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Working group on Labour underutilization

**Beyond Unemployment:
Measurement of Other Forms of Labour
Underutilization**



INTERNATIONAL LABOUR OFFICE GENEVA

Beyond Unemployment: Measurement of Other Forms of Labour Underutilization¹

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Contents

1. Introduction
2. The current international standards
 - The labour force framework
 - Employment
 - Unemployment
 - Underemployment
 - Inadequate employment
3. The unemployment rate and its critics
 - The unemployment rate
 - Reclassification of persons working short hours
 - Supplementary indicators of labour slack
 - Labour underutilization framework
4. Beyond unemployment
 - Unemployment and its halo
 - Labour underutilization
 - Labour slack
 - Low earnings
 - Skill underutilization
 - Refinement of the labour force framework
 - Reporting system
5. Numerical illustration
 - Order of magnitude of the values involved
 - Feasibility of measurement with existing tools

Annex

¹ Room document accompanying Report I, General Report, Chapter 4. Indicators of labour underutilization, Eighteenth International Conference of Labour Statisticians, ILO, Geneva, 24 November – 5 December 2008.

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1. Introduction

Unemployment is by far the most frequently reported indicator of the labour market in the media of virtually every country of the world. But despite this reporting success, unemployment data are highly criticised by ordinary people for lying and by experts for failing to reflect the true extent of the employment problem, in developing and developed countries alike.

The criticisms are not new. They have been voiced for more than fifty years. In response, various attempts have been made at national and international levels to revise the definition of unemployment or to supplement it with other concepts such as visible and invisible underemployment, time-related underemployment and inadequate employment, extended unemployment, labour shortage, labour reserve, etc. But none has obtained comparable attention of any sort, and unemployment remains the only headline indicator of the labour market.

The position of the present paper is that the standard definition of unemployment is essentially sound and the resulting data meaningful. The concept should be maintained and continued to be measured as precisely as possible. But, at the same time, the statistical community should devote serious efforts to introduce, at par with unemployment, a supplementary concept which measures the employment problem as experienced by individual workers. Thus, the measure should be able to reflect not only total lack of work as measured by unemployment, but also other insufficiencies in the volume of work and deficiencies in its remuneration, as well as incompatibilities between education and occupation, and perhaps also other forms of mal employment.

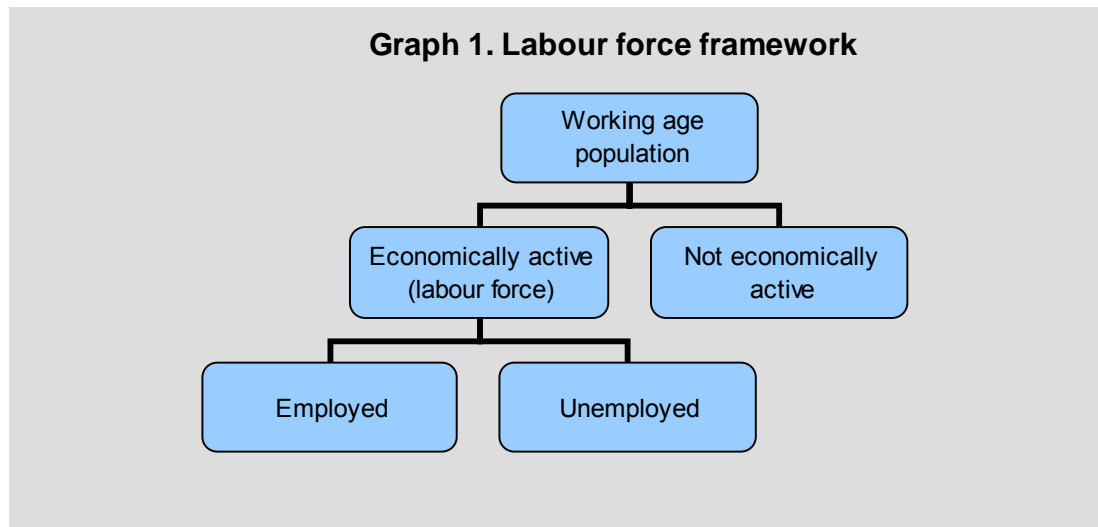
After reviewing the current international standards on these topics and the main criticisms of the unemployment rate, the paper discusses the measurement of labour underutilization as a supplement to the unemployment rate covering three components: labour slack, low earnings and skill mismatch.

2. The current international standards

- The labour force framework

The international standards concerning employment and unemployment statistics are based on the labour force framework.³ According to this framework the working age population is divided into three categories (employed, unemployed and not economically active) depending on their labour market activities during a specified short reference period, either a day or a week. The labour force framework is schematically represented in the diagram below:

³ ILO, *Resolution concerning statistics of the economically active population, employment, unemployment and underemployment*, Thirteenth International Conference of Labour Statisticians, Geneva, October 1982.



The classification involves a priority rule according to which employment activities take precedence over unemployment activities, and unemployment activities take precedence over non-economic activities.

- Employment

According to the international definition of employment, the “employed” comprise all persons of working age who during the reference period were in paid employment or self-employment as defined below:

Paid employment

- “at work”: persons who, during the reference period, performed some work for wage or salary, in cash or in kind;
- “with a job but not at work”: persons who, having already worked in their present job, were temporarily not at work during the reference period but had a formal attachment to their job,⁴

Self-employment

- “at work”: persons who, during the reference period, performed some work for profit or family gain, in cash or in kind;
- “with an enterprise but not at work”: persons with an enterprise, which may be a business enterprise, a farm or a service undertaking, who were temporarily not at work during the reference period for some specific reason.

⁴ Formal job attachment is to be measured according to one or more of the following criteria: the continued receipt of wage or salary during absence; an assurance of return to work following the end of the contingency, or an agreement as to the date of return; and the elapsed duration of absence from the job which, wherever relevant, may be that duration for which workers can receive compensation benefits without obligation to accept other jobs.

In line with the priority rule of the labour force framework, the international standards specify that for operational purposes, the notion of “some work” may be interpreted as work for at least one hour during the reference period. “Work” is defined in a broad sense covering all activities included in the production boundary of the System of National Accounts.⁵

- Unemployment

According to the international standard definition of unemployment, the “unemployed” comprise all persons above the age specified for measuring the economically active population, who during the reference period satisfy the following three conditions simultaneously:

- “without work” i.e., not in paid employment or self-employment, as specified by the international definition of employment;
- “currently available for work” i.e., available for paid employment or self-employment during the reference period (or shortly after); and
- “seeking work” i.e., had taken specific steps in a specified recent period (typically the last four weeks) to seek paid employment or self-employment.

A special provision applies to persons without work who made arrangements to start work at a date subsequent to the reference period (future starts). These persons are classified as “unemployed” irrespective of their job-search activity, provided they were without work during the reference period and currently available for work.

“Seeking work” means taking active steps to look for work such as registration at public or private employment exchanges, direct application to employers, checking at worksites, farms, factory gates, market or other assembly places, placing or answering newspaper advertisements, seeking assistance of friends or relatives, looking for financial resources, land, building, machinery or equipment, or permits or licenses to establish own enterprise.

- Underemployment

Underemployment is a broad concept reflecting underutilization of the productive capacity of the employed population, including those which arise from a deficient national or local economic system. It relates to an alternative employment situation in which persons are willing and available to engage.

For measurement purposes, the international standards are limited to one aspect of underemployment, namely, time-related underemployment. Time-related underemployment exists when the hours of work of an employed person

⁵ UN System of National Accounts 1993, <http://unstats.un.org/unsd/sna1993/introduction.asp>.

are insufficient in relation to an alternative employment situation in which the person is willing and available to engage.⁶

Persons in time-related underemployment comprise all persons in employment, as defined earlier, who satisfy the following three criteria:

- Willing to work additional hours in the present job, or in an additional job, or in a new job in replacement of the current one(s);
- Available to work additional hours, i.e., ready, within a specified period of time, to work additional hours, given opportunities for additional work;
- Worked less than a specified number of hours, i.e., hours actually worked in all jobs during the reference period were below a threshold defined according to national circumstances.

Two particular categories of persons in time-related underemployment are: (a) persons who usually work part-time schedules and want to work additional hours, and (b) persons who during the reference period worked less than their normal hours of work.

- Inadequate employment

In addition to time-related underemployment, the international standards recognize three other major types of inadequate employment situations:

- Skill-related inadequate employment, i.e., wanting or seeking to change the current work situation in order to use current occupational skills more fully, and being available to do so.
- Income-related inadequate employment, i.e., wanting or seeking to change the current work situation in order to increase income limited as result of low level of organisation of work or productivity, insufficient tools or equipment and training or deficient infrastructure, and being available to do so
- Inadequate employment related to excessive hours, i.e., wanting or seeking to work less hours either in the same job or in another job, with a corresponding reduction of income.

3. The unemployment rate and its critics

Unemployment defined as total lack of work has its roots in macro-economic analysis and policies. It ensures that employment can be defined to include all labour input into production and, therefore, any unemployment can be

⁶ ILO, *Resolution concerning the measurement of underemployment and inadequate employment situations* adopted by the Sixteenth International Conference of Labour Statisticians, Geneva, October 1998.

considered to be a sign of deficiency in the use of labour resources. The resulting definition of employment, however, does not fit in with people's perception of employment. People usually consider themselves as employed when they can have aspirations of a long-time engagement with some reasonable conditions of employment. Thus, to look into social issues of exclusion, poverty and alienation, it is necessary to consider the employment relationship at the individual level and to take account of the individual's perception of employment, which goes beyond economic considerations. The definition of unemployment thus does not completely reflect the well-being of people or the extent to which their aspirations for employment are not being met.

- The unemployment rate

The unemployment rate expresses the number of unemployed persons relative to the size of the labour force,

$$\text{Unemployment rate} = 100 * \frac{\text{Number of unemployed persons}}{\text{Labour force}}$$

where the labour force is the total number of persons employed or unemployed at a given time.

The unemployment rate is the most frequently cited indicator of the labour market. It is widely used as an indicator reflecting the general performance of the labour market and the economy as a whole. The unemployment rate has however been criticized in many quarters.

As an indicator of labour slack, the unemployment rate has been criticized for failing to capture all types of labour market downturns. As an example, consider a labour market area with heavy industries and a comprehensive unemployment insurance scheme. Employers facing an economic downturn in such an area might resort to lay-off or reduce the number of employees they engage. A similar downturn in another area with no or limited unemployment insurance coverage, where most of the economic units are small and operated by self-employed or own-account workers might, however, lead to a different response – for example, work sharing or reduction of hours of work and wages. Thus, although the economic downturn is basically the same in the two areas, the unemployment rate will show an increase in the first case and essentially no change in the second.

The unemployment rate has also been criticized when used as a measure of economic hardship experienced by individual workers. In developing countries, the standard unemployment rate is generally low, and in particular lower than the rate in industrialized countries. However, low unemployment rates in developing countries cannot be taken as an indicator of the economic well-being of their people, or as an indicator that people's aspirations for work are largely met. In

these countries, most people cannot afford to be unemployed for any long period of time because there are no unemployment insurance or other social protection schemes from which they can claim benefits and because their families are too poor to support them. Also, in many cases the expectations which people out of work have concerning job opportunities are not sufficiently high to make them seek work actively; or conditions are such that the conventional means of seeking work are of limited relevance; or there is simply no labour market. In such situations, most people are ready to take any job that is available, or to create their own employment, mainly in the informal sector.

Thus, in terms of a labour market model, the excess supply of labour gets absorbed through a decrease in earnings rather than an increase in the number of unemployed persons or in productivity. Most of the persons who cannot find or create any job join the ranks of the economically inactive rather than of the unemployed.

- Reclassification of persons working short hours

One of the specific criticisms of the international standard definition of unemployment concerns not *unemployment* itself, but the notion of *employment*. Because, according to this criticism, the international standards define employment broadly, its complement – unemployment – is consequently defined too narrowly. Under the international definition, people working only a few hours, even one hour during the week, are considered as employed and therefore not subject to the measurement of unemployment. This, the argument goes, misreports the true extent of unemployment.

The rationale behind the one-hour criterion of the international definition of employment has been reviewed many times.⁷ Its main purpose is to include within the scope of employment, persons engaged in all types of work that may exist in a country, including short-time work, casual labour, stand-by work and other types of irregular employment. It is also a necessary criterion in the measurement of labour productivity where total volume of employment in the denominator should correspond to aggregate production in the numerator. Thus, every contribution to production measured in the numerator should be accounted for in the measure of employment in the denominator.

There are also other practical reasons for the one-hour criterion. First, any choice other than one hour would be somewhat arbitrary, as no clear criteria can be established that would be acceptable for all countries of the world. Second, if the one-hour criterion is abandoned, the statistician will face the awkward situation of reporting “hours of work” and “income from work” for the

⁷ See, in particular, “Guidelines on the implications of employment promotion schemes on the measurement of employment and unemployment,” endorsed by the Fourteenth International Conference of Labour Statisticians, Geneva, October-November 1987, para. 9.

unemployed as well as the economically inactive, thus considerably complicating not only the reporting system, but also the analysis of the resulting data.

Against these considerations, critics of the one-hour criterion advance a completely different approach for measuring employment. While in the existing measurement framework labour is considered as an economic factor contributing to production, in the alternative approach labour would be viewed as a social factor and employment as a means for social participation. Labour as a social factor emphasizes the importance of allocation of time by people to different activities. Employed persons are thus considered as a particular social category, those devoting the essential part of their time to work activities, distinguished from other social categories like students, homemakers and retired persons devoting most of their time to non-work activities. This view of labour is said to be closer to the common notion of employment held by the public.

Viewed as such, the statistical consistency between employment and production is sacrificed for the consistency between employment and other bodies of statistics such as statistics of employment and education, and statistics of employment and living conditions.

In order to assess the impact of such alternative approach on the measurement of unemployment, the ILO recently commissioned a study on employed persons with short working hours.⁸ The main objective of the study was to reclassify persons working a few hours per week as unemployed or inactive depending on their other circumstances and to assess the impact of this reclassification on the measured unemployment rate.

