

KILM 16. Occupational wage and earning indices

Introduction

While KILM 15 shows trends in average wages at the industry level (i.e. in manufacturing), KILM 16 looks at trends in, and differentials between, occupational wages (i.e. wage rates or earnings) in specific industry groups. It is generally established that wages for individual occupations provide much more interesting material for analysis than do broad averages covering many, or all, occupations within an industry. The use of occupational wages narrows the scope of coverage and provides a focus on particular types of workers, and often on a particular industry or economic activity. It is also often desirable to look at wages of men and women in the same occupation separately, since there may be different factors affecting each.

Two tables of wage indices are presented for this indicator. Table 16a shows nominal and real wage rates, and table 16b nominal and real earnings. Earnings include some elements of remuneration such as overtime and some bonuses that are not counted as part of wage rates (for the relevant definitions of the two concepts, see below under “Definitions and sources”). Which is the most appropriate definition of wages to use for analysis depends on the precise set of questions being asked, but in practice there is often little choice but to accept whatever information is available from national sources. Henceforth, the term “wages” is used in this section to describe both wage rates and earnings.

Six occupations are included in tables 16a and 16b. They have been selected, together with their corresponding nominal wages, from the ILO October Inquiry to give a representative picture of the development of real wage rates and earnings for different types of occupations with varying skill levels in different sectors of activity. The October Inquiry is a worldwide examination of wage rates, earnings and hours of work for a possible set of 159 occupations differentiated in 49 industry groups (together with information on retail prices of 93 food items) and conducted with reference to the month of October of each year.¹ For the purposes of this indicator, the selected occupations are: (1) labourer in construction; (2) welder in metal manufacturing; (3) professional nurse; (4) first-level education teacher; (5) computer programmer in the insurance sector; and (6) accountant in the banking sector. These occupations are described in detail in box 16a and below, under “Definitions and sources”. Some of them – construction labourers, welders (manufacture of metal products except electrical), computer programmers in insurance and accountants in banking – are predominantly found in the private sector, while first-level education teachers and professional nurses are usually employed in the public sector. Information for this indicator is provided for 109 economies.

Use of the indicator

Most indicators on wages cover all employees grouped by industry, industry group or sector, or, in a few cases, all employees for the whole economy. KILM 15, for example, provides

¹ The October Inquiry is discussed further below, but at this stage it should be noted that not all countries differentiate occupational coverage by sector of industry. Thus there are some exceptions to the public/private sector distinctions; the United States, for instance, does not differentiate between sectors of employment or industries when reporting average weekly earnings for computer programmers; the figures used for “programmers in insurance” in the United States therefore include those which could have been reported separately as “programmers in public administration”. Additional information can be obtained at <http://www.ilo.org/public/english/bureau/stat/info/dbases.htm>.

indices of real wages in manufacturing obtained by dividing an index of average wages in manufacturing by an appropriate CPI. Basically, both KILM 15 and KILM 16 are constructed on the same model: indices of nominal wages are constructed on the basis of information on average wages in absolute terms as provided by economies, and real wage indices are obtained by dividing the index of average nominal wages by an appropriate consumer price index (CPI).² However, KILM 15 provides indices at the industry level (manufacturing), while KILM 16 shows wage indices at the level of specific occupations within an industry.

The first set of indices – KILM 15 – is therefore a useful indicator of what is happening to the average wages of large groups of employees in different occupations in the same industry or sector of economic activity. However, one limitation of averages by economic activity/industry is that the information includes a wide range of employees and occupations without providing any insight on the nature of these occupations (in terms of skills, for instance) or on their relative importance in terms of employment. The larger the group of employees covered by changes in an average wage figure, the greater the chance that there will be differences in the changes in the averages of distinct subgroups that are not reflected in the overall total. Changes in average wages within an industry or sector may be due to changes in the occupational composition of employment or in the proportions of men and women employed. Looking at wages for separate occupations avoids some of the limitations associated with using broad averages where changes in the composition and structure of the workforce might be influencing the recorded changes in average wages.

As part of the ILO's efforts to promote decent work,³ a core set of ILO decent work indicators is being developed. One such indicator would be average wages in selected occupations.⁴ The October Inquiry data allow comparisons in theory although, to date, the only possible comparison of wages is for the six selected occupations in this chapter. Even these data are weak in allowing wage differentials to be measured within countries at one point in time, as well as over time for: (i) highly skilled/highly paid occupations compared with low-skilled/low-paid occupations; (ii) occupations mainly in trade-affected sectors compared with occupations not mainly in trade-affected sectors; and (iii) male-dominated occupations compared with female-dominated occupations and mixed sex occupations. Welding could be said to be a male-dominated occupation while nursing and teaching are female dominated, but only construction labourers could be said to represent the low-wage contingent and none of the six occupations is tied to trade activities. The possible expansion of occupational coverage is therefore being investigated and it is hoped that the next edition of KILM will reflect a more cross-cutting selection of occupational wages.

There are three main issues of interest when analysing occupational wage indicators:

1. The comparison of trends – how indices of nominal (expressed as simple money amounts) and real wages have changed over a period of time for different occupations – can show whether wage rates and earnings for different types of workers have changed at the same rate or whether some have grown faster than others. Different rates of change of nominal wages may reflect different supply and demand conditions in the labour market for different types of workers and may indicate that there are

² For more details about the construction of wage indices, see KILM 15.

³ For more information, see the website of the ILO Decent Work Pilot Programme at <http://www.ilo.org/public/decentwork>.

⁴ See P. Egger and W. Sengenberger: *Decent work issues and policies*, draft issues paper on decent work (ILO, Geneva, 2001); <http://www.ilo.org/public/english/bureau/dwpp/papers/dwpolicy.htm>.

some serious shifts in occupational supply and demand requiring, for instance, more training facilities for certain occupations. Changes in wage rates or earnings over time can be related to other indicators, such as the number employed in the occupation, to see whether changes in wages are affected by changes in the volume of employment. Indices of real wages show which occupational groups have become better off over time, and which have undergone a reduction in their standard of living as measured by their average remuneration.

2. Occupational wage structure and differentials often reflect differences in levels of skill, education and training, qualifications, and amount and type of effort involved in different types of work, as well as, perhaps, different relative supply and demand conditions for the occupations. The issue of occupational wage structure and differentials is of interest at both the national and the international levels. At the national level, comparisons of trends in wage rates and earnings between two or more occupations may be used to assess the wage drift, i.e. the extent to which earnings over a period of time have changed more (or less) than basic wage rates. They may also be used to analyse the skill differential, i.e. the differences between the wages of more skilled and less skilled workers. At the international level, wage differentials for the same occupations in different economies can be compared to see whether similar skill groups receive similar premium (positive) differentials or discounted (negative) differentials in different economies or regions, or whether there are differences by type of economy. Changes in wage structures over time may also illustrate changing economic conditions in the different occupational labour markets or may reflect government action if public-sector employees are involved.
3. Where information on occupational wages is provided for men and women separately, it is possible to compare wages by sex in the same occupation. This is a useful indicator of the gender wage gap, i.e. the differential between men's and women's wages. It should be noted, however, that gender wage differential is not synonymous with gender wage discrimination and that there can be non-discriminatory reasons for differences in men's and women's wages in an occupation in a given economy. Occupations can be taken as a proxy for similar or comparable levels of education, training and skills, if not work experience or seniority in the job, and can therefore cover some of the factors accounting for wage differentials. Additional factors affecting the wage gap may include: factors related to human capital and productivity – such as a worker's age, experience in the enterprise (seniority), experience in the labour market, hours of work and health; factors related to the labour market – such as size of establishment or firm, sector (whether public or private) and sub-sector of industry, region (high- or low- wage areas) and city size, as well as wage payment systems (e.g. regular incremental progression based on years of service versus merit increments) and unionization/collective bargaining. Occupational segregation by sex – that is, the different proportions of men and women employed in different occupations and jobs – also plays an important direct role in men's and women's wage differentials.⁵ In the absence of details on all these factors, information on occupational wages can show the difference between men's and women's wages much better than averages by economic activity.

⁵ R. Anker: *Gender and jobs: Sex segregation of occupations in the world* (Geneva, ILO, 1998).

Definitions and sources

While box 16a gives descriptions of the six occupations selected for KILM 16 according to the ILO October Inquiry, the following section provides further insight into the educational levels and professional qualifications expected in each of them:

- *Construction labourer* is sometimes seen as representative of low-skilled or unskilled employment in mainly urban areas. It may be used, therefore, as one indicator of a possible wage level for unskilled labour that migrates from rural to urban areas. While this is not necessarily the best, or even a good and reliable wage figure to use to contrast rural and urban pay levels for unskilled labour, it may be as good an indicator as is readily available on a time-series basis of the development in real income of unskilled urban labour in the formal sector. In some economies, the reported wages for construction labourers will be determined by collective bargaining between trade unions and employers. In others, wages may reflect the level established by statutory minimum wage legislation, or may be determined by short-term market forces (mainly applicable to casual labourers, engaged perhaps on a daily or other short-term basis).
- *Welders* in metal manufacturing may be seen as representative of skilled manual workers. A skilled welder will usually have some sort of formal skill qualification, perhaps completion of a formal apprenticeship or similar course, or receipt of informal on-the-job training. Even where there has been no formal training or qualifications, the occupation still contains some elements of skilled job requirements.
- *Professional nurses (general)* have usually satisfied formal education and training requirements that include specialized medical knowledge. The classification should exclude the most junior, lower-ranking or less qualified members of the nursing staff, as these are covered by a separate occupation class of “auxiliary nurse”. In some economies – Poland, for example – the two groups are merged. In most cases, especially the more developed economies, members of this occupation are predominantly female. For example, the Czech Republic shows average earnings only for female professional nurses. Bahrain, on the other hand, reports information only for males after 1993. Most workers included in reported wage figures for this occupation are employed in the public sector and in some economies – Bahrain and Mauritius, for example – only public-sector employees are included. Sometimes professional nurses are grouped with another nursing occupation to produce an aggregate average wage figure. For example, in Romania they are grouped with ambulance drivers. Very exceptionally, in the Republic of Korea professional nurses are grouped together with general physicians and dentists.
- *First-level education teachers* usually have formal education and possibly professionally related formal teaching qualifications. Again, in many economies teaching is a predominantly female occupation, at least at the first (primary) level. Most workers are in the public sector, although there may be some in private-sector schools. They are occasionally grouped with another teaching occupation such as kindergarten teachers, as in Italy. In some economies the other teaching occupations, or some of them, may be combined to produce an “all schoolteachers” average wage figure, but first-level education teachers are often not included in such an aggregate, except in Bahrain, Gibraltar, the Republic of Korea and the Seychelles, where all types of teachers, including kindergarten, are grouped together.

- *Computer programmers in insurance* are usually regarded as technically skilled and are normally required to possess an advanced degree or certification. However, in practice, economies may not require possession of specified (technical or) educational qualifications when making the classification. In some economies, programmers may have relatively little formal education, but have acquired either considerable on-the-job training or technical/professional qualifications that do not require formal academic/educational qualifications. In many economies, there has been a large increase in demand for this occupation in the past decade, which may have led to the above-average increase in wages. This occupation is usually found in the private sector, although there are some publicly or state-owned insurance companies.
- *Accountants in banking* are usually qualified professionals with a recognized certification of competence and skill. It is possible that in some economies the qualifications may be based on banking sector practice and expertise, as there may be special sector-based qualifications for the banking industry that differ from those for general accountants qualified to carry out audits or approve company accounts. Like programming, this occupation is usually found in the private sector although in some economies (particularly developing economies) there are some publicly owned banks.

The ILO October Inquiry

The ILO October Inquiry, published annually as *Statistics on occupational wages and hours of work and on food prices*, a special supplement to the *Bulletin of Labour Statistics*, provides a unique collection of wage and earnings data for 159 specified occupations.⁶ The occupations are defined at the four-digit level in the ILO International Standard Classification of Occupations (ISCO-88)⁷ and allocated to industries and subdivisions of industries as defined in the United Nations International Standard Industrial Classification of all Economic Activities (Revision 2, 1968, or Revision 3, 1988).⁸ Occupations may be repeated across industries. For example, “labourers” can be found in industry groups “spinning, weaving and finishing textiles”, “printing, publishing and allied industries”, “manufacture of industrial chemicals”, and five others. Computer programmers appear only twice, once in “insurance” and again in “public administration”.

Respondents are asked to supply data relating to adult full-time employees who are fully qualified, that is, employees who have acquired the training and experience normally necessary for the occupation in question, and who are working on a full-time basis. It is possible, though, that some economies include part-time workers as well. The types of

⁶ For further information see ILO: *Statistics on occupational wages and hours of work and on food prices: October Inquiry results, 2000 and 2001* (Geneva, 2002); website: <http://www.ilo.org/public/english/bureau/stat/child/actrep/octinq.htm>.

⁷ ILO: *International Standard Classification of Occupations: ISCO-88* (Geneva, 1990); website: <http://www.ilo.org/public/english/bureau/stat/class/isco.htm>; see also the resolution concerning the revision of the International Standard Classification of Occupations, adopted by the 14th International Conference of Labour Statisticians, Geneva, October–November 1987, in ILO: *Current international recommendations on labour statistics: 2000 edition* (Geneva, 2000); website: <http://www.ilo.org/public/english/bureau/stat/download/res/isco.pdf>. The topic of future revisions will be taken up again at the forthcoming 17th International Conference of Labour Statisticians in Geneva in November 2003; see <http://www.ilo.org/public/english/bureau/stat/techmeet/16thicls/index.htm> for more information,

⁸ ISIC-Rev. 3 is available at the website <http://unstats.un.org/unsd/cr/registry/default.asp>, while both Revisions are shown in Appendix C of this publication.

information sought (which are defined in the relevant resolutions of the International Conference of Labour Statisticians (ICLS) with the exception of hours paid for, for which there is no internationally accepted definition⁹) are as follows

- *Average wage or salary rates.* Wage or salary rates are the rates paid for normal time of work, comprising basic wