	75			
Year 2		600	590	10
Year 3		610	595	15
Year 4		620	605	15
Year 5		630	615	15
benefit/cost ratio at interest rate of 5%				
		0.61		
benefit ratio at interest rate of 10%				
		0.52		
net present value at interest rate of 5%				
		-29		
net present value at interest rate of 10%				
		-36		
internal rate of return				
		-8.1%		
Welding				
Year 1	150			
Year 2		800	775	25
Year 3		800	770	30
Year 4		810	775	35
Year 5		820	785	35
benefit/cost ratio at interest rate of 5%				
		0.70		
benefit ratio at interest rate of 10%				
		0.59		
net present value at interest rate of 5%				
		-45		
net present value at interest rate of 10%				
		-61		
internal rate of return				
		-4.8%		

As these are social cost/benefit measures, cost includes government subsidies and earnings are before tax. As can be seen, the ranking of the types of training is the same according to all three measures, with training in computer programming the only case with a positive rate of return and agricultural training showing the worst results. If information on earnings is only available for a single year rather than a series of years, a *short-cut*

approach can be used. For instance, if our three training courses were being evaluated at the end of year two, the following formula would suffice:

$$r = \frac{Y_t - Y_c}{C}$$

where

r is the return per unit of cost;

Y_t is the present value in year 1 of the mean earnings of trainees in year 2;

Y_c is the present value in year 1 of the mean earnings of the control group in year 2;
and

C is the present value in year 1 of the unit cost of the training programme.

From the information in Table 10.2, at a discount rate of 10 per cent, the value of r is: .23 for computer programming; .12 for agricultural extension; and .15 for welding. Thus the ranking is not changed but the range is narrower, since divergence increases in the later years of the series, which are not taken into account by this formula.

On the face of it, computer programming looks like the only type of training with a social benefit exceeding its cost, but various factors would need to be borne in mind in interpreting these results in the light of our earlier discussion of problems. For one thing, the low earnings of agricultural extension workers in comparison to the other two reflects the fact that this is a public-sector occupation; the demonstration effect of a trained extension worker may not be fully reflected in earnings. On the other hand, trained computer programmers will also have an informal demonstration effect in their workplaces and may have dynamic effects through the attraction of foreign investment.

Private cost/benefit analysis

Social cost/benefit analysis of this kind must always be supplemented by private cost/benefit analysis, which looks at costs and outcomes from the point of view of the individuals who undergo the training rather than from the point of view of government or society. This is particularly so if training is targeted at a disadvantaged group among the unemployed, e.g. a particular ethnic group, the less educated, the long-term unemployed. The private calculus is simpler, conceptually. In particular, there is no need to worry about the question of whether earnings, used as a measure of benefit in benefit/cost calculations, are really equal to productivity at the margin (as they need to be if the concern is with social benefit). Nor is the "screening" or "credentialist" critique of the human capital approach to policy (i.e. that general education or training adds little to an individual's marginal productivity but adds to his/her earning power because employers use qualifications as an index of ability) relevant in this case. What matters is the pay-off to the individual, not to society as a whole.

The most important information needed by the equity-conscious employment planner concerns the private pay-off to each type of training. Only after types of training provision have been ranked according to the pay-off to the trainee, can the issue of equalising access to training be addressed. Private pay-off can be measured in various ways.

The simplest would be in terms of *private cost-effectiveness*. As before, the cost-effectiveness measure would be the extent of improvement in success rate in the job market per unit of cost, but this time with cost defined as private cost. How this might work is shown in Table 11.3, which uses the same courses as in Table 11.2.

Table 11.3. A comparison of the private cost-effectiveness of three types of training for unemployed secondary school leavers

(a) Type of training	(b) Private unit cost (\$)	(c) Success rate of control group (%)	(d) Success rate of control group (%)	(e) Cost effectiveness [(c-d)/(b)] (\$)
Computer programming	200	90	40	.25
Agricultural extension	50	45	35	.20
Welding	100	55	39	.08

Private unit cost in each case is the average cost to the individual of undergoing the training, including both direct and indirect costs³. Direct costs would include fees and the costs of equipment, materials, special clothing etc. borne by trainees and their families. Indirect costs would mainly consist of earnings forgone as a result of undergoing the training (in the case of all these courses, in which the participants are unemployed, presumably equal to zero). As before, the *effectiveness* of the training is measured by deducting the success rate of the control group from that of the trainees, to show what difference the training made to success in the job market. And *cost-effectiveness* is measured by the number of percentage points difference in success rate per \$1 of cost.

In the fictitious example of Table 10.3, it is assumed that the computer programming course is unsubsidised, organised by a private training institution, charging full fees. It is more cost-effective than the other two, even though they are assumed to be subsidised and therefore have lower private unit costs.

A *private cost/benefit* rather than a cost-effectiveness approach can also be tried, using the same three measures - *benefit/cost ratio*, *net present value* or *internal rate of return* - but seen from the *private* point of view. Table 11.4 shows how each of these measures might be calculated for each of our three courses. Earnings are now after tax⁴, to reflect the benefit to the individual.

As can be seen, the ranking of the types of training is the same according to all three measures, with training in computer programming yielding the highest pay-off to the trainee and training in agricultural extension the lowest.

As before, if information on earnings is only available for a single year rather than a series of years, the *short-cut* approach can be used. The formula is unchanged, but *r* is now defined as the pay-off to the individual, earnings are after tax, and *C* is the unit cost of the training programme to the individual.

³ As Carnoy (1993:26) points out, the accurate estimate of the private costs of VET is much more difficult than is usually assumed. "The costs of education and training have usually been underestimated, mainly because **direct** private costs borne by workers and their families have often been omitted". However, private costs are, at least, less difficult to estimate than social costs.

⁴ The arbitrary assumption of a 5 per cent tax rate on earnings below \$750, and 10 per cent on earnings of \$750 and above, is made.

Table 11.4. A comparison of the private benefits and costs of three types of training for unemployed school leavers

	(a) Private unit cost (\$)	(b) Mean annual earnings of trainees (\$)	(c) Mean annual earnings of control group (\$)	(d) Difference in earnings (b-c) (\$)
Computer Programming				
Year 1	200			
Year 2		1080	1035	45
Year 3		1125	1067	58
Year 4		1170	1107	63
Year 5		1215	1148	67
benefit/cost ratio at interest rate of 5%				
		0.98		
benefit ratio at interest rate of 10%				
		0.83		
net present value at interest rate of 5%				
		-5		
net present value at interest rate of 10%				
		-35		
internal rate of return				
		4.3%		
Agricultural Extension				
Year 1	50			
Year 2		570	561	9
Year 3		580	565	15
Year 4		589	575	14
Year 5		599	584	15
benefit/cost ratio at interest rate of 5%				
		0.89		
benefit ratio at interest rate of 10%				
		0.75		
net present value at interest rate of 5%				
		-6		
net present value at interest rate of 10%				
		-12		
internal rate of return				
		-1.6%		
Welding				
Year 1	100			
Year 2		800	775	25
Year 3		800	770	30
Year 4		810	775	35
Year 5		820	785	35
benefit/cost ratio at interest rate of 5%				
		0.93		
benefit ratio at interest rate of 10%				
		0.79		
net present value at interest rate of 5%				
		-7		
net present value at interest rate of 10%				
		-21		
internal rate of return				
		-2.9%		

From the information in Table 10.4, at a discount rate of 10 per cent, the value of r is: .21 for computer programming; .16 for agricultural extension; and .20 for welding. Once again, the ranking is not changed but the range is narrower, since divergence increases in the later years of the series, which are not taken into account by this formula.

This example underlines the importance of the private rate of return. For instance, it may be desired for social reasons to increase the number of trained agricultural extension workers. However, if the private rate of return is as low as 1.6 per cent, it will be difficult to attract trainees to these courses, and even if they complete them they will be likely to seek work in another occupation. So an increase in the private rate of return (either through reducing its costs or increasing the earnings differential) is a prerequisite of effective training in this area.

In the absence of information of this kind on private costs and outcomes, the planner could make do, in the case of many types of training, with data on the number of applications for entry to training courses in relation to the number of places available. Table 11.5 shows how this might look for the same three courses.

Table 11.5. Number of applications per place available

(a) Type of training	(b) Number of applications	(c) Number of places available	(d) Index of attraction [b/c]
Computer programming	100	50	2
Agricultural extension	30	25	1.2
Welding	50	35	1.4

As can be seen, the computer programming course has two applicants for every place, while the number is closer to one for each of the other two courses. This can be taken as an indicator of the relative attractiveness of each of the courses, which in turn is likely to reflect the expected cost-effectiveness and rate of return on each course as seen by the individual applicant.

The final step in this stage of the planning process is to construct a series of "league tables", covering as many training programmes as possible of different types (by content, level, location, provider etc.). At least three tables could be compiled, covering (1) private cost-effectiveness, (2) private rate of return and (3) number of applications per place. Within each table, training programmes would be ranked according to the relevant indicator. Information from all three tables could be combined to produce a list of programmes with a high private pay-off, a list which could be constantly revised in the light of new information. In the real world many types of training for the unemployed, on which vast amounts of government money are spent, would stand little chance of getting on to this special list.

A note on estimating impact

In the discussion so far the impact of programmes has been estimated merely by comparing the mean outcomes of participants with those of the control group. This is only statistically justifiable either if assignment to the programmes is entirely random or if the composition (by individual characteristics and experience) of the two groups is exactly similar in every respect except participation in the programme⁵.

Some *experiments with random assignment* to programmes have been carried out in the USA (eg Lalonde 1986) but it is unlikely to be accepted politically or on grounds of cost in

⁵ For a fuller discussion of these issues see O'Leary (1995).

a developing country. Non-experimental methods of measuring impact are likely to be needed.

Cross-tabulations can break both the participants and control group down into comparable sub-groups, e.g. by age, sex and education, but, unless the samples are very large, the numbers in some cells will be too small to be statistically significant.

One way of dealing with this is to use a *matched pairs* methodology to select a synthetic comparison group from the control group with characteristics that match those of the participants in the sample (see Fraker and Maynard 1987). For instance, O'Leary (1995) forms synthetic comparison groups to measure the impact of labour market programmes in Hungary, matched by thirteen exogenous characteristics, including age, gender, education, broad occupational category, whether in receipt of unemployment benefit, whether worked before, whether classified as having special problems, and county of residence.

A simpler method of assessing impact is to use *multivariate regression* analysis, using either the ordinary least squares method if the outcome variable is continuous (eg in the case of earnings) or the logit method if it is not (eg in the case of employed/not employed).

Both the matched pairs and the regression approaches can only take into account the observable characteristics of programme participants and members of the control group. A more controversial approach tries to take account of their unobservable characteristics also, and to adjust for *selection bias* (see Heckman 1976). However, this method is extremely sensitive to the empirical specification of the selection bias correction variable. It is also extremely difficult to explain to policy makers: cross tabulations and regression analysis may be more useful for this purpose.

Improving access for disadvantaged groups

Having completed a list of training programmes with a high private pay-off, the next step is to maximise the number of participants from disadvantaged groups in the high-private-payoff types of training. In minimalist planning this is best done not by direct instructions but through signals to decentralised decision makers.

Some steps have been taken in this direction in Hungary, where a number of "effectiveness criteria" are being introduced to guide allocation of central government funds to the counties for active labour market programmes for the unemployed⁶. In the case of training programmes the criteria suggested are: cost per person who participated in training; cost per person who completed a training course; cost per week of training per person who completed a training course; cost per person who completed a training course and entered employment; and average wage at employment. Targets are to be mutually agreed for each county for each of these criteria a year in advance, and performance in relation to these targets affects the allocation of central government funds to the programmes in that county in the following year.

The designer of the system explicitly recognises the possibility of incorporating an orientation towards disadvantaged groups. "The Ministry of Labour may choose to designate certain groups for special attention in reemployment services (perhaps persons with eight or less years of schooling, persons not covered by unemployment compensation, the physically handicapped, and long term unemployed might be targetted for services). If this is done, methods for adjusting the effectiveness standards by service to these target groups could be incorporated in the evaluation procedures" (O'Leary 1990:5).

Minimalist planning would aim for even greater decentralisation of decision-making. Short courses for the unemployed would take place in a variety of training institutions. Any

⁶ See O'Leary (1990) for the initial specification of the system.

Minimalist planning would aim for even greater decentralisation of decision-making. Short courses for the unemployed would take place in a variety of training institutions. Any government money that was available for such courses would go to those which could demonstrate high social cost-effectiveness or high social benefits in relation to cost, as discussed above. Such government-administered institutions as remained in this field would compete on equal terms with private institutions for these funds. While *social* benefit/cost criteria would determine, thus, which courses would be run with government financial support, *private* benefit/cost criteria would determine which types of training would be earmarked for disadvantaged groups.

There are various ways in which such a scheme could be administered. The super-minimalist route would be merely to give each member of the designated disadvantaged group who was looking for training a *voucher* which could be cashed in by any training provider⁷, along with the list of the courses which were estimated to have the highest private payoff, derived from the three league tables already discussed.

Alternatively, if minimalism did not extend to trusting individuals to make best use of such vouchers, their use could be restricted to designated programmes, or, even more restrictively, an additional grant could be given *directly* to a training provider who successfully involved a participant from a designated disadvantaged group (with at least the minimum educational qualifications for the training in question) in a designated high-private-payoff programme. More ambitiously, the criterion for the award of an additional grant could be not merely involvement of a disadvantaged participant but demonstration of a successful outcome from such involvement, in terms either of obtaining a job or of earning a higher income.

This approach, in short, separates the decision about which types of training should be supported from government funds on efficiency grounds (where the allocative criteria are social) from the decision about which types of training should be used to help particularly disadvantaged groups (where the allocative criteria are private). It also avoids the use of top-down directives, in favour of criteria which induce the desired, decentralised responses. And it represents a conscious attempt to keep planning procedures as simple and practical as possible.

Where does this leave the issue of special, targetted programmes for disadvantaged groups? In general, it leaves them as second-best alternatives which may sometimes be unavoidable. Time may not be available to mount the programmes of remedial education which would qualify, say, primary school dropouts for the best regular training programmes. In some cases the nature of the handicap may be too severe to allow participation in regular programmes. In others the groups themselves may insist on separate provision. The danger of special programmes, however, which the approach outlined here explicitly sets out to avoid, is that they may become special low-quality, low-return programmes. Privileged access to ineffective training is no favour to anyone. The starting point should be to get as many people as possible from disadvantaged groups into the training programmes that promise the highest personal payoff.

Public works and guaranteed employment schemes

Public works and guaranteed employment schemes create employment *directly* during the construction process, *indirectly* through linkages to supplying industries, *through the*

⁷ A current example of a voucher scheme is the training credits, administered by Britain's Training and Enterprise Councils, which enable those who leave school at the earliest opportunity to "buy" training from an approved provider (Shackleton 1992:60).

multiplier when workers spend their earnings, and *dynamically* when the assets that have been built (schools, roads, health centres, etc.) help to raise productivity in the area and when the increase in demand raises the incentive to invest. They cannot be evaluated in the same way as programmes (such as training) which have the sole purpose of improving participants' chances in the labour market⁸.

A well designed guaranteed employment scheme has a counter-cyclical and self-liquidating safety-net role. This means, as Sen (1975) has pointed out, that decisions on wage rates in the scheme should be decentralised and should be low in relation to local market rates for the type of labour concerned⁹. If programme wage rates exceed market wage rates, the numbers wanting to work on public works programmes exceed the numbers that can be hired. This means that employment may have to be 'rationed' by local managers, increasing the temptation of corruption and making it more likely that those who work on the project will not consist only of those in the most desperate circumstances. If wage rates are realistically low in relation to market rates, a guaranteed employment scheme becomes a means of monitoring the labour market situation. The number enrolled will rise or fall as that situation deteriorates or improves.

It must be admitted that a comprehensive model would be useful in order to simulate the macro-economic effect of government spending on such a scheme (see Morley 1988). Its impact on the rate of price inflation will depend on how it is financed (taxation, bonds, foreign aid, or deficit financing) and whether there is slack in the economy, in the sense of a pool of surplus labour and of excess capacity in industry; even in the absence of a model, the monitoring methods discussed in chapters three to eight should help to answer part of this question. Its impact on the balance of payments will depend on its impact on production, on the one hand, and expenditure, on the other, and on the pattern of both.

Whatever its macro-economic impact, it will be useful to carry out evaluations of each project. The appropriate approach to this would be social cost/benefit analysis of the kind already discussed, in which the main input would be labour with a social cost near to zero, and the outcome would be the assets built and the output and incomes flowing from them. This would encourage careful choice of socially productive, labour-intensive projects that do not duplicate what is being done already by either the public or the private sector.

Information needs and sources

The approach to planning for special employment programmes outlined in this chapter may be minimalist in its philosophy, but it is nevertheless demanding of data.

In the case of training, measurement of cost-effectiveness requires information about: the social and private unit cost of a programme, both direct (fees, costs of equipment, materials, special clothing etc.) and indirect (earnings forgone); and the success rate in the labour market of those trained and of a carefully selected control group. Measures of social and private cost/benefit would additionally require information on before- and after-tax earnings of the trained and of the control group. In the case of public works and guaranteed employment programmes, information would be needed on the assets built by them and the output and incomes estimated to be flowing from them.

⁸ When they are so evaluated they inevitably come out badly. For instance, O'Leary (1995) finds that participation in Hungary's public service employment programme has a negative impact on subsequent employability and earnings, whichever estimation methodology is used.

⁹ If, as in Indonesia, projects are sub-contracted to the private sector, it can be assumed that the wages paid will not be above market rates.

In planning for training, procedures and instruments would need to be developed for the routine collection of much of the information by the training providers themselves. Members of staff of such institutions would need to be trained in the collection of information for monitoring. Ongoing consultancy (e.g. on the selection of control groups) would be needed from the centre, and analysis of the information collected could probably be done centrally.

While much of the information required could be obtained, thus, from decentralised sources, it may be useful from time to time, for benchmark purposes, to have a full-scale, centrally organised *tracer study*. Appendix A to this chapter shows the kind of questions that would need to be asked in a survey of this kind. It is adapted from part of the questionnaire used in a tracer study of Malaysian university graduates carried out in 1983: although designed for a different type of institution, the questions asked (if appropriately adapted) are relevant to any kind of training.

Important questions for evaluation and monitoring purposes include questions 6, on sex, 7 on ethnic origin and 8 on educational attainment of parents¹⁰. It would of course be possible to include questions on other dimensions of relative disadvantage. Questions about ethnic origin are sensitive. Members of disadvantaged ethnic groups, or their representatives, are sometimes unhappy about this kind of question, and national practices vary¹¹. However, it is impossible to plan for improvement in equity and monitor its achievement unless such information is collected.

Section II of the questionnaire, *Financing Your Education*, collects all the information that would be needed to estimate private unit cost. Data on social cost could be collected from the institution. Section III, *Current Labour Force Status*, provides the data on success rate in obtaining a job, needed for measuring cost-effectiveness, and on salary, needed for benefit/cost measures. Questions 19 and 20 could be posed more generally in terms of earnings, if appropriate; the after-tax figure is what is needed for private rate of return calculations. Questions 21 and 22 are there to distinguish between those who are really unemployed and those who are outside the labour force, on the normal definitions.

A useful supplement to a tracer study of those who have been through a particular type of training is a *survey of a sample of workers in their workplaces*. In particular, this is a good way to obtain information about the impact of enterprise training (both in-plant and off-plant). As part of a survey of employment and training in 142 establishments in export-oriented industries in Indonesia in July-September 1990, a questionnaire was administered to almost two thousand recently recruited skilled workers, supervisors and technicians. The respondents were interviewed in groups, as a means of minimising disruption and gaining the cooperation of management and workers. For the same reason the questionnaire was kept as short as possible. Appendix B to this chapter is a modified version of the questionnaire that was used for workers in the electronics industry¹².

Questions relevant to disadvantaged groups are questions 2 on sex, 6 on education and 7 on ethnic/geographical origin. Questions on other dimensions of disadvantage could be added (although the circumstances of the interview require that it should be kept as short as

¹⁰ This question can also be used to control for social background in analysing the impact of training.

¹¹ In the UK, for instance, information on ethnic origin is not collected from unemployed registrants but may be provided voluntarily by participants in labour market programmes. In Canada such information is not collected until a job search is successfully concluded. In the US, on the other hand, it is included in welfare beneficiaries' records.

¹² Another questionnaire collected details of the establishment, its employment and training practices and problems.

possible). A useful feature of this kind of survey is that it can provide its own control group; the sample can be stratified to provide equal numbers of with-training and without-training respondents. The impact of different types of training on earnings can be, and was, estimated from the information obtained, but additional questions would be required to estimate private unit cost.

A third and final type of survey that can be useful for these purposes is a *survey of the unemployed*. Such a survey was carried out in three counties in Hungary in November 1992, with the purpose of assessing the impact of labour market programmes, including training. The sample of 1,574 included a control group of 650. Appendix C to this chapter is adapted from the questionnaire used for those who had done training programmes. Questions relevant to disadvantaged groups include question 3 on sex, 4 on citizenship (although this could usefully be amended in Hungarian circumstances to distinguish explicitly between Gypsies and non-Gypsies), 5 on education and 6 on "special difficulties" (which include health problems, criminal record, frequent job changing, and "sloppy appearance!"). The information obtained is sufficient to measure the impact of training on success in the job market, and was used for this purpose.

Example of a questionnaire for a tracer study

Example of a Questionnaire for a Tracer Study¹³

To be filled by enumerator:

Date of survey _____

University _____

Name of enumerator _____

University code _____

To be filled by overchecker:

Name _____

Date _____

Questionnaire no _____

I. PERSONAL AND FAMILY CHARACTERISTICS OF THE GRADUATE

1. Full name of graduate _____
2. Degree received _____ Pass/Honours _____
Class _____ Faculty _____
3. Main subject of specialisation _____
4. Postal address _____
Tel. _____ Ext. _____
5. Age on 1st February 1983 _____ (to nearest year)
6. Sex: Male _____ 1 Female _____ 2
7. Ethnic origin:
Malay _____ 1 Ceylonese _____ 4 Other E. Malaysian _____ 7
Chinese _____ 2 Iban _____ 5 Others _____ 8
Indian _____ 3 Kadazan _____ 6
8. Give the highest educational attainment of your parents (or guardians):

	Father	Mother	Guardian
Holds university degree	01	01	01
Some university education	02	02	02
Completed non-university tertiary level (e.g. technical school)	03	03	03
Some non-university tertiary level	04	04	04
Completed secondary school (Form V)	05	05	05
Some secondary school	06	06	06
Completed primary school (Std 6)	07	07	07
Some primary school	08	08	08
Village religious school	09	09	09
No formal schooling	10	10	10

II. FINANCING YOUR EDUCATION

9. How many years of study did it take you to get your Bachelor degree?
Three _____ 1 Five _____ 3 Seven _____ 5
Four _____ 2 Six _____ 4 More than seven _____ 6

¹³ Adapted from Mehmet and Yip (1986:Appendix A).

10. Give the breakdown of the **average annual cost** of your university education, including amounts paid out of scholarships (if you were receiving one). Compute your **average cost** over the entire period of university education.

Average annual cost (to the nearest \$100)	
i. Tuition	\$ _____
ii. Books, supplies and equipment	\$ _____
iii. Food and clothing	\$ _____
iv. Residence or rented accommodation	\$ _____
v. Transportation to university	\$ _____
vi. Others (please specify) _____	\$ _____
Total	\$ _____

11. How was your university education financed?

By whom or How?	Source	Annual amount or	%age of average annual costs
i. Parents/guardian		\$ _____	_____ %
ii. Scholarship/bursary/grant:	(a) Govt. (Federal/State)	\$ _____	_____ %
	or (b) Statutory Body	\$ _____	_____ %
	or (c) Private firm	\$ _____	_____ %
	or (d) Others (specify) _____	\$ _____	_____ %
iii. Borrowings:	(a) Relatives and friends	\$ _____	_____ %
	(b) Student loan funds	\$ _____	_____ %
	(c) Govt./Statutory Body	\$ _____	_____ %
	(d) Others (specify) _____	\$ _____	_____ %
iv. Own savings		\$ _____	_____ %
v. Others (specify) _____		\$ _____	_____ %
Total		\$ _____	_____ %

12. If you were awarded a scholarship/bursary/grant,

- i. Were you bonded by it? Yes _____ No _____
- ii. State the number of years of bond _____
- iii. What was the amount of penalty to discharge it? \$ _____

III. CURRENT LABOUR FORCE STATUS OF GRADUATES

13. Are you working now?

Working full-time _____ 1

Working part-time _____ 2

Not working _____ 3 (Go to question 20)

14. How soon after completing your requirements for graduation did you start working?
 Immediately _____ 1
 Within 2 months _____ 2
 Within 2-6 months _____ 3
15. What is your exact job title or occupation? _____
16. Is this your first, second or third job?
 First _____ 1 Third _____ 3
 Second _____ 2 Fourth _____ 4
17. What is your employment status?
 Employee of government _____ 1 Self-employed _____ 4
 Employee of statutory body _____ 2 Employer _____ 5
 Employee of private firm _____ 3
18. Name and address of employer: _____
 _____ Tel. _____ Ext. _____
19. What was your **starting** salary in your **first** job after graduation (including all tips, allowances, etc.)?
 (a) **before tax?** \$ _____ (per month)
 (b) **after tax?** \$ _____ (per month)
20. What is your **present** monthly salary ?
 (a) **before tax?** \$ _____ (per month)
 (b) **after tax?** \$ _____ (per month)
 \$ _____ (per month)

Note: The following questions are applicable only if you are currently unemployed.

21. If you are now unemployed, are you actively looking for a job (e.g. applying for vacancies)?
 Yes _____ 1 No _____ 2
22. If No, give the reasons:
 Housework/child care _____ 1 Further studies _____ 2
 Other (explain) _____

Appendix B to Chapter Ten: Example of a Questionnaire for a Workplace Survey of Individual Workers¹⁴

1. Employee's Name: _____
2. Age: _____
3. Sex: _____
4. Ethnic/Geographical Origin¹⁵:

Chinese	1
Indian	2
Indonesian from Java	3
Indonesian from Outer Island	4
Other	5
5. Job title/Occupation:

Electronic equipment assembler	1
Electrical machinery assembler	2
Automated assembly line or industrial robot operator	3
Machine tool operator	4
Metal finisher, plater or coater	5
Mobile materials-handling equipment operator	6
Other skilled operator	7
Precision worker in metal or related materials	8
Metal moulder, welder, sheet metal preparer, etc.	9
Toolmakers or related worker	10
Cabinet makers or related worker	11
Machinery mechanic or fitter	12
Electrical or electronic instrument mechanic or fitter	13
Other skilled trade	14
Foreman, supervisor, junior production manager	15
Chemical or physical science technician	16
Electrical technician	17
Electronics or communications technician	18
Mechanical technician	19
Other physical science or engineering technician	20
Computer systems technician	21
Designer	22
Other technician or associate professional	23
6. Status:

Casual daily/contract	1
Piece worker	2
Permanent daily	3
Monthly	4

¹⁴ Adapted from a questionnaire used in the electronics industry in a World Bank/Government of Indonesia survey of employment and training in industry, carried out in August 1990 (World Bank 1991).

¹⁵ This question was not in the original questionnaire.

7. Highest educational qualification obtained:

Primary	- SD1	1
Junior secondary academic	- SMP	2
Extended junior secondary academic	- SMP Pembangunan	3
Junior secondary technical	- ST	4
Senior secondary academic	- SMA	5
Senior secondary technical	- STM	6
Senior secondary vocational/economics	- SMEA	7
Senior secondary vocational/special	- SMKK	8
Extended senior secondary technical	- STMP	9
Academy	- Akademi; Sarjana Musa	10
Polytechnic	- Politeknik	11
IKIP	- IKIP SI	12
University (attended)	- Universitas; Sarjana Musa	13
University first degree	- Universitas; S1	14
University master's degree	- Universitas; S2	15
University doctorate degree	- Universitas; S3	16
Institute	- MBA	17

8. Post-school pre-career training experience:

	Type of training centre	Specialisation	Length of training (months)
Dept. of Manpower (BLK/KLK)	_____	_____	_____
Dept. of Industry training institution (specify: _____)	_____	_____	_____
Other government training institution (specify: _____)	_____	_____	_____
Private training institution (specify: _____)	_____	_____	_____
Other (specify: _____)	_____	_____	_____

9. When did you join this firm? _____

10. What was your job on first appointment to this firm?

Unskilled worker	1
Skilled tradesman/operator (specify: _____)	2
Foreman/supervisor/junior manager/ technician (specify: _____)	3
Other (specify: _____)	4

11. What were you doing immediately before you were recruited to/ promoted to your current job?

- At school 1
- Unemployed 2
- Working for another employer as unskilled labourer 3
- Working for another employer as skilled worker 4
- Working for another employer as supervisor/technician 5
- Working for this firm as unskilled labourer 6
- Working for this firm as skilled worker 7
- Other (specify: _____) 8

12. Training experience since starting work:

	No. of months	Type	Who paid?
In plant, on-the-job, watching only	_____	_____	_____
In plant, on-the-job, being taught	_____	_____	_____
In plant, off-the-job	_____	_____	_____
Off-the-job	_____	_____	_____

13. Have you ever been unemployed?

- Yes 1
- No 2

14. If yes: How many months? Before starting your first job? _____
 Since starting your first job? _____

15. Earnings in your present job:

Basic wage:	Rp. _____	per: day week fortnight month
Other wage in cash:	Rp. _____	per: day week fortnight month
Other wage in kind	Rp. _____	per: day week fortnight month
Overtime payments	Rp. _____	per: day week fortnight month

Example of a Questionnaire for
a Survey of Unemployed and Training Programmes¹⁶

1. Personal Identity Number: _____
2. Age in years on August 31, 1992? _____
3. Sex: a. Male _____ b. Female _____
4. Citizenship? a. Hungarian _____
b. Other (please specify: _____)
5. Educational attainment as of June 1991?

a. Less than 8 years _____	e. Technikum _____
b. 8 years _____	f. Gimnázium _____
c. Szakmunkásképző _____	g. University _____
d. Szakközépiskola _____	h. Other _____
6. Qualification/specialisation in June 1991?

a. Unskilled _____	e. Supervisor _____
b. Semi-skilled _____	f. Manager _____
c. Skilled _____	g. Top manager _____
d. Clerk _____	h. Professional _____
7. Categorized as having "special difficulties" in finding employment?:
a. No _____ b. Yes _____
8. Currently registered with an employment centre as looking for work?
a. No _____ b. Yes _____
9. Paid unemployment compensation at any time since June 1991?
a. No _____ (Go to q. 12) b. Yes _____
10. Unemployment compensation entitlement for a full month of unemployment?
Forints per month _____
11. Currently being paid unemployment compensation?
a. No _____ b. Yes _____
12. Since you first registered with an employment centre in June 1991 have you participated in a labour market programme?
a. No _____ (Go to q. 25) b. Yes _____

¹⁶ Adapted from a follow-up survey of unemployed and labour market programmes in Hungary carried out in November 1992 (Godfrey 1993).

13. Indicate all the types of programme in which you have participated and the number of programmes of each type:

	<u>Number</u>
a. Group training programme for unemployed	_____
b. Individual training programme for unemployed	_____
c. Small business loan programme	_____
d. Subsidies for new entrepreneurs	_____
e. Public service employment/civil works	_____
f. Subsidised employment for long-term unemployed	_____
g. Early retirement financed from Employment Fund	_____
h. Early retirement financed from Solidarity Fund	_____
i. Other (please specify: _____)	_____

IF A TRAINING PROGRAMME:

14. Was an employer involved in the training programme?
 a. No _____ (Go to q. 16) b. Yes _____
15. Name and industry of employer involved in the training programme?

16. Was a training centre (or other agency or institution) involved?
 a. No _____ (Go to q. 18) b. Yes _____
17. Name and details of the agency or institution involved in the training programme?

18. What type of skill(s) did the training impart (eg computers, languages, car repair etc.)?

19. Did participation in the training programme result in attainment of a specific skill level?
 a. No _____ (Go to q. 21) b. Yes _____
20. What skill level was attained?
 a. Unskilled _____ e. Supervisor _____
 b. Semi-skilled _____ f. Manager _____
 c. Skilled _____ g. Top manager _____
 d. Clerk _____ h. Professional _____
21. How many months does it take to complete this programme?
 a. 1 _____ d. 4 _____ g. 7 - 11 _____
 b. 2 _____ e. 5 _____ h. 12 - 17 _____
 c. 3 _____ f. 6 _____ i. 18 or more _____

22. When did you enter this programme?
- | | | |
|-----------------|-----------------|-----------------|
| a. Jun 91 _____ | g. Dec 91 _____ | m. Jun 92 _____ |
| b. Jul 91 _____ | h. Jan 92 _____ | n. Jul 92 _____ |
| c. Aug 91 _____ | i. Feb 92 _____ | o. Aug 92 _____ |
| d. Sep 91 _____ | j. Mar 92 _____ | p. Sep 92 _____ |
| e. Oct 91 _____ | k. Apr 92 _____ | q. Oct 92 _____ |
| f. Nov 91 _____ | l. May 92 _____ | r. Nov 92 _____ |
23. When did you leave this programme?
- | | | |
|-----------------|-----------------|------------------|
| a. Jun 91 _____ | g. Dec 91 _____ | m. Jun 92 _____ |
| b. Jul 91 _____ | h. Jan 92 _____ | n. Jul 92 _____ |
| c. Aug 91 _____ | i. Feb 92 _____ | o. Aug 92 _____ |
| d. Sep 91 _____ | j. Mar 92 _____ | p. Sep 92 _____ |
| e. Oct 91 _____ | k. Apr 92 _____ | q. Oct 92 _____ |
| f. Nov 91 _____ | l. May 92 _____ | r. Nov 92 _____ |
| | | s. Not yet _____ |
24. Did you complete before leaving?
- a. Yes _____
- b. No _____
25. Have you had a "real" job (i.e. other than a job on a labour market programme) at any time since June 1991?
- a. No _____ (Interviewer, go to question 42)
- b. Yes _____
26. In what month did you start working on your first job after June 1991?
- | | | |
|-----------------|-----------------|-----------------|
| a. Jun 91 _____ | g. Dec 91 _____ | m. Jun 92 _____ |
| b. Jul 91 _____ | h. Jan 92 _____ | n. Jul 92 _____ |
| c. Aug 91 _____ | i. Feb 92 _____ | o. Aug 92 _____ |
| d. Sep 91 _____ | j. Mar 92 _____ | p. Sep 92 _____ |
| e. Oct 91 _____ | k. Apr 92 _____ | q. Oct 92 _____ |
| f. Nov 91 _____ | l. May 92 _____ | r. Nov 92 _____ |
27. All together, how many different jobs have you had since June 1991?
- a. 1 _____ b. 2 _____ c. 3 _____ d. 4 _____
- e. 5 or more _____
28. In how many months, since June 1991, have you worked?
- | | | |
|------------|-------------|-------------|
| a. 1 _____ | g. 7 _____ | m. 13 _____ |
| b. 2 _____ | h. 8 _____ | n. 14 _____ |
| c. 3 _____ | i. 9 _____ | o. 15 _____ |
| d. 4 _____ | j. 10 _____ | p. 16 _____ |
| e. 5 _____ | k. 11 _____ | q. 17 _____ |
| f. 6 _____ | l. 12 _____ | r. 18 _____ |
29. Have you got a job now?
- a. No _____ (Go to q. 37) b. Yes _____
30. Do you have more than one job (or source of income)?
- a. Yes _____ b. No _____

31. What is your *main* job now (i.e. job title or occupation)? _____
32. Is it full-time or part-time?
 a. Full-time (35+ hrs) _____ b. Part-time (<35 hrs) _____
33. What is your employment status now (in your main job)?
 a. Employee of government _____
 b. Employee of state enterprise _____
 c. Employee of private firm _____
 d. Employee of mixed ownership enterprise _____
 e. Self employed _____ (Go to q. 35)
 f. Employer _____ (Go to q. 35)
34. What is the name and city of your current employer?:
 Employer's name: _____ City: _____
35. In what sector does your current employer (or you, if self-employed) mainly operate?:
 a. Manufacturing & mining _____ f. Water management _____
 b. Construction _____ g. Financial services _____
 c. Agriculture _____ h. Other services _____
 d. Transport/telecomms _____ i. Government administration _____
 e. Trade _____
36. What are your average monthly earnings *from your main job*?
 (a) before taxes are deducted? _____ forints
 (b) after taxes are deducted? _____ forints
37. If you have not got a job now, are you actively looking for work (i.e. are you answering advertisements, visiting or writing to employers, etc.?)
 a. Yes _____ (Go to q. 39) b. No _____
38. If you are not actively looking for work, why not?
 a. Housework/childcare _____ c. Retired _____
 b. Further studies _____ d. Other (explain: _____)
39. Immediately before you registered with the employment centre for the first time in June 1991, what was your main activity?
 a. Employee of government _____
 b. Employee of state enterprise _____
 c. Employee of mixed ownership enterprise _____
 d. Employee of private firm _____
 e. Self-employed _____
 f. Employer _____
 g. Not working/seeking work _____
 h. Not working/not seeking work _____
 i. Student _____
 j. Other (please specify: _____)

40. What were your average monthly earnings, from your last job held before you registered with the employment centre in June 1991?
- (a) before taxes are deducted? _____ forints
 - (b) after taxes are deducted? _____ forints

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