Some 19 countries covering all regions of the world were selected for the study. The countries were selected on the basis of the importance of the number of persons who worked relatively few hours in the reference week, or, somewhat equivalently, their high share of part-time workers in total employment. The selected countries and the reference date of the data are listed below:

North America:	Canada (2005)
Latin America:	Argentina (2004), Brazil (2003), Colombia (2005 Q2), Costa Rica (2003), Honduras (2003), Mexico (2004 Q2), Peru (2003 Q3)
Africa:	Ethiopia (2005 March), Tanzania (2001), Zambia (1999)
Asia:	Pakistan (2006), Philippines (2006), Thailand (2006)
Europe:	Netherlands (2006), Norway (2006), Romania (2006), Switzerland (2006), United Kingdom (2006)

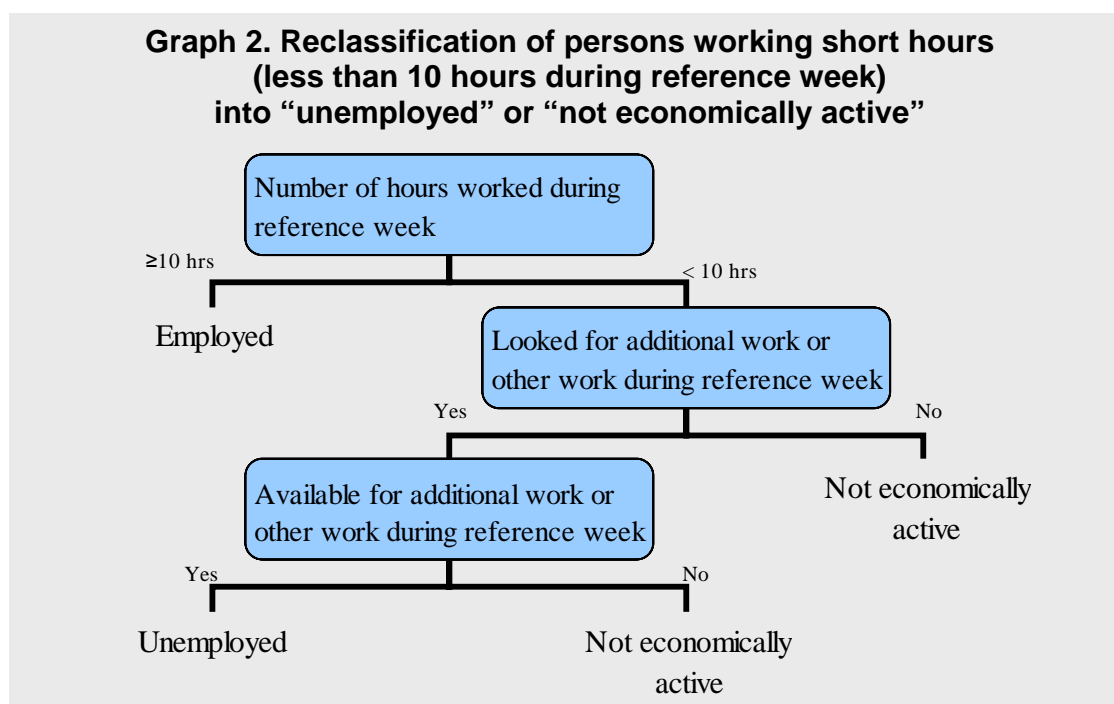
The cut-off point for defining short hours of work was determined by investigating the relationship between actual hours worked and the perception of

⁸ Bastelaer, Aloïs van, "Employed persons who worked a few hours: how many and who are they?" Study commissioned by the ILO Bureau of Statistics, June 2007.

survey respondents on the notion of employment. It was found that in most countries in the study, more than 50% of people who considered their employment as their main activity worked more than 10 hours during the reference week. Among those who worked less than 10 hours during the week, in most countries, only a minority considered their employment as their main activity. The study therefore used 10 hours of work as the threshold for determining short hours of work.

The percentage of persons working less than 10 hours during the week varied between 2% and 20%, with the lower values mostly in the developing countries and the higher values in the developed countries. Short hours of work tend to be higher among women than men, among self-employed than employees, and in the services sector as opposed to industry or agriculture.

According to the alternative approach, only persons working 10 or more hours during the week are to be classified as “employed”. Persons working less than 10 hours during the week would be reclassified as “unemployed” or “not economically active” depending on their current availability for work and their search for additional or other work. The reclassification scheme is presented graphically in the diagram (Graph 2) below.



The reclassification has the effect of increasing the measured unemployment rate. This is because the numerator of the unemployment rate is increased by the number of persons working less than 10 hours, who were available and looking for additional or other work during the reference week; while the denominator is decreased by the number of persons who worked less

than 10 hours during the reference week, and were not available or not looking for more work.

The numerical impact of the reclassification on the measured unemployment rate is shown in Table 1 for 15 of the countries for which the required data were available. The first column of the table lists the countries, the second shows their unemployment rate measured according to the standard definition, while the third column shows the corresponding unemployment rate when measured after the reclassification of persons working short hours. The last column shows the difference between the two unemployment rates.

Table 1. Change in measured unemployment rate after reclassification of persons working short hours			
Country (Date)	Unemployment rate		Change
	Standard definition	After reclassification of persons working short hours	
Canada (2005)	6.3%	6.5%	0.2%
Argentina (2004)	8.9%	9.7%	0.8%
Brazil (2003)	9.3%	9.8%	0.5%
Colombia (2005 Q2)	12.1%	12.5%	0.4%
Costa Rica (2003)	6.5%	7.1%	0.5%
Honduras (2003)	4.2%	4.3%	0.1%
Mexico (2004 Q2)	3.5%	3.7%	0.2%
Peru (2003 Q3)	10.8%	11.1%	0.3%
Ethiopia (2005 March)	9.6%	9.9%	0.3%
Thailand (2006)	1.5%	1.7%	0.2%
Netherlands (2006)	4.5%	6.0%	1.5%
Norway (2006)	3.4%	4.7%	1.3%
Romania (2006)	7.3%	7.4%	0.1%
Switzerland (2006)	4.1%	5.5%	1.4%
United Kingdom (2006)	5.3%	6.5%	1.2%

Note: The required data for this table were not available for Tanzania (2001), Zambia (1999), Pakistan (2006), Philippines (2006).

Looking at these data, two general conclusions may be drawn:

- Reclassifying persons working short hours as “unemployed” or “not economically active” depending on their availability and search for more work does not have substantial effect on the value of the resulting unemployment rate. The largest increase is 1.5 percentage points, and the lowest 0.1.
- The effect on the unemployment rate of developing countries is generally less than that of developed countries. The effect is less than 1 percentage point

for every developing country covered by the study, while for the developed countries it is more than 1 percentage point in each case except for Canada.

- Supplementary indicators of labour slack

An extensive study by the OECD covering some 20 countries recognizes that there is no single measure of labour market slack and that it is necessary to complement the unemployment rate with supplementary indicators to enrich labour market analyses in most countries.⁹

The study examines in particular (a) involuntary part-time work and (b) discouragement as the two main forms of potential labour market slack in addition to unemployment.

Involuntary part-time work refers to employed persons who were working on a part-time basis during the reference period of the measurement for economic and involuntary reasons such as “because could find only part-time work” or “because of slack work or unfavourable business conditions at work”.

Discouragement is a concept used to describe individuals who would want to work, but are not seeking work because they believe no suitable job is available for them. It is a subjective measure, in contrast to the essentially objective measure of unemployment. Under the current international statistical standards, discouraged workers are counted as not economically active, outside the labour force, as they are not seeking work.

Quantitatively, the study finds that involuntary part-time work is a more important element of labour market slack than discouragement for the countries covered. Roughly, for every 100 unemployed, there are 40 involuntary part-time workers and 10 discouraged workers as indicated in Table 2.

Table 2. Relative order of magnitude of three components of labour market slack			
	Unemploy- ment	Involuntary part-time work	Discourage- ment
OECD countries (1993)	100	40	10

Source: Based on data published in Organisation for Economic Cooperation and Development (OECD), *Employment Outlook*, Paris, July 1995, pp. 43-80.

⁹ Organisation for Economic Cooperation and Development (OECD), *Employment Outlook*, Paris, July 1995, pp. 43-80.

The main finding of the study is that while involuntary part-time work is indeed part of labour market slack, not all discouraged workers can be considered as additional slack in the labour market.

This conclusion stems from the observation that involuntary part-time work tends to be temporary, while some categories of discouraged workers tend to remain in this status for long periods of time. The labour force attachment of these discouraged workers tends to be weak: (a) in many countries more than half of the discouraged workers did not have recent work experience; and (b) flow data showed that a small proportion of discouraged workers tend to become employed or unemployed in subsequent periods, while most tend to remain discouraged or become totally economically inactive.

The study also noted a diversity of definitions of the concept of discouraged workers, depending largely on “the specific questions asked to survey respondents; whether availability for work is a criterion to be considered discouraged; and whether previous job search is required over some past period of time.”

To improve the international comparability of the statistics as well as to focus the measurement on that component of discouragement that represents more clearly labour market slack, it is important to establish a standard definition of “discouraged workers” based on criteria that would require stronger labour force attachment for this category of workers, for example, by requiring “current availability for work” and “past job search”, notions already part of the labour force framework of the international standards concerning statistics of employment, unemployment and underemployment.

- Labour underutilization framework

A broader framework suggested to deal with the limitations of the unemployment rate as a measure of employment inadequacy is the labour utilization framework. The framework was originally suggested by Philip Hauser as a means to operationalise the measurement of visible and invisible underemployment defined in the “Resolution concerning measurement and analysis of underemployment and underutilisation of manpower” adopted by the Eleventh International Conference of Labour Statisticians (October 1966). It was subsequently applied in a number of South East Asian countries,¹⁰ and later also for the United States.¹¹

¹⁰ ILO, Report III, Thirteenth International Conference of Labour Statisticians (ICLS), Geneva, October 1982.

¹¹ Sullivan, Teresa, A., and Hauser, Philip, M., “The Labor Utilization Framework: Assumptions, Data, and Policy Implications,” in *Counting the Labor Force*, National Commission on Employment and Unemployment Statistics, Appendix Vol. I, Concepts and Data Needs, US Government Printing Office, Washington, D.C., 1977.

In its latest formulation, the labour utilization framework starts with the idea that the labour market is a forum for exchange, where the worker exchanges time and skills, and the employer exchanges a contract and wages (with a corresponding formulation in the case of the self-employed). Inadequate exchange may occur in four basic ways: no contract or equivalently unemployment, a wage that is not adequate to meet basic needs, insufficient hours of work, and inadequate use of skills.

While every individual worker may experience one or more of these symptoms of inadequate employment, in order to avoid double counting the labour utilization framework proposes a mutually exclusive hierarchy for the tabulation of data. According to this scheme,

- unemployment is tabulated first on the ground that it is the limiting case and represents the most extreme form of inadequate employment;
- inadequate utilization of time is tabulated next because total wages depend on the number of hours worked and involuntary part-time workers might be earning an adequate wage per hour. They may have an inadequate weekly or monthly wage only because of the limited number of hours worked. If a full week's work were available for them, they would be adequately utilized;
- inadequately utilized by level of income is tabulated next. To ensure mutual exclusiveness, this category is limited to full-time workers whose employment-related income puts them below a pre-determined cut-off;
- finally comes the inadequately utilized by mismatch between level of education and skill requirement of the occupation. Again to ensure mutual exclusiveness of the categories, only full-time workers who earn adequate wages or voluntary part-time workers can be "mismatched" in this framework.

The operational definitions of the components of the labour underutilization framework are presented schematically in Table 3 below. The measurement of each component is based on an indicator that reflects the phenomenon and a cut-off that delineates between what is considered adequate and inadequate utilization.

The indicator for unemployment is hours of work versus hours of job-search. The cut-off is *no* hours of work, in line with the definition of unemployment in the labour force framework which gives precedence over unemployment to any amount of employment.¹²

¹² The cut-off would, on the other hand, be 10 hours of work under the reclassification scheme of workers with short hours discussed in the earlier section.

For underutilization by hours of work, the suggested indicator is part-time status and the cut-off is the distinction between those who work part-time for voluntary reasons and those who work part-time for *involuntary* reasons. Involuntary or economic reasons include “because could not find only part-time work” or “because of slack work or unfavourable business conditions at work”.

Component	Indicator	Cut-off
Unemployment	Hours of work and job-search	Hours of work equal to zero
Involuntary part-time work	Part-time, full-time status	Part-time for involuntary reasons
Inadequate earnings	Work-related income	Level at which full-time workers experience economic hardship
Skill mismatch	Years of completed schooling	First standard deviation above the mean for completed years of schooling in the detailed occupation group

For inadequate earnings, the indicator is work-related income and the cut-off is the level of work-related income at which full-time workers experience economic hardship for which the framework proposes alternative calculations, for example, the minimum wage or the cost of food consumption and other basic needs, adjusted for the type and size of the family.

For skill mismatch, the proposed indicator is years of completed schooling, and the corresponding cut-off is the first standard deviation above the mean for completed years of schooling in the detailed occupation group.

Table 4 gives an idea on the relative order of magnitude of the different components of the labour underutilization framework.¹³ For example, the data in the first row indicate that for every 100 unemployed in the United States in 1960, there were 49 other persons underutilized by hours of work, 253 persons underutilized by work-related income and 110 underutilized by skill mismatch.

The key messages that can be drawn from this table are that:

- the order of magnitude of underutilization by hours of work is in line with that of involuntary part-time work reported in the preceding section except for Indonesia and Thailand where the values are ten times higher;

¹³ See also Philip M. Hauser, “The Measurement of Labour Utilization,” *The Malayan Economic Review*, Vol. XIX, April 1974, pp. 1-15.

- underutilization by work-related income is more than 100 in all cases reported in the table except one, indicating its quantitative importance relative to unemployment not only in developing countries, but also in the United States.
- the data on underutilization by skill mismatch show considerable disparities. It appears that the phenomenon is more significant in developed countries than developing countries. For every 100 unemployed the data show 0, 9 or 56 persons with skill mismatch in Thailand, Malaysia and Hong Kong, respectively, while in the United States for every 100 unemployed there were more than twice the number of persons in skill mismatch in the 1970's.

	Date	Un-employed	Underutilized by		
			Hours of work	Work-related income	Skill mismatch
USA ¹	1960	100	49	253	110
	1970	100	41	155	234
	1977	100	21	83	214
Hong Kong ²	1977	100	36	178	56
Indonesia ²	1976	100	540	1,667	213
Malaysia ²	1974	100	41	115	9
Thailand ²	1977	100	369	1,892	0

Sources: ¹ Sullivan, Teresa, A., and Hauser, Philip, M., "The Labor Utilization Framework: Assumptions, Data, and Policy Implications," in *Counting the Labor Force*, National Commission on Employment and Unemployment Statistics, Appendix Vol. I, Concepts and Data Needs, US Government Printing Office, Washington, D.C., 1977. ² ILO, Meeting of Experts on Household Surveys, Background Paper, Labour Force Surveys in Asia, Geneva, 6-10 April 1981.

4. Beyond unemployment

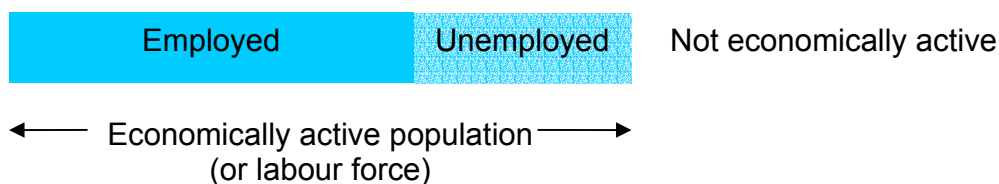
As described in section 2, the labour force framework is based on a double-dichotomy, according to which the working-age population is divided into the economically active population (or the labour force) and the population not economically active; and the labour force into the employed and the unemployed according to certain priority rules.

This framework has been the backbone of the measurement of employment and unemployment for over half a century and its basic principles remain valid. Yet, the arguments laid down by critics, discussed in section 3, and the experience gained in the application of the framework in developing as well as industrialized countries call for certain refinements.

- Unemployment and its halo

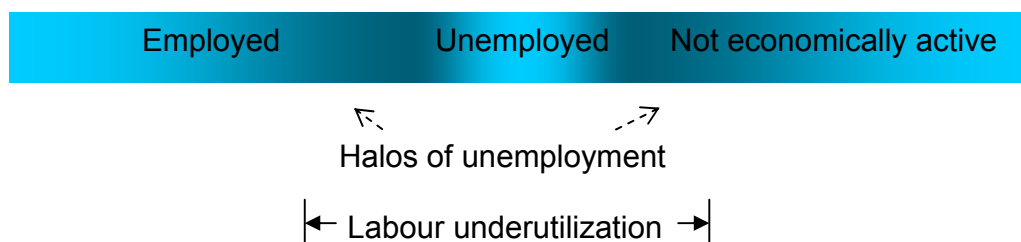
The starting point is the recognition that the discrete statistical category “unemployed” is in fact part of a continuum. The following diagram attempts to schematically draw this continuum by re-sketching the three categories of the labour force framework in the form of a band:

Graph 3a



Viewed in this way, it is natural to question whether there are elements in the vicinity of unemployment that have sufficient resemblance to it to qualify for separate measurement. We call these elements the halos of unemployment, shown on both sides of the continuum in the following diagram.

Graph 3b



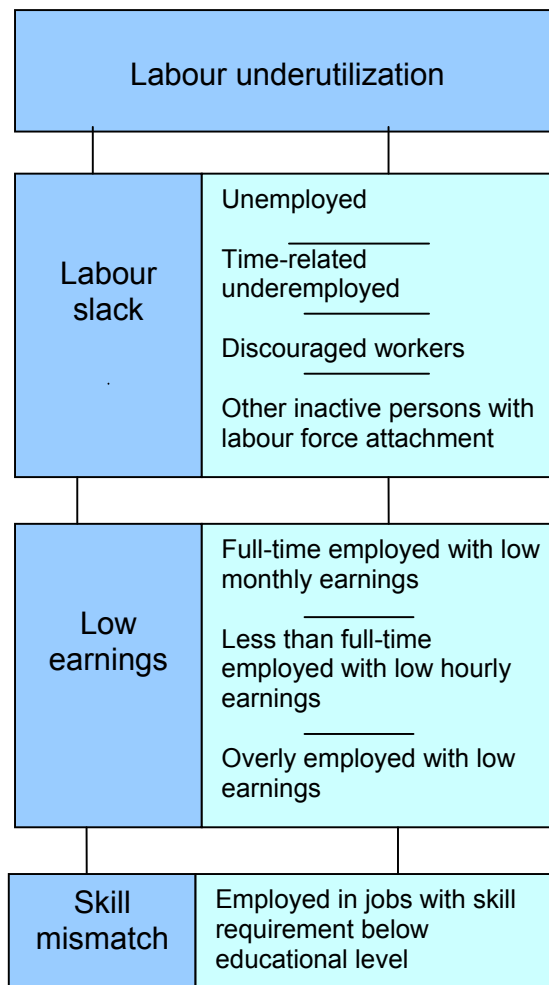
In the context of the discussion of sections 2 and 3, examples of the halos of unemployment are underemployment and inadequate employment on the left side of unemployment, and discouraged workers and others with attachment to the labour force on its right side. These elements have received sufficient attention in the last five decades or so to qualify for separate measurement within the labour force framework. For want of a better term, we call the aggregate *labour underutilization*.

- Labour underutilization

Labour underutilization is a broad concept that encompasses unemployment and other forms of mal-employment namely, insufficiency of the volume of work (labour slack), low remuneration (low earnings) and incompatibility of education and occupation (skill mismatch). For the present purpose, labour underutilization is defined to be the aggregate of labour slack, low earnings and skill mismatch.

The following diagram (Graph 4) shows the three components of labour underutilization and their sub-components. The definitions of the various concepts are described below. They are designed to form a set of mutually exclusive categories in order to avoid double-counting in the calculation of an aggregate measure of labour underutilization.

Graph 4



It is important, therefore, to emphasize that the resulting component data do not necessarily reflect the entire magnitude of that component. For example, the data on the component “low earnings” do not necessarily include all low earners as there may be some persons with low earnings who have earlier been accounted for among the time-related underemployed. Similarly, the data on “skill mismatch” do not necessarily include all persons employed in jobs with skill requirement below their education level as some may have been already classified as time-related underemployed or employed with low earnings in the earlier stages of the classification.

Of course, where desired, it is possible to construct complete measures of the components separately.

– **Labour slack**

Labour slack reflects insufficiency of the volume of work. It is composed of unemployment, time-related underemployment, discouragement and other forms of attachment to the labour force.

1. Unemployed

As mentioned in section 2, according to the international standard definition of unemployment (13th ICLS 1982), the “unemployed” comprise all persons above the age specified for measuring the economically active population who, during the reference period, satisfy the following three conditions simultaneously:

- “Without work” i.e., not in paid employment or self-employment, as specified by the international definition of employment;
- “currently available for work” i.e., available for paid employment or self-employment during the reference period (or shortly after); and
- “seeking work” i.e., had taken specific steps in a specified recent period (typically the last four weeks) to seek paid employment or self-employment.

A special provision applies to persons without work who have made arrangements to start work at a date subsequent to the reference period (future starts). These persons are classified as “unemployed” irrespective of their job-search activity, provided they were without work during the reference period and currently available for work.

The international guidelines further indicate 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 given above may be applied by relaxing the seeking work criterion.

However in the present context, if reporting within the framework of labour underutilization, it is advisable to limit the presentation of the unemployment data to the standard definition in order to avoid double-counting when also reporting

data on other components of labour slack, particularly discouraged workers and other inactive persons with attachment to the labour force.

2. Time-related underemployed

According to the international standards on statistics of underemployment and inadequate employment (16th ICLS 1998), time-related underemployment exists when the hours of work of an employed person are insufficient in relation to an alternative employment situation in which the person is willing and available to engage.

Persons in time-related underemployment comprise all persons in employment who satisfy the following three criteria:

- Willing to work additional hours in the present job, or in an additional job, or in a new job in replacement of the current one(s);
- Available to work additional hours, i.e., ready, within a specified period of time, to work additional hours, given opportunities for additional work;
- Worked less than a specified number of hours, i.e., hours actually worked in all jobs during the reference period were below a threshold defined according to national circumstances (i.e. 40 hours).

Two particular categories of persons in time-related underemployment are: (a) persons who usually work part-time schedules and want to work additional hours, and (b) persons who during the reference period worked less than their normal hours of work.

3. Discouraged workers

No international standard definition of discouraged workers exists. However, in the 13th ICLS resolution there are implicit references to this category of workers with the suggestion that countries “may identify persons not classified as unemployed who were available for work but not seeking work during the reference period and classify them separately under the population not currently active.” For the purpose of measuring labour underutilization discouraged workers are hereby defined as persons who during the reference period were:

- not economically active (i.e. not categorized as employed or unemployed);
- currently available for work;
- seeking work during the past six months;
- but not actively looking for work during the last four weeks because of their discouragement from past failure in finding work.

An increasing number of countries measure the discouraged workers as part of their labour force surveys. The definitions used are, however, very disparate, often not even explicitly formulated.

The past six-month job-search criterion of the proposed definition should provide an element of objectivity and tighten the labour force attachment of this category of workers as recommended in the OECD study reported earlier.

The purpose of restricting the reasons for not actively looking for work during the last four weeks to “discouragement from past failure in finding work” is to exclude those who may have stopped actively looking for work due to non-economic reasons; that is, due to personal or other factors not related to the labour market such as illness, injury, family responsibilities, holidays, etc.

4. Other inactive persons with labour force attachment

Among the not economically active population, in addition to discouraged workers, the measure of labour underutilization may include other groups of persons who are involuntary inactive or have a certain degree of attachment to the labour force. To identify them, a classification of economically inactive persons needs to be developed. An example of such a classification is given in the General Report submitted to the Conference (Box 2) and reproduced below.

For international comparability, one may consider a broad definition and include in this category all persons who during the reference period were:

- not economically active (i.e. not categorized as employed or unemployed);
- currently available for work;
- but not actively looking for work during the last four weeks; and
- not classified as discouraged workers.

Based on the above criteria, “other inactive persons with labour force attachment” for the purpose of measuring labour underutilization would essentially include those in sub-category 1.1.2 and those in category 1.2 in the following box.

Groups of the economically inactive population by degree of labour market attachment

As the serial number of the groups below increases, the labour market attachment of the persons belonging to these groups decreases, i.e. persons in Group 1 can be considered to have the strongest labour market attachment and persons in Group 4 the lowest. Note that persons in Subgroup 1.1 would be included among the unemployed if the seeking work criterion were *partially* relaxed, while all persons in Group 1 would be included among the unemployed if the seeking work criterion were *completely* relaxed.

1. Persons wanting work and available for work, but not seeking work

- 1.1 Economic reason for not seeking work
 - 1.1.1 Discouraged workers
 - 1.1.2 Persons with another economic reason

1.2 Other reason for not seeking work

- 1.2.1 With recent previous work experience
 - 1.2.1.1 Stopped working for economic reason
 - 1.2.1.2 Stopped working for other reason

1.2.2 Without recent previous work experience

2. Persons seeking work but not available for work

2.1 Main activity before starting to seek work: employment

2.2 Main activity before starting to seek work: other than employment

- 2.2.1 With recent previous work experience
 - 2.2.1.1 Stopped working for economic reason
 - 2.2.1.2 Stopped working for other reason

2.2.2 Without recent previous work experience

3. Persons wanting work, but neither seeking work nor available for work

3.1 Economic reason for not seeking work

3.2 Other reason for not seeking work

- 3.2.1 With recent previous work experience
 - 3.2.1.1 Stopped working for economic reason
 - 3.2.1.2 Stopped working for other reason

3.2.2 Without recent previous work experience

4. Persons not wanting to work

Source: ILO Bureau of Statistics, *General Report*, report submitted to the Eighteenth International Conference of Labour Statisticians, Geneva, 24 November-5 December 2008, Box 2.

- Low earnings

Low earnings measures low remuneration of work. There are three categories of low earners. The core is the full-time employed with low monthly earnings.

1. Full-time employed with low monthly earnings

This category includes all employed persons during the reference week who were:

- usually working 40-48 hours per week at all jobs; and
- whose total monthly earnings at all jobs were below a specified threshold. The threshold is defined as half the median monthly earnings of all employed persons during the reference week with usual hours of work of 40 to 48 per week at all jobs.

$$\begin{aligned} &\text{Threshold of low monthly earnings} \\ &= \\ &(1/2) * \text{median (monthly earnings at all jobs of full-time workers)} \end{aligned}$$

Usual hours of work per week in a given job are defined as hours worked in the job during a typical week. It is often calculated by the modal value of actual hours worked during the week in that job over a longer period of time, say, four weeks (18th ICLS 2008).

For paid employment jobs, earnings include: total cash remuneration; the value of remuneration in kind and services; profit-related pay; and employment-related social security benefits received either directly from the employer, from social security or compulsory insurance schemes or the State.¹⁴

For self-employment jobs, earnings are defined as gross income related to self-employment. It consists of: (a) the profit (or the share of profit) which is generated by the self-employment activity; (b) where relevant, the remuneration received by owner-managers of corporations and quasi-corporations; and (c) the amount of employment-related social security benefits received by self-employed persons through schemes recognizing the status in employment as a specific condition for membership.

¹⁴ For details see *Resolution concerning the measurement of employment-related income*, adopted by the Sixteenth International Conference of Labour Statisticians, (Geneva, October 1998).

Defining the threshold of low earnings in terms of the distribution of monthly earnings of full-time workers is meant to accommodate different national norms regarding minimum wage and differences in hours of work among full-time workers in each country. Since the median of the distribution determines the relative position of a typical worker in that distribution, it is indeed plausible that national norms as to what constitutes minimum pay are tied to that median. Also, as total earnings depend on the number of hours worked, which may differ from one worker to another, the best basis of comparison is to refer to full-time workers.¹⁵

Formulating the indicator in terms of a percentage of the median makes it independent of the national currencies and greatly facilitates international comparison. The choice of 50 per cent of the median has the virtue of simplicity, but it is also consistent with empirical results showing that minimum wages established through democratic processes are often close to half the median wage: national values vary from about 25 to 50 per cent in the OECD countries.¹⁶ Another advantage of the proposed definition of low pay is its wide applicability, including in countries that have either not adopted minimum wage legislation or which have set the statutory minimum wage far below the prevailing market wage.

Of course, the choice of 50 percent of the median may be changed to another percentage, say, 40 or 60 percent or 2/3 on the basis of relevant considerations.¹⁷

In spite of its advantages, the median-based methodology may be criticised as confounding low pay and unequal pay, thus actually measuring the inequality of monthly earnings in countries. Another criticism may be the possibility of apparent anomalies when for example the rate of pay determined by half the median indicates an increase in the percentage of low pay workers where their real pay has actually risen.

2. Less than full-time employed with low hourly earnings

Some employed persons working less than full-time would have low earnings even if they worked full-time. This refers to persons with low hourly earnings.

¹⁵ D. Bescond, A. Châtaignier and F. Mehran, "Seven indicators to measure decent work: An international comparison," *International Labour Review*, ILO, Geneva, 2003/2, pp. 179-211.

¹⁶ Organisation for Economic Cooperation and Development (OECD). *Employment outlook*. Paris, 1997.

¹⁷ See, for example, Tripartite Meeting of Experts on the Measurement of Decent Work, ILO, Geneva, 8-10 September 2008, Chairperson's report, paragraph 51.

This category of low earners is defined as all employed persons during the reference week who were:

- usually working less than 40 hours per week at all jobs, but not categorised as in time-related underemployment; and
- whose hourly earnings were below a specified threshold. The threshold is determined in accordance to the monthly threshold of full-time workers specified in the previous paragraph. It can be calculated as:

$$\begin{aligned} &\text{Threshold of low hourly earnings of part-time workers} \\ &= \\ &\text{Threshold of low monthly earnings of full-time workers/} \\ &\text{(average hours of work per week of full-time workers*52/12)} \end{aligned}$$

3. Overly employed with low earnings

The third category of low earners relates to those working more than the typical number of hours for full-time work. Two groups may be distinguished among them: (a) those who are working very long hours yet have low earnings, i.e., earnings below the threshold for full-time workers; and (b) those who are earning above the threshold used to define full-time workers with low earnings, but who have that level of earnings only because they are working very long hours (i.e. to compensate for low hourly earnings).

These two groups of overly employed workers with low earnings are defined as all employed persons during the week who were:

- usually working more than 48 hours per week at all jobs; and
 - whose monthly earnings at all jobs were below the threshold of low monthly earnings of full-time workers specified under 1 above;
- or
- whose hourly earnings at all jobs were below the threshold of low hourly earnings of less than full-time workers determined under 2.

– Skill mismatch

Skill mismatch measures the incompatibility between education and occupation. Workers whose educational attainment is above the skill requirement of their jobs are in some sense underutilized. The return on investment in their education and training is below optimum and somewhat wasted.

Different indicators have been used to measure skill underutilization. The labour underutilization framework of Philip Hauser described in section 3 is based on the number of completed years of schooling. A worker is considered as skill underutilized if his or her educational attainment is above the first standard deviation of completed years of schooling among the workers in the same occupational group. Another method to measure skill underutilization is based on experts' judgment. A panel of experts determines whether a worker's occupation does or does not permit the full use of his or her education. A variation is the use of a pre-determined matrix cross-classifying education levels and occupations, and indicating which occupational groups are to be regarded as incompatible with which levels of education.

In order to avoid complicated procedures in surveys or in data processing, it is proposed to use a simple method of measurement of skill underutilization based on level of educational attainment and one-digit level occupational classification applied to the main job only.¹⁸ Again, to avoid double counting in the computation of an aggregate indicator of labour underutilization, skill mismatch is defined as comprising all employed persons during the reference week who were not already categorized as in time-related underemployment or with low earnings, and whose educational attainments were higher than the educational level required by their current main job. These include:

- persons with lower secondary or second stage of basic education, with upper secondary education, and with post-secondary non-tertiary education (2nd, 3rd and 4th level of education according to ISCED 1997)¹⁹ engaged in elementary occupations (ISCO-88 major group 9)²⁰;
- persons with first stage of tertiary education (5th level of education according to ISCED 1997) engaged in occupations falling in ISCO-88 major groups 4-9;
- persons with second stage of tertiary and higher education (6th or higher level of education according to ISCED 1997) engaged in occupations falling in ISCO-88 major groups 3-9.

¹⁸ It should be mentioned that this approach of defining skill mismatch does not take into account any post-education skill acquisition.

¹⁹ UNESCO, International Standard Classification of Education ISCED 1997, Paris. see http://www.unesco.org/education/information/nfsunesco/doc/isced_1997.htm.

²⁰ For ILO description of ISCO-88 skill levels see

<http://www.ilo.org/public/english/bureau/stat/isco/isco88/publ2.htm>.

ILO, *International Standard Classification of Occupations, ISCO-88*, <http://laborsta.ilo.org> (click classifications). For the updated version of the International Classification of Occupations (ISCO-08) see <http://www.ilo.org/public/english/bureau/stat/download/res/futisco.pdf>.

Where educational programmes at level 4 of ISCED-97 are deemed to provide skills comparable to tertiary education, their treatment for identifying skill mismatch should follow that of persons with first stage of tertiary education.

The proposed measurement of skill mismatch may be represented schematically by the following matrix (Table 5).

Table 5. Skill mismatch defined on the basis of ISCO and ISCED

ISCO-88 Major groups		ISCED-97 educational attainment						
		0	1	2	3	4	5	6
		ISCO-88 skill level						
		1 st	2 nd		3 rd	4 th		
1	Legislators, senior officials and managers							
2	Professionals							
3	Technicians and associate professionals							
4	Clerks							
5	Service workers, shop & market sales workers							
6	Skilled agricultural and fishery workers							
7	Craft and related trades workers							
8	Plant and machine operators and assemblers							
9	Elementary occupations							
0	Armed forces							

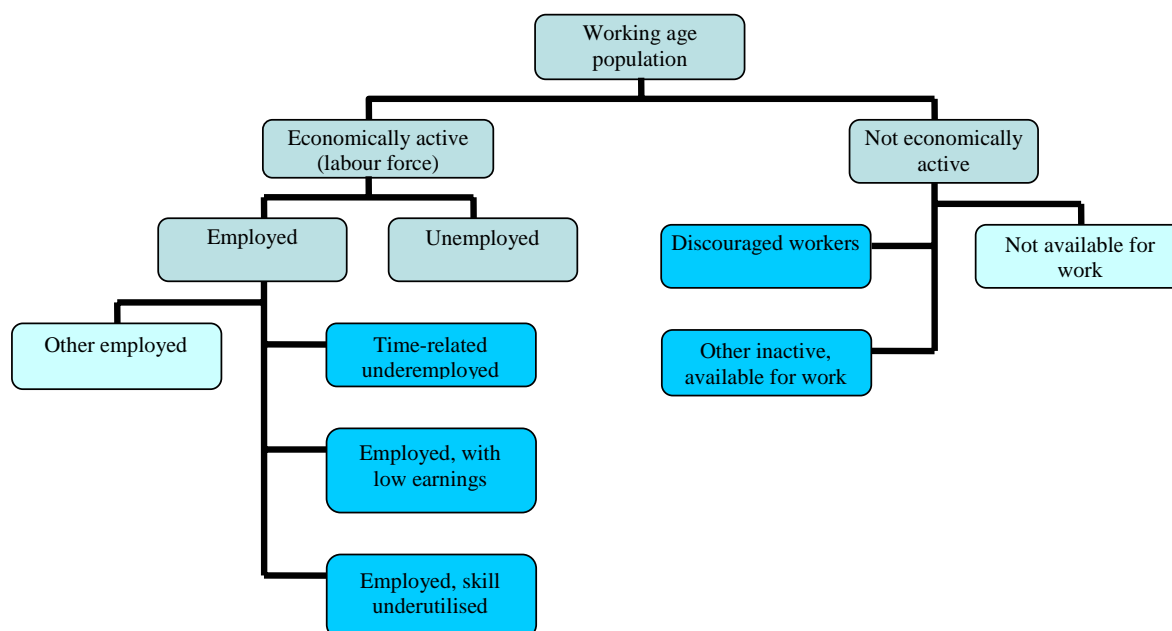
It should be noted that skill underutilization is defined residually. Therefore it does not cover all persons with skill mismatch as some of them may have been earlier classified as being in time-related underemployment or as having low earnings.

- Refinement of the labour force framework

All the components of labour underutilization described above fall within the basic categories of the labour force framework. The indicator, therefore, does not require a new framework for measurement.

As shown in the diagram below (Graph 5), measurement of labour underutilization may in fact be regarded as a refinement of the labour force framework. Time-related underemployment, low earnings and skill mismatch are sub-categories of employment, while discouraged workers and other inactive persons with labour force attachment are sub-categories of the not economically active population.

Graph 5. Refinement of the labour force framework



- Reporting system

When reporting on labour underutilization, the components covered and their definition should be described. The summary indicator comparable to the unemployment rate is the labour underutilization rate. It is the ratio of measured labour underutilization to the corresponding population at risk expressed in per cent. The population at risk of labour underutilization may be either the labour force²¹ (enlarged by the number of economically inactive persons included in the measure of labour underutilization) or the population of working age (for example, all persons 15 years and older).

The rates calculated here are based on the following definition:

$$\text{Labour underutilization rate} = 100 \times \frac{\text{Labour underutilization}}{\text{Labour force} + \text{Discouraged} + \text{Other with labour force attachment}}$$

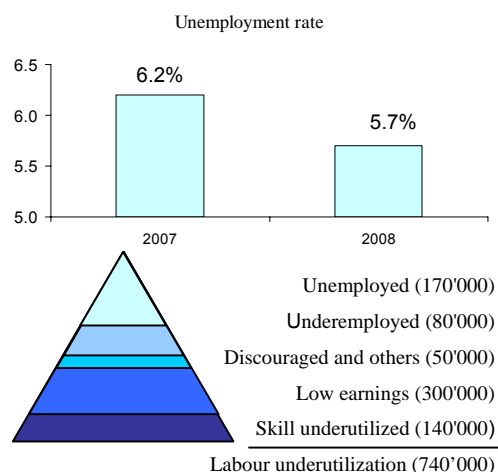
The labour underutilization rate should be regarded as a supplementary indicator of labour market performance and should be reported along with the unemployment rate. The following example illustrates a hypothetical newspaper report. After announcing the unemployment rate, it provides additional information on the other elements of labour underutilization. This should give the reader a better appreciation of the labour market conditions than what the unemployment rate alone would convey.

²¹ See examples of labour underutilization rate using the enlarged labour force as denominator in the tables presented in the Annex.

UNEMPLOYMENT RATE DECLINES TO 5.7% BUT LABOUR UNDERUTILIZATION STILL HIGH AT 24%

The nation's official unemployment rate stood at 5.7 percent of the labour force in 2008, representing a decrease of half a percentage point compared with the situation a year ago, the government reported on Friday.

The announcement was, however, supplemented with a caution that the unemployment rate should be analysed in conjunction with other elements of labour market performance. The overall indicator of labour underutilization was declared to be 24%, encompassing in addition to the 170,000 unemployed, a large number of employed persons with low earnings, calculated to be 300,000, and 80,000 underemployed persons working less than full-time and looking for additional work, as well as 50,000 discouraged workers who have given up looking for work altogether because of their past failure to find work. Among the remaining employed population there also are 140,000 other persons whose skill is not fully utilised, i.e., people employed in jobs with skill requirements below their level of education.



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5. Numerical illustrations

The purpose of this final chapter is: (a) to examine the order of magnitude of labour underutilization and its components in a range of countries in different regions of the world; and (b) to assess the feasibility of their measurement with existing tools, in particular, with national labour force surveys.

- Order of magnitude of the values involved

To examine the order of magnitude of labour underutilization and its components, a sample of 7 countries have been selected covering different regions of the world (Mexico and Panama in Latin America; Bosnia and Herzegovina, Republic of Moldova and Turkey in Europe; the Philippines in Asia; and Tanzania in Africa). It was envisaged to include also France, the United States and an Arab country, but data processing for these countries could not be completed or clearance could not be obtained in time for the Conference and, therefore, the broader results will be reported separately later.

The choice of the countries was based on the availability for data processing of individual records from labour force surveys covering the items required for measuring labour underutilization as described here. The ILO is

grateful to the central statistical offices and national agencies as well as the ILO Regional Offices for their collaboration in this study.

Despite efforts to make the data as comparable as possible, disparities exist and consequently the results should be interpreted with caution. Disparities exist particularly in the way hours of work and earnings are measured in the different national surveys. There are also significant differences in the way discouraged workers are identified and the way the cross-classification of occupation and educational attainment is constructed. Nevertheless, the data reveal some general patterns which are reported below. The data on individual countries for males and females and for the young and adult population separately are given in the Annex of the present document.

The following table (Table 6) compares the unemployment rate and the labour underutilization rate for the sample countries. The data show that labour underutilization rate may be more than 10 times the unemployment rate, especially, in countries with low measured unemployment rate (those less than 6%). In countries with higher unemployment rate, the relative size of labour underutilization is smaller, only 2 to 6 times the unemployment rate. It appears therefore that the relationship between the unemployment rate and labour underutilization rate follows a logistic pattern.

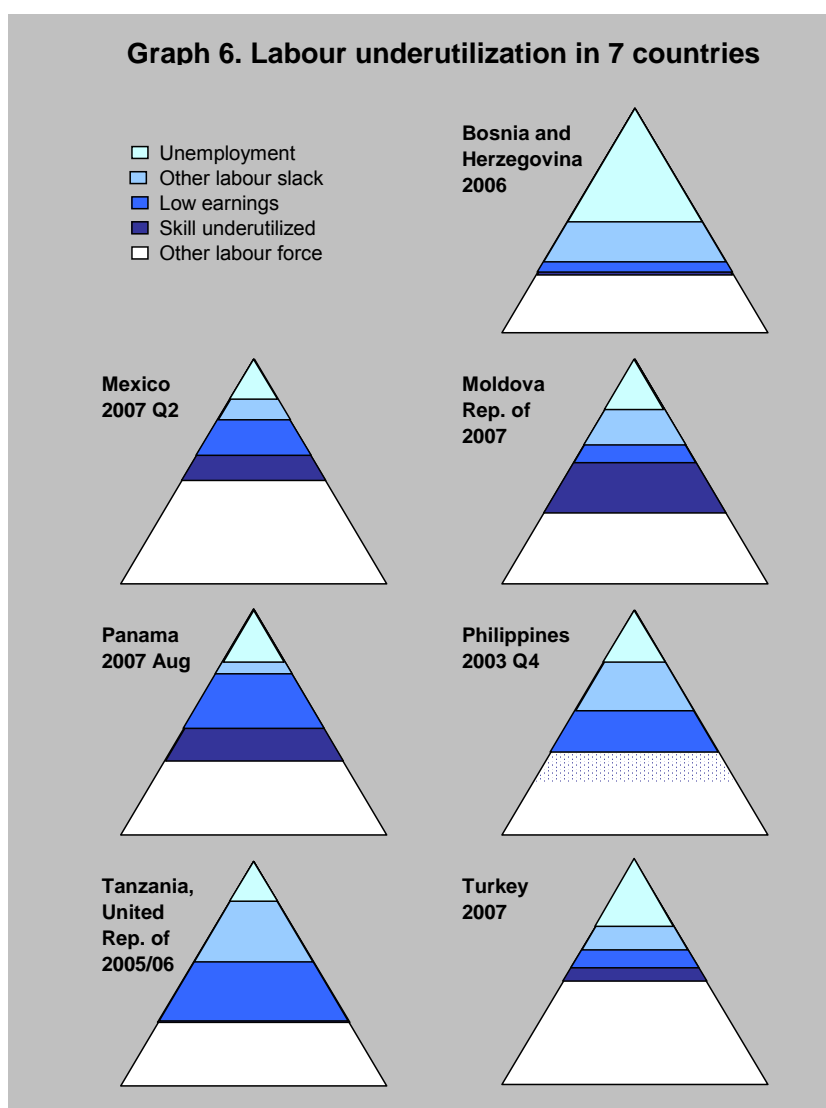
Table 6. Unemployment rate versus labour underutilization rate			
Country	Date	Unemployment rate	Labour underutilization rate
Bosnia & Herzegovina	2006	27.0%	56.0%
Mexico	2007 Q2	3.4%	30.2%
Moldova, Rep. of	2007	5.0%	46.3%
Panama	2007 Aug	5.7%	45.1%
Philippines	2003 Q4	5.4%	40.8%
Tanzania, U. Rep. of	2005/2006	3.3%	51.9%
Turkey	2007	9.3%	29.9%

Among the three main components of labour underutilization, low earnings or skill mismatch generally appear to be the largest. The exceptions are Bosnia & Herzegovina and Turkey where labour slack is relatively larger, mainly because of the high unemployment rate in these countries.

This conclusion can also be observed in Table 7 where the relative share of the three main components of labour underutilization is calculated for countries with low unemployment rate and countries with high unemployment rate separately.

Table 7. Relative share of the main components of labour underutilization				
	Total labour underutilization	Labour slack	Low earnings	Skill mismatch
Sample countries (2003-07) <i>Sample average</i>	100%	37%	34%	29%
- Low unemployment rate countries	100%	28%	35%	37%
- High unemployment rate countries	100%	52%	32%	15%

A similar pattern emerges from the set of triangles shown in the following diagram (Graph 6). Each triangle represents the enlarged labour force of the country. The components of labour underutilization are shown in hierarchal order with different shades of grey inside the triangle. It can be observed that the dark grey colours are generally more dominant than the light grey colours. The dark grey colours represent low earnings and skill mismatch while the light grey colours represent unemployment and other labour slack components.



Like the results reported earlier on the OECD countries, unemployment appears to be the largest component of labour slack in the countries covered by the study, followed by time-related underemployment (Table 8).

Table 8. Relative order of magnitude of the components of labour slack				
	Un- employed	Time- related under- employed	Discouraged workers	Others with labour force attachment
Sample countries (2003-07) <small>Sample median</small>	100	90	20	30
- Low unemployment rate countries	100	140	15	10
- High unemployment rate countries	100	15	30	15
OECD countries (1993)	100	40	10	-

The data show that for every 100 unemployed persons, there are on average 90 time-related underemployed in the countries covered in the present study. This number is more than twice the corresponding number for the OECD countries reported earlier, but it is still less than the benchmark number of 100 unemployed persons.

The discouraged workers are also about twice as many in the sample countries in comparison with the corresponding number for the OECD countries but their relative size is still much less than that of the time-related underemployed. It is also lower than the number of other inactive persons with attachment to the labour force as it should be expected from the wide definition of labour force attachment used here.

It can be observed from Table 8 that there is a wide disparity between countries with low unemployment rate and countries with high unemployment rate, particularly with respect to time-related underemployment. This component of labour slack is considerably higher in the former countries and minimal in the latter countries.

A similar pattern may be observed with regard to the components of low earnings as shown in Table 9 below.

Table 9. Relative order of magnitude of the components of low earnings				
	Un- employed	Full-time employed, low monthly earnings	Less than full-time employed, low hourly earnings	Overly employed, low monthly or hourly earnings
Sample countries (2003-07) <small>Sample median</small>	100	100	20	140
- Low unemployment rate countries	100	150	100	160
- High unemployment rate countries	100	20	10	50

Countries with low unemployment rate exhibit higher numbers of persons with low earnings, particularly those with full-time or more than full-time employment, as compared with countries with high unemployment rate which show a relatively small number of persons with low earnings. In the sample countries with low unemployment rate, for every 100 unemployed persons there are on average about 410 employed persons with low earnings, distributed almost evenly among those working full-time (150), less than full-time (100), or more than full-time (160). By contrast, in the sample countries with high unemployment rate, for every 100 unemployed there are on average about 80 employed persons with low earnings, most of whom are overly employed working more than 48 hours per week.

It is instructive to note from the detailed country data presented in the Annex that about one third of the overly employed low earners are those with low hourly earnings. As the monthly earnings of these people are not low, one must assume that they are led to work long hours, more than 48 hours per week, to make up for their low hourly earnings.

The data on skill mismatch are summarized in Table 10 below. Skill mismatch as a residual appears to be on average about the same order of magnitude than unemployment in the sample countries. For every 100 unemployed persons, there are 75 employed persons, not in time-related underemployment, nor with low earnings, but classified as skill mismatch. Like the pattern observed for labour slack and low earnings, the skill mismatch ratio is higher than average in countries with low unemployment rate and lower than average in countries with high unemployment rate.

Table 10. Relative order of magnitude of the components of skill mismatch				
	Un- employed	Skill mismatch		
		Below tertiary education	Tertiary education (1 st stage)	Tertiary education (2 nd stage)
Sample countries (2003-07) <i>Sample median</i>	100	30	40	5
- Low unemployment rate countries	100	140	110	10
- High unemployment rate countries	100	10	20	-

The data also show that skill mismatch concerns primarily persons whose educational attainment is below tertiary education and first stage of tertiary education. Skill mismatch below tertiary education is relatively less important in countries with high unemployment rate. In the case of second tertiary education, skill mismatch is much less relevant throughout sample countries regardless of the level of unemployment.

The main conclusion that can be drawn from this analysis is that unemployment is indeed a relatively small part of labour underutilization in the countries covered by the study, in some cases reaching even less than ten percent of labour underutilization. A logistic pattern seems to govern the relationship between unemployment and labour underutilization (and its components). Countries with low unemployment rate are affected more than average by the other forms of labour underutilization, and vice versa countries with high unemployment rate are affected less than average.

- Feasibility of measurement with existing tools

Labour force sample surveys are generally regarded as the most comprehensive and appropriate means of collecting current data on the economically active population and its components, employment and unemployment. More than 90 countries are presently conducting national labour force surveys on a regular basis, many of them using the results for deriving their official national unemployment rate.

Labour force surveys are flexible data collection instruments, permitting adaptation of concepts and definitions to data requirements and addition or omission of survey items depending on measurement objectives. The estimates of labour underutilization presented in this chapter have been calculated on the basis of a selected set of national labour force surveys as indicated earlier.

This experience has shown that existing labour force surveys may provide an appropriate source for collecting data on labour underutilization beyond the data already being collected on employment and unemployment. The extension may, however, require certain modifications to the existing survey items and possibly addition of new items in line with the requirements for measuring labour underutilization and its components.

The following final table (Table 11) lists the survey items that are generally included in existing labour force surveys and those that may have to be added if the survey is to be also used for measuring labour underutilization as formulated here.

Table 11. Survey items for measuring labour underutilization		
Survey item	Generally included in existing labour force surveys	Additionally needed for measuring labour underutilization
Any work during reference week	X	
Absence from work during reference week	X	
Actual hours worked during reference week	X	
Usual hours of work per week	X	
Seeking/available for additional work during reference week		X
Earnings		X
Educational attainment	X	
Occupation in main job	X	
Current availability for work	X	
Active job search during past four weeks	X	
Reason for not seeking work during past four weeks	X	
Inactive wanting/available for work		X
Inactive seeking work past six months		X

Thirteen essential survey items are listed for measuring labour underutilization in labour force surveys. “Any work during the reference week” and “Absence from work during the reference week” are used to identify the employed. “Current availability for work” and “Active job search during the past four weeks” are used to identify the unemployed.

For labour slack measurement, “actual hours worked during the reference week” and “Seeking/available for additional work” are needed for measuring time-related underemployment. “Inactive wanting/currently available for work”, “reason for not seeking work during the past four weeks” and “Inactive seeking work during the past six months” are needed for identifying the discouraged workers and others with labour force attachment.

“Usual hours of work per week” and “monthly earnings” are meant to measure low earnings. “Educational attainment” and “occupation in main job” are used for measuring skill mismatch.

Of the thirteen essential survey items listed, nine are generally already included in existing labour force surveys. Essentially, only four additional items are needed for measuring labour underutilization as defined here.

Certain modification to existing survey items may however be necessary to meet the data requirements of the labour underutilization measurement. For example, actual hours worked and usual hours of work should be measured for all jobs held during the reference week. Similarly for earnings, it should refer to earnings from all jobs held during the reference week.

If some of the concepts are difficult to measure in practice, certain approximations may be envisaged. For example, data on earnings may be restricted to paid employment jobs. Or, the data may be collected by splitting the concept into its components, asking questions on basic wages and salaries and on overtime and other allowances separately. Another possibility is to collect data by earnings interval, designing the width of the intervals such that the resulting data are sufficiently accurate for determining the median of the distribution and its appropriate fraction, yet wide enough to enable respondents to easily identify their position.

Care should also be taken to design the categories for educational attainment and for occupation in the main job as closely as possible to ISCED-97 and ISCO-88 (or ISCO-08), respectively.

In conclusion, it appears that existing labour force surveys could in fact be used for measuring labour underutilization and its components at little extra cost.

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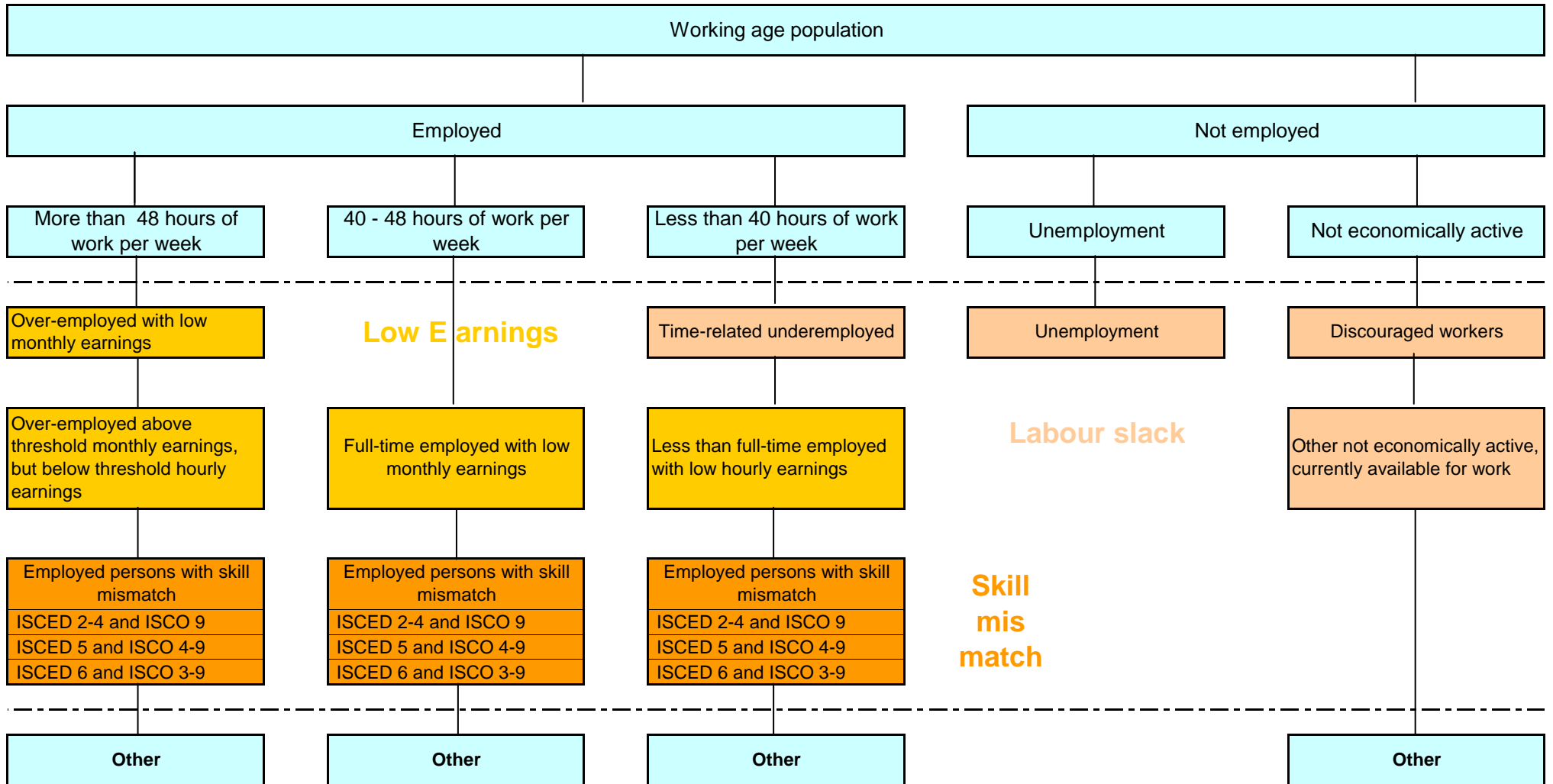
It is hoped that the present document will prove helpful to participants in the Eighteenth International Conference of Labour Statisticians in their discussion of the points raised in paragraph 232 of the General Report concerning indicators of labour underutilization.

ANNEX

- Measurement of labour underutilisation
 - Filtering system for data processing
- Country tables
 - Table 1. Bosnia and Herzegovina - 2006
 - Table 2. Mexico - 2007 Q2
 - Table 3. Moldova, Rep. Of - 2007
 - Table 4. Panama - 2007 Aug
 - Table 5. Philippines - 2003 Q4
 - Table 6. Tanzania, U. Rep. Of - 2005/2006
 - Table 7. Turkey - 2007

Measurement of labour underutilisation

Filtering system for data processing



Labour underutilisation

1. Bosnia and Herzegovina - 2006

International Labour Office, Bureau of Statistics
Beyond Unemployment: Measurement of labour underutilisation
based on Labour force surveys

	15 years old and over			15-24 years old			25 years old and over		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Population 15+	2'732'500	1'322'200	1'410'300	494'600	253'600	241'000	2'238'000	1'068'600	1'169'400
Economically active population	1'192'900	752'300	440'500	166'000	102'300	63'700	1'026'900	650'000	376'900
• Employed	810'800	528'100	282'700	62'200	40'500	21'700	748'600	487'600	261'000
• Unemployed	382'100	224'300	157'800	103'800	61'800	42'000	278'300	162'500	115'900
Not economically active population	1'539'700	569'900	969'800	328'600	151'300	177'300	1'211'100	418'600	792'500
Labour underutilisation	793'900	435'000	359'100	171'400	99'400	72'000	622'500	335'500	287'100
Labour slack									
• Unemployed	382'100	224'300	157'800	103'800	61'800	42'000	278'300	162'500	115'900
• Time-related underemployed	53'000	38'900	14'100	8'300	6'500	1'800	44'700	32'400	12'400
• Discouraged workers	102'300	51'300	50'900	20'500	11'800	8'700	81'800	39'500	42'300
• Other not economically active persons, currently available for work	121'800	40'700	81'100	23'200	9'500	13'700	98'600	31'200	67'400
Low earnings									
• Full-time employed (40-48 hrs per week) with low monthly earnings	59'900	28'100	32'000	7'100	3'300	3'800	52'800	24'800	28'200
• Less than full-time employed (<40 hrs per week) with low hourly earnings	500	200	300	200	0	200	400	200	200
• Overly employed (>48 hrs per week)	35'700	24'900	10'800	5'000	3'500	1'500	30'800	21'500	9'300
- with low monthly earnings	12'200	8'300	3'900	2'400	1'900	500	9'900	6'500	3'400
- above threshold monthly earnings, but with low hourly earnings	23'500	16'600	6'900	2'600	1'600	1'000	20'900	15'000	5'900
Skill underutilised									
• Employed persons with skill mismatch	38'600	26'500	12'100	3'400	3'000	400	35'200	23'500	11'700
- 2nd, 3rd, 4th level education in occupations (ISCO-88 major group 9)	31'100	22'400	8'700	3'100	2'900	300	28'000	19'600	8'300
- 5th level education in occupations (ISCO-88 major groups 4-9)	7'100	3'700	3'400	200	200	100	6'900	3'500	3'400
- 6th level education in occupations (ISCO-88 major groups 3-9)	300	300	0	0	0	0	300	300	0

Source: Bosnia and Herzegovina, Agency for Statistics, processed by ILO Bureau of Statistics.

Note: The survey covered 10,000 households, including 5,943 in the federation of Bosnia and Herzegovina, 3,457 in the Republika Srpska, and 600 in the Brcka Distric of Bosnia and Herzegovina. Not included collective households (university dormitories, nursing homes, institutes for the mentally disabled, orphanages, homes for disableadults, monasteries, convents etc).

1a. Bosnia and Herzegovina - 2006

International Labour Office, Bureau of Statistics
Beyond Unemployment: Measurement of labour underutilisation
based on Labour force surveys

	15 years old and over			15-24 years old			25 years old and over		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Population 15+	2'732'500	1'322'200	1'410'300	494'600	253'600	241'000	2'238'000	1'068'600	1'169'400
Labour force participation rate	43.7%	56.9%	31.2%	33.6%	40.3%	26.4%	45.9%	60.8%	32.2%
Employment-population ratio	29.7%	39.9%	20.0%	12.6%	16.0%	9.0%	33.4%	45.6%	22.3%
Unemployment rate	32.0%	29.8%	35.8%	62.5%	60.4%	65.9%	27.1%	25.0%	30.7%
Labour underutilisation	56.0%	51.5%	62.7%	81.7%	80.4%	83.6%	51.6%	46.6%	59.0%
Labour slack									
● Unemployed	27.0%	26.6%	27.6%	49.5%	50.0%	48.8%	23.1%	22.5%	23.8%
● Time-related underemployed	3.7%	4.6%	2.5%	4.0%	5.3%	2.1%	3.7%	4.5%	2.5%
● Discouraged workers	7.2%	6.1%	8.9%	9.8%	9.6%	10.1%	6.8%	5.5%	8.7%
● Other not economically active persons, currently available for work	8.6%	4.8%	14.2%	11.1%	7.7%	15.9%	8.2%	4.3%	13.8%
Low earnings									
● Full-time employed (40-48 hrs per week) with low monthly earnings	4.2%	3.3%	5.6%	3.4%	2.6%	4.4%	4.4%	3.4%	5.8%
● Less than full-time employed (<40 hrs per week) with low hourly earnings	0.0%	0.0%	0.1%	0.1%	0.0%	0.2%	0.0%	0.0%	0.0%
● Overly employed (>48 hrs per week)	2.5%	3.0%	1.9%	2.4%	2.8%	1.7%	2.5%	3.0%	1.9%
- with low monthly earnings	0.9%	1.0%	0.7%	1.1%	1.5%	0.6%	0.8%	0.9%	0.7%
- above threshold monthly earnings, but with low hourly earnings	1.7%	2.0%	1.2%	1.2%	1.3%	1.2%	1.7%	2.1%	1.2%
Skill underutilised									
● Employed persons with skill mismatch	2.7%	3.1%	2.1%	1.6%	2.4%	0.4%	2.9%	3.3%	2.4%
- 2nd, 3rd, 4th level education in occupations (ISCO-88 major group 9)	2.2%	2.7%	1.5%	1.5%	2.3%	0.4%	2.3%	2.7%	1.7%
- 5th level education in occupations (ISCO-88 major groups 4-9)	0.5%	0.4%	0.6%	0.1%	0.1%	0.1%	0.6%	0.5%	0.7%
- 6th level education in occupations (ISCO-88 major groups 3-9)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Source: Bosnia and Herzegovina, Agency for Statistics, processed by ILO Bureau of Statistics.

Note: The survey covered 10,000 households, including 5,943 in the federation of Bosnia and Herzegovina, 3,457 in the Republika Srpska, and 600 in the Brcka Distric of Bosnia and Herzegovina. Not included collective households (university dormitories, nursing homes, institutes for the mentally disabled, orphanages, homes for disableadults, monasteries, convents etc).

2. Mexico - Q2 2007

International Labour Office, Bureau of Statistics
Beyond Unemployment: Measurement of labour underutilisation
based on Labour force surveys

	15 years old and over			15-24 years old			25 years old and over		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Population 15+	73'419'700	34'246'200	39'173'500	19'484'600	9'410'800	10'073'800	53'935'000	24'835'300	29'099'700
Economically active population	44'063'200	27'469'100	16'594'100	9'238'800	5'802'900	3'435'900	34'824'300	21'666'200	13'158'200
• Employed	42'567'300	26'590'400	15'976'900	8'620'700	5'442'500	3'178'300	33'946'600	21'148'000	12'798'600
• Unemployed	1'495'900	878'600	617'200	618'100	360'400	257'700	877'800	518'200	359'600
Not economically active population	29'356'500	6'777'100	22'579'400	10'245'800	3'607'900	6'637'900	19'110'700	3'169'200	15'941'500
Labour underutilisation	13'331'800	7'812'400	5'519'200	3'285'200	1'947'700	1'337'400	10'046'600	5'864'700	4'181'700
Labour slack									
• Unemployed	1'495'900	878'600	617'200	618'100	360'400	257'700	877'800	518'200	359'600
• Time-related underemployed	1'835'400	1'174'800	660'600	331'900	223'700	108'300	1'503'400	951'100	552'300
• Discouraged workers	50'800	15'700	35'100	15'400	6'700	8'700	35'400	9'000	26'400
• Other not economically active persons, currently available for work	81'000	31'800	49'200	33'200	13'900	19'200	47'800	17'900	29'900
Low earnings									
• Full-time employed (40-48 hrs per week) with low monthly earnings	1'160'600	754'900	405'700	235'600	132'500	103'000	925'100	622'400	302'700
• Less than full-time employed (<40 hrs per week) with low hourly earnings	1'433'300	654'900	778'400	285'700	154'400	131'300	1'147'700	500'500	647'100
• Overly employed (>48 hrs per week)	2'406'700	1'459'900	946'700	547'600	307'700	239'900	1'859'000	1'152'200	706'800
- with low monthly earnings	1'015'700	565'700	450'000	203'800	107'400	96'400	811'900	458'300	353'600
- above threshold monthly earnings, but with low hourly earnings	1'390'900	894'200	496'700	343'800	200'300	143'600	1'047'100	693'900	353'200
Skill underutilised									
• Employed persons with skill mismatch	4'868'100	2'841'800	2'026'300	1'217'700	748'400	469'300	3'650'400	2'093'400	1'556'900
- 2nd, 3rd, 4th level education in occupations (ISCO-88 major group 9)	2'335'200	1'457'800	877'400	210'700	90'100	120'500	2'124'500	1'367'600	756'900
- 5th level education in occupations (ISCO-88 major groups 4-9)	2'414'300	1'306'900	1'107'400	1'005'300	658'000	347'300	1'409'000	649'000	760'100
- 6th level education in occupations (ISCO-88 major groups 3-9)	118'600	77'100	41'400	1'800	300	1'500	116'800	76'900	39'900

Source: Mexico, Instituto Nacional de Estadística Geografía e Informática (INEGI), processed by ILO Regional Office for Latin America and the Caribbean.

2a. Mexico - Q2 2007

International Labour Office, Bureau of Statistics
Beyond Unemployment: Measurement of labour underutilisation
based on Labour force surveys

	15 years old and over			15-24 years old			25 years old and over		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Population 15+	73'419'700	34'246'200	39'173'500	19'484'600	9'410'800	10'073'800	53'935'000	24'835'300	29'099'700
Labour force participation rate	60.0%	80.2%	42.4%	47.4%	61.7%	34.1%	64.6%	87.2%	45.2%
Employment-population ratio	58.0%	77.6%	40.8%	44.2%	57.8%	31.6%	62.9%	85.2%	44.0%
Unemployment rate	3.4%	3.2%	3.7%	6.7%	6.2%	7.5%	2.5%	2.4%	2.7%
Labour underutilisation	30.2%	28.4%	33.1%	35.4%	33.4%	38.6%	28.8%	27.0%	31.6%
Labour slack									
• Unemployed	3.4%	3.2%	3.7%	6.7%	6.2%	7.4%	2.5%	2.4%	2.7%
• Time-related underemployed	4.2%	4.3%	4.0%	3.6%	3.8%	3.1%	4.3%	4.4%	4.2%
• Discouraged workers	0.1%	0.1%	0.2%	0.2%	0.1%	0.3%	0.1%	0.0%	0.2%
• Other not economically active persons, currently available for work	0.2%	0.1%	0.3%	0.4%	0.2%	0.6%	0.1%	0.1%	0.2%
Low earnings									
• Full-time employed (40-48 hrs per week) with low monthly earnings	2.6%	2.7%	2.4%	2.5%	2.3%	3.0%	2.7%	2.9%	2.3%
• Less than full-time employed (<40 hrs per week) with low hourly earnings	3.2%	2.4%	4.7%	3.1%	2.7%	3.8%	3.3%	2.3%	4.9%
• Overly employed (>48 hrs per week)	5.4%	5.3%	5.7%	5.9%	5.3%	6.9%	5.3%	5.3%	5.3%
- with low monthly earnings	2.3%	2.1%	2.7%	2.2%	1.8%	2.8%	2.3%	2.1%	2.7%
- above threshold monthly earnings, but with low hourly earnings	3.1%	3.2%	3.0%	3.7%	3.4%	4.1%	3.0%	3.2%	2.7%
Skill underutilised									
• Employed persons with skill mismatch	11.0%	10.3%	12.1%	13.1%	12.9%	13.5%	10.5%	9.7%	11.8%
- 2nd, 3rd, 4th level education in occupations (ISCO-88 major group 9)	5.3%	5.3%	5.3%	2.3%	1.5%	3.5%	6.1%	6.3%	5.7%
- 5th level education in occupations (ISCO-88 major groups 4-9)	5.5%	4.7%	6.6%	10.8%	11.3%	10.0%	4.0%	3.0%	5.8%
- 6th level education in occupations (ISCO-88 major groups 3-9)	0.3%	0.3%	0.2%	0.0%	0.0%	0.0%	0.3%	0.4%	0.3%

Source: Mexico, Instituto Nacional de Estadística Geografía e Informática (INEGI), processed by ILO Regional Office for Latin America and the Caribbean.

3. Moldova, Rep. Of - 2007

International Labour Office, Bureau of Statistics
Beyond Unemployment: Measurement of labour underutilisation
based on Labour force surveys

	15 years old and over			15-24 years old			25 years old and over		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Population 15+	2'931'800	1'387'800	1'543'900	678'200	344'100	334'000	2'253'600	1'043'700	1'209'900
Economically active population	1'313'900	663'000	650'800	140'500	81'200	59'200	1'173'400	581'800	591'600
● Employed	1'247'200	621'500	625'700	120'200	69'100	51'100	1'127'000	552'500	574'600
● Unemployed	66'700	41'500	25'200	20'300	12'100	8'200	46'400	29'300	17'000
Not economically active population	1'617'900	724'800	893'100	537'700	262'900	274'800	1'080'200	461'900	618'300
Labour underutilisation	623'600	328'900	294'900	74'200	47'100	27'000	549'500	281'600	267'900
Labour slack									
● Unemployed	66'700	41'500	25'200	20'300	12'100	8'200	46'400	29'300	17'000
● Time-related underemployed	99'400	53'300	46'100	8'500	5'200	3'200	91'000	48'100	42'900
● Discouraged workers	26'200	13'500	12'700	4'900	2'500	2'400	21'300	11'000	10'300
● Other not economically active persons, currently available for work	5'600	1'800	3'900	1'500	500	1'000	4'100	1'300	2'800
Low earnings									
● Full-time employed (40-48 hrs per week) with low monthly earnings	67'800	29'100	38'700	8'100	6'300	1'800	59'700	22'900	36'900
● Less than full-time employed (<40 hrs per week) with low hourly earnings	11'300	3'500	7'900	500	100	400	10'800	3'300	7'500
● Overly employed (>48 hrs per week)	17'300	9'600	7'800	1'800	900	900	15'500	8'700	6'900
- with low monthly earnings	7'600	5'200	2'500	400	300	100	7'200	4'900	2'300
- above threshold monthly earnings, but with low hourly earnings	9'700	4'400	5'300	1'400	600	800	8'300	3'800	4'500
Skill underutilised									
● Employed persons with skill mismatch	329'200	176'600	152'800	28'600	19'400	9'000	300'800	157'000	143'700
- 2nd, 3rd, 4th level education in occupations (ISCO-88 major group 9)	292'000	156'200	135'900	25'800	17'900	7'800	266'300	138'200	128'000
- 5th level education in occupations (ISCO-88 major groups 4-9)	37'200	20'400	16'900	2'800	1'500	1'200	34'500	18'800	15'700
- 6th level education in occupations (ISCO-88 major groups 3-9)	-	-	-	-	-	-	-	-	-

Source: Moldova, Rep. Of, National Bureau of Statistics (NBS).

3a. Moldova, Rep. Of - 2007

International Labour Office, Bureau of Statistics
Beyond Unemployment: Measurement of labour underutilisation
based on Labour force surveys

	15 years old and over			15-24 years old			25 years old and over		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Population 15+	2'931'800	1'387'800	1'543'900	678'200	344'100	334'000	2'253'600	1'043'700	1'209'900
Labour force participation rate	44.8%	47.8%	42.2%	20.7%	23.6%	17.7%	52.1%	55.7%	48.9%
Employment-population ratio	42.5%	44.8%	40.5%	17.7%	20.1%	15.3%	50.0%	52.9%	47.5%
Unemployment rate	5.1%	6.3%	3.9%	14.4%	14.9%	13.8%	4.0%	5.0%	2.9%
Labour underutilisation	46.3%	48.5%	44.2%	50.5%	55.9%	43.1%	45.8%	47.4%	44.3%
Labour slack									
● Unemployed	5.0%	6.1%	3.8%	13.8%	14.4%	13.0%	3.9%	4.9%	2.8%
● Time-related underemployed	7.4%	7.9%	6.9%	5.8%	6.2%	5.2%	7.6%	8.1%	7.1%
● Discouraged workers	1.9%	2.0%	1.9%	3.3%	3.0%	3.8%	1.8%	1.9%	1.7%
● Other not economically active persons, currently available for work	0.4%	0.3%	0.6%	1.0%	0.6%	1.6%	0.3%	0.2%	0.5%
Low earnings									
● Full-time employed (40-48 hrs per week) with low monthly earnings	5.0%	4.3%	5.8%	5.5%	7.4%	2.9%	5.0%	3.9%	6.1%
● Less than full-time employed (<40 hrs per week) with low hourly earnings	0.8%	0.5%	1.2%	0.4%	0.1%	0.7%	0.9%	0.6%	1.2%
● Overly employed (>48 hrs per week)	1.3%	1.4%	1.2%	1.2%	1.1%	1.5%	1.3%	1.5%	1.1%
- with low monthly earnings	0.6%	0.8%	0.4%	0.3%	0.3%	0.2%	0.6%	0.8%	0.4%
- above threshold monthly earnings, but with low hourly earnings	0.7%	0.6%	0.8%	1.0%	0.7%	1.3%	0.7%	0.6%	0.7%
Skill underutilised									
● Employed persons with skill mismatch	24.5%	26.0%	22.9%	19.4%	23.1%	14.4%	25.1%	26.4%	23.8%
- 2nd, 3rd, 4th level education in occupations (ISCO-88 major group 9)	21.7%	23.0%	20.4%	17.5%	21.3%	12.5%	22.2%	23.3%	21.2%
- 5th level education in occupations (ISCO-88 major groups 4-9)	2.8%	3.0%	2.5%	1.9%	1.8%	1.9%	2.9%	3.2%	2.6%
- 6th level education in occupations (ISCO-88 major groups 3-9)	-	-	-	-	-	-	-	-	-

Source: Moldova, Rep. Of, National Bureau of Statistics (NBS).

4. Panama - Aug. 2007

International Labour Office, Bureau of Statistics
Beyond Unemployment: Measurement of labour underutilisation
based on Labour force surveys

	15 years old and over			15-24 years old			25 years old and over		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Population 15+	2'309'800	1'133'000	1'176'800	588'600	297'100	291'500	1'721'200	835'900	885'300
Economically active population	1'438'800	892'800	546'000	281'600	183'100	98'600	1'157'200	709'700	447'400
• Employed	1'357'000	853'400	503'600	242'900	163'600	79'300	1'114'100	689'700	424'300
• Unemployed	81'800	39'400	42'400	38'700	19'400	19'300	43'100	20'000	23'100
Not economically active population	871'000	240'200	630'800	307'000	114'000	192'900	564'000	126'100	437'900
Labour underutilisation	650'600	377'000	273'500	158'900	99'900	59'200	491'800	277'300	214'200
Labour slack									
• Unemployed	81'800	39'400	42'400	38'700	19'400	19'300	43'100	20'000	23'100
• Time-related underemployed	37'500	24'100	13'500	10'800	7'300	3'500	26'800	16'800	10'000
• Discouraged workers	2'400	1'300	1'100	800	500	400	1'600	900	700
• Other not economically active persons, currently available for work	-	-	-	-	-	-	-	-	-
Low earnings									
• Full-time employed (40-48 hrs per week) with low monthly earnings	103'900	67'500	36'400	21'800	14'200	7'600	82'100	53'400	28'700
• Less than full-time employed (<40 hrs per week) with low hourly earnings	113'900	66'900	46'900	23'700	15'800	7'900	90'200	51'100	39'000
• Overly employed (>48 hrs per week)	77'500	50'600	26'900	12'000	8'400	3'600	65'500	42'200	23'200
- with low monthly earnings	47'600	29'400	18'300	8'100	5'100	3'000	39'500	24'200	15'300
- above threshold monthly earnings, but with low hourly earnings	29'800	21'200	8'600	3'900	3'200	700	26'000	18'000	8'000
Skill underutilised									
• Employed persons with skill mismatch	233'600	127'200	106'300	51'100	34'300	16'900	182'500	92'900	89'500
- 2nd, 3rd, 4th level education in occupations (ISCO-88 major group 9)	101'400	64'100	37'300	28'000	24'200	3'900	73'400	39'900	33'400
- 5th level education in occupations (ISCO-88 major groups 4-9)*	132'200	63'100	69'000	23'100	10'100	13'000	109'100	53'000	56'100
- 6th level education in occupations (ISCO-88 major groups 3-9)	.	.	.	.	.	.	.	.	.

Source: Panama, Dirección de Estadística y Censo (DEC), processed by ILO Regional Office for Latin America and the Caribbean.

Note: * refers to 5th and 6th level education in occupations (ISCO-88 major groups 4-9)

4a. Panama - Aug. 2007

International Labour Office, Bureau of Statistics
Beyond Unemployment: Measurement of labour underutilisation
based on Labour force surveys

Table 5(b). Panama

Labour Force Survey - Aug. 2007

	15 years old and over			15-24 years old			25 years old and over		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Population 15+	2'309'800	1'133'000	1'176'800	588'600	297'100	291'500	1'721'200	835'900	885'300
Labour force participation rate	62.3%	78.8%	46.4%	47.8%	61.6%	33.8%	67.2%	84.9%	50.5%
Employment-population ratio	58.7%	75.3%	42.8%	41.3%	55.1%	27.2%	64.7%	82.5%	47.9%
Unemployment rate	5.7%	4.4%	7.8%	13.7%	10.6%	19.6%	3.7%	2.8%	5.2%
Labour underutilisation	45.1%	42.2%	50.0%	56.3%	54.4%	59.8%	42.4%	39.0%	47.8%
Labour slack									
• Unemployed	5.7%	4.4%	7.7%	13.7%	10.6%	19.5%	3.7%	2.8%	5.2%
• Time-related underemployed	2.6%	2.7%	2.5%	3.8%	4.0%	3.5%	2.3%	2.4%	2.2%
• Discouraged workers	0.2%	0.1%	0.2%	0.3%	0.3%	0.4%	0.1%	0.1%	0.2%
• Other not economically active persons, currently available for work	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Low earnings									
• Full-time employed (40-48 hrs per week) with low monthly earnings	7.2%	7.5%	6.7%	7.7%	7.7%	7.7%	7.1%	7.5%	6.4%
• Less than full-time employed (<40 hrs per week) with low hourly earnings	7.9%	7.5%	8.6%	8.4%	8.6%	8.0%	7.8%	7.2%	8.7%
• Overly employed (>48 hrs per week)	5.4%	5.7%	4.9%	4.2%	4.6%	3.6%	5.7%	5.9%	5.2%
- with low monthly earnings	3.3%	3.3%	3.3%	2.9%	2.8%	3.0%	3.4%	3.4%	3.4%
- above threshold monthly earnings, but with low hourly earnings	2.1%	2.4%	1.6%	1.4%	1.7%	0.7%	2.2%	2.5%	1.8%
Skill underutilised									
• Employed persons with skill mismatch	16.2%	14.2%	19.4%	18.1%	18.7%	17.1%	15.7%	13.1%	20.0%
- 2nd, 3rd, 4th level education in occupations (ISCO-88 major group 9)	7.0%	7.2%	6.8%	9.9%	13.2%	3.9%	6.3%	5.6%	7.5%
- 5th level education in occupations (ISCO-88 major groups 4-9)*	9.2%	7.1%	12.6%	8.2%	5.5%	13.1%	9.4%	7.5%	12.5%
- 6th level education in occupations (ISCO-88 major groups 3-9)	.	.	.	.	.	.	.	.	.

Source: Panama, Dirección de Estadística y Censo (DEC), processed by ILO Regional Office for Latin America and the Caribbean.

Note: * refers to 5th and 6th level education in occupations (ISCO-88 major groups 4-9)

5. Philippines - Q4 2003

International Labour Office, Bureau of Statistics
Beyond Unemployment: Measurement of labour underutilisation
based on Labour force surveys

	15 years old and over			15-24 years old			25 years old and over		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Population 15+	49'305'500	24'666'500	24'639'100	14'926'300	7'636'800	7'289'500	34'379'300	17'029'700	17'349'600
Economically active population	31'405'600	19'509'800	11'895'800	6'826'900	4'310'000	2'516'800	24'578'800	15'199'800	9'379'000
• Employed	29'589'100	18'412'600	11'176'600	5'875'300	3'784'200	2'091'200	23'713'800	14'628'400	9'085'400
• Unemployed	1'816'500	1'097'200	719'300	951'500	525'900	425'700	865'000	571'400	293'600
Not economically active population	17'899'900	5'156'700	12'743'200	8'099'400	3'326'800	4'772'600	9'800'500	1'829'900	7'970'600
Labour underutilisation	13'833'400	7'388'400	6'466'800	4'567'700	2'559'200	1'966'700	9'047'900	4'778'000	4'320'900
Labour slack									
• Unemployed	1'816'500	1'097'200	719'300	951'500	525'900	425'700	865'000	571'400	293'600
• Time-related underemployed	2'609'700	1'681'200	928'500	546'400	433'100	113'500	2'063'400	1'248'300	815'200
• Discouraged workers	735'800	501'700	234'100	390'600	263'200	127'400	345'200	238'500	106'700
• Other not economically active persons, currently available for work	1'737'000	452'300	1'284'800	627'900	236'100	391'800	1'109'100	216'200	892'900
Low earnings									
• Full-time employed (40-48 hrs per week) with low monthly earnings	2'733'300	1'675'200	1'058'700	743'200	540'200	219'200	1'925'100	1'106'500	829'800
• Less than full-time employed (<40 hrs per week) with low hourly earnings	337'300	172'000	166'600	83'800	66'800	20'100	248'000	100'600	154'500
• Overly employed (>48 hrs per week)	3'863'700	1'808'800	2'074'800	1'224'300	493'900	669'100	2'492'000	1'296'500	1'228'200
- with low monthly earnings	2'966'400	1'214'000	1'773'600	1'033'000	375'700	596'500	1'790'500	819'800	1'009'100
- above threshold monthly earnings, but with low hourly earnings	897'300	594'800	301'200	191'300	118'200	72'600	701'500	476'700	219'100
Skill underutilised									
• Employed persons with skill mismatch	.	.	.	.	.	.	.	.	.
- 2nd, 3rd, 4th level education in occupations (ISCO-88 major group 9)	.	.	.	.	.	.	.	.	.
- 5th level education in occupations (ISCO-88 major groups 4-9)	.	.	.	.	.	.	.	.	.
- 6th level education in occupations (ISCO-88 major groups 3-9)	.	.	.	.	.	.	.	.	.

Source: Philippines, National Statistical Office (NSO), processed by ILO Regional Office for Asia and the Pacific and ILO Bureau of Statistics.

5a. Philippines - Q4 2003

International Labour Office, Bureau of Statistics
Beyond Unemployment: Measurement of labour underutilisation
based on Labour force surveys

	15 years old and over			15-24 years old			25 years old and over		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Population 15+	49'305'500	24'666'500	24'639'100	14'926'300	7'636'800	7'289'500	34'379'300	17'029'700	17'349'600
Labour force participation rate	63.7%	79.1%	48.3%	45.7%	56.4%	34.5%	71.5%	89.3%	54.1%
Employment-population ratio	60.0%	74.6%	45.4%	39.4%	49.6%	28.7%	69.0%	85.9%	52.4%
Unemployment rate	5.8%	5.6%	6.0%	13.9%	12.2%	16.9%	3.5%	3.8%	3.1%
Labour underutilisation	40.8%	36.1%	48.2%	58.2%	53.2%	64.8%	34.8%	30.5%	41.6%
Labour slack									
● Unemployed	5.4%	5.4%	5.4%	12.1%	10.9%	14.0%	3.3%	3.6%	2.8%
● Time-related underemployed	7.7%	8.2%	6.9%	7.0%	9.0%	3.7%	7.9%	8.0%	7.9%
● Discouraged workers	2.2%	2.5%	1.7%	5.0%	5.5%	4.2%	1.3%	1.5%	1.0%
● Other not economically active persons, currently available for work	5.1%	2.2%	9.6%	8.0%	4.9%	12.9%	4.3%	1.4%	8.6%
Low earnings									
● Full-time employed (40-48 hrs per week) with low monthly earnings	8.1%	8.2%	7.9%	9.5%	11.2%	7.2%	7.4%	7.1%	8.0%
● Less than full-time employed (<40 hrs per week) with low hourly earnings	1.0%	0.8%	1.2%	1.1%	1.4%	0.7%	1.0%	0.6%	1.5%
● Overly employed (>48 hrs per week)	11.4%	8.8%	15.5%	15.6%	10.3%	22.0%	9.6%	8.3%	11.8%
- with low monthly earnings	8.8%	5.9%	13.2%	13.2%	7.8%	19.6%	6.9%	5.2%	9.7%
- above threshold monthly earnings, but with low hourly earnings	2.6%	2.9%	2.2%	2.4%	2.5%	2.4%	2.7%	3.0%	2.1%
Skill underutilised									
● Employed persons with skill mismatch	.	.	.	.	.	.	.	.	.
- 2nd, 3rd, 4th level education in occupations (ISCO-88 major group 9)	.	.	.	.	.	.	.	.	.
- 5th level education in occupations (ISCO-88 major groups 4-9)	.	.	.	.	.	.	.	.	.
- 6th level education in occupations (ISCO-88 major groups 3-9)	.	.	.	.	.	.	.	.	.

Source: Philippines, National Statistical Office (NSO), processed by ILO Regional Office for Asia and the Pacific and ILO Bureau of Statistics.

6. Tanzania, United Rep. Of - 2005/2006

International Labour Office, Bureau of Statistics
Beyond Unemployment: Measurement of labour underutilisation
based on Labour force surveys

	15 years old and over			15-24 years old			25 years old and over		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Population 15+	21'004'000	10'001'700	11'002'200	6'468'100	3'035'700	3'432'400	14'535'900	6'966'100	7'569'800
Economically active population	18'573'100	8'974'600	9'598'500	5'163'400	2'412'300	2'751'200	13'409'700	6'562'300	6'847'300
• Employed	17'944'600	8'779'800	9'164'700	4'818'000	2'276'400	2'541'600	13'126'600	6'503'500	6'623'100
• Unemployed	628'500	194'700	433'800	345'400	135'900	209'500	283'100	58'900	224'200
Not economically active population	2'430'900	1'027'200	1'403'800	1'304'700	623'400	681'300	1'126'200	403'700	722'500
Labour underutilisation	9'760'900	4'360'700	5'487'900	3'341'500	1'438'200	1'927'300	6'419'300	2'922'500	3'560'500
Labour slack									
• Unemployed	628'500	194'700	433'800	345'400	135'900	209'500	283'100	58'900	224'200
• Time-related underemployed	3'003'200	1'345'600	1'657'500	865'300	367'300	498'000	2'137'900	978'400	1'159'500
• Discouraged workers	97'200	25'300	71'800	53'800	18'900	35'000	43'400	6'500	36'900
• Other not economically active persons, currently available for work	151'300	54'200	97'100	68'300	26'900	41'500	83'000	27'400	55'600
Low earnings									
• Full-time employed (40-48 hrs per week) with low monthly earnings	1'139'100	462'100	736'700	391'400	169'100	228'200	747'700	293'000	508'500
• Less than full-time employed (<40 hrs per week) with low hourly earnings	553'900	185'700	414'500	221'400	75'300	155'500	332'400	110'400	258'900
• Overly employed (>48 hrs per week)	4'036'700	2'028'900	1'982'200	1'367'400	636'400	738'200	2'669'300	1'392'600	1'243'900
- with low monthly earnings	2'794'100	1'282'800	1'557'000	1'066'200	458'400	624'600	1'728'000	824'400	932'400
- above threshold monthly earnings, but with low hourly earnings	1'242'500	746'200	425'100	301'200	178'000	113'600	941'300	568'200	311'500
Skill underutilised									
• Employed persons with skill mismatch	151'100	64'000	94'400	28'400	8'600	21'300	122'600	55'400	73'000
- 2nd, 3rd, 4th level education in occupations (ISCO-88 major group 9)	97'600	35'200	71'200	28'400	8'600	21'300	69'200	26'600	49'900
- 5th level education in occupations (ISCO-88 major groups 4-9)	13'900	7'100	6'900	0	0	0	13'900	7'100	6'900
- 6th level education in occupations (ISCO-88 major groups 3-9)	39'500	21'700	16'300	0	0	0	39'500	21'700	16'300

Source: Tanzania, United Republic of, National Bureau of Statistics (NBS), processed by ILO Bureau of Statistics.

Note: Tanzania Mainland (Excluded Zanzibar).

6a. Tanzania, United Rep. Of - 2005/2006

International Labour Office, Bureau of Statistics
Beyond Unemployment: Measurement of labour underutilisation
based on Labour force surveys

	15 years old and over			15-24 years old			25 years old and over		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Population 15+	21'004'000	10'001'700	11'002'200	6'468'100	3'035'700	3'432'400	14'535'900	6'966'100	7'569'800
Labour force participation rate	88.4%	89.7%	87.2%	79.8%	79.5%	80.2%	92.3%	94.2%	90.5%
Employment-population ratio	85.4%	87.8%	83.3%	74.5%	75.0%	74.0%	90.3%	93.4%	87.5%
Unemployment rate	3.4%	2.2%	4.5%	6.7%	5.6%	7.6%	2.1%	0.9%	3.3%
Labour underutilisation	51.9%	48.2%	56.2%	63.2%	58.5%	68.2%	47.4%	44.3%	51.3%
Labour slack									
● Unemployed	3.3%	2.2%	4.4%	6.5%	5.5%	7.4%	2.1%	0.9%	3.2%
● Time-related underemployed	16.0%	14.9%	17.0%	16.4%	14.9%	17.6%	15.8%	14.8%	16.7%
● Discouraged workers	0.5%	0.3%	0.7%	1.0%	0.8%	1.2%	0.3%	0.1%	0.5%
● Other not economically active persons, currently available for work	0.8%	0.6%	1.0%	1.3%	1.1%	1.5%	0.6%	0.4%	0.8%
Low earnings									
● Full-time employed (40-48 hrs per week) with low monthly earnings	6.1%	5.1%	7.5%	7.4%	6.9%	8.1%	5.5%	4.4%	7.3%
● Less than full-time employed (<40 hrs per week) with low hourly earnings	2.9%	2.1%	4.2%	4.2%	3.1%	5.5%	2.5%	1.7%	3.7%
● Overly employed (>48 hrs per week)	21.4%	22.4%	20.3%	25.9%	25.9%	26.1%	19.7%	21.1%	17.9%
- with low monthly earnings	14.8%	14.2%	15.9%	20.2%	18.6%	22.1%	12.8%	12.5%	13.4%
- above threshold monthly earnings, but with low hourly earnings	6.6%	8.2%	4.4%	5.7%	7.2%	4.0%	7.0%	8.6%	4.5%
Skill underutilised									
● Employed persons with skill mismatch	0.8%	0.7%	1.0%	0.5%	0.3%	0.8%	0.9%	0.8%	1.1%
- 2nd, 3rd, 4th level education in occupations (ISCO-88 major group 9)	0.5%	0.4%	0.7%	0.5%	0.3%	0.8%	0.5%	0.4%	0.7%
- 5th level education in occupations (ISCO-88 major groups 4-9)	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%
- 6th level education in occupations (ISCO-88 major groups 3-9)	0.2%	0.2%	0.2%	0.0%	0.0%	0.0%	0.3%	0.3%	0.2%

Source: Tanzania, United Republic of, National Bureau of Statistics (NBS), processed by ILO Bureau of Statistics.

Note: Tanzania Mainland (Excluded Zanzibar).

7. Turkey - 2007

International Labour Office, Bureau of Statistics
Beyond Unemployment: Measurement of labour underutilisation
based on Labour force surveys

	15 years old and over			15-24 years old			25 years old and over		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Population 15+	49'214'000	24'354'000	24'861'000	11'271'000	5'441'000	5'831'000	37'943'000	18'913'000	19'030'000
Economically active population	23'522'000	17'363'000	6'159'000	4'261'000	2'835'000	1'426'000	19'261'000	14'528'000	4'733'000
● Employed	21'189'000	15'661'000	5'528'000	3'425'000	2'285'000	1'140'000	17'764'000	13'376'000	4'388'000
● Unemployed	2'333'000	1'702'000	631'000	836'000	550'000	286'000	1'497'000	1'152'000	345'000
Not economically active population	25'692'000	6'991'000	18'702'000	7'010'000	2'606'000	4'405'000	18'682'000	4'385'000	14'297'000
Labour underutilisation	7'465'400	4'938'800	2'526'500	2'377'100	1'536'900	840'200	5'088'300	3'401'900	1'686'300
Labour slack									
● Unemployed	2'333'500	1'702'100	631'400	836'100	550'500	285'600	1'497'400	1'151'600	345'800
● Time-related underemployed	378'900	282'600	96'300	49'500	34'700	14'800	329'300	247'800	81'500
● Discouraged workers	641'400	401'100	240'300	238'100	156'900	81'200	403'300	244'200	159'100
● Other not economically active persons, currently available for work	844'000	292'600	551'400	321'200	182'800	138'400	522'800	109'800	413'000
Low earnings									
● Full-time employed (40-48 hrs per week) with low monthly earnings	452'800	287'200	165'500	172'300	108'700	63'600	280'500	178'500	102'000
● Less than full-time employed (<40 hrs per week) with low hourly earnings	208'100	88'000	120'100	55'300	30'000	25'300	152'800	58'000	94'800
● Overly employed (>48 hrs per week)	1'043'200	799'400	243'800	458'400	337'500	120'900	584'800	461'900	122'900
- with low monthly earnings	1'043'200	799'400	243'800	458'400	337'500	120'900	584'800	461'900	122'900
- above threshold monthly earnings, but with low hourly earnings	.	.	.	.	.	.	.	.	.
Skill underutilised									
● Employed persons with skill mismatch	1'563'700	1'085'900	477'800	246'300	135'900	110'400	1'317'300	950'000	367'300
- 2nd, 3rd, 4th level education in occupations (ISCO-88 major group 9)	677'800	473'000	204'800	116'200	65'200	51'000	561'600	407'800	153'800
- 5th level education in occupations (ISCO-88 major groups 4-9)	862'200	598'100	264'100	129'300	70'400	58'900	732'900	527'700	205'200
- 6th level education in occupations (ISCO-88 major groups 3-9)	23'600	14'800	8'800	800	200	500	22'800	14'500	8'300

Source: Turkey, State Institute of Statistics.

7a. Turkey - 2007

International Labour Office, Bureau of Statistics
Beyond Unemployment: Measurement of labour underutilisation
based on Labour force surveys

	15 years old and over			15-24 years old			25 years old and over		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Population 15+	49'214'000	24'354'000	24'861'000	11'271'000	5'441'000	5'831'000	37'943'000	18'913'000	19'030'000
Labour force participation rate	47.8%	71.3%	24.8%	37.8%	52.1%	24.5%	50.8%	76.8%	24.9%
Employment-population ratio	43.1%	64.3%	22.2%	30.4%	42.0%	19.6%	46.8%	70.7%	23.1%
Unemployment rate	9.9%	9.8%	10.2%	19.6%	19.4%	20.1%	7.8%	7.9%	7.3%
Labour underutilisation	29.9%	27.4%	36.3%	49.3%	48.4%	51.1%	25.2%	22.9%	31.8%
Labour slack									
● Unemployed	9.3%	9.4%	9.1%	17.3%	17.3%	17.4%	7.4%	7.7%	6.5%
● Time-related underemployed	1.5%	1.6%	1.4%	1.0%	1.1%	0.9%	1.6%	1.7%	1.5%
● Discouraged workers	2.6%	2.2%	3.5%	4.9%	4.9%	4.9%	2.0%	1.6%	3.0%
● Other not economically active persons, currently available for work	3.4%	1.6%	7.9%	6.7%	5.8%	8.4%	2.6%	0.7%	7.8%
Low earnings									
● Full-time employed (40-48 hrs per week) with low monthly earnings	1.8%	1.6%	2.4%	3.6%	3.4%	3.9%	1.4%	1.2%	1.9%
● Less than full-time employed (<40 hrs per week) with low hourly earnings	0.8%	0.5%	1.7%	1.1%	0.9%	1.5%	0.8%	0.4%	1.8%
● Overly employed (>48 hrs per week)	4.2%	4.4%	3.5%	9.5%	10.6%	7.3%	2.9%	3.1%	2.3%
- with low monthly earnings	4.2%	4.4%	3.5%	9.5%	10.6%	7.3%	2.9%	3.1%	2.3%
- above threshold monthly earnings, but with low hourly earnings	.	.	.	.	.	.	.	.	.
Skill underutilised									
● Employed persons with skill mismatch	6.3%	6.0%	6.9%	5.1%	4.3%	6.7%	6.5%	6.4%	6.9%
- 2nd, 3rd, 4th level education in occupations (ISCO-88 major group 9)	2.7%	2.6%	2.9%	2.4%	2.1%	3.1%	2.8%	2.7%	2.9%
- 5th level education in occupations (ISCO-88 major groups 4-9)	3.4%	3.3%	3.8%	2.7%	2.2%	3.6%	3.6%	3.5%	3.9%
- 6th level education in occupations (ISCO-88 major groups 3-9)	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%	0.1%	0.1%	0.2%

Source: Turkey, State Institute of Statistics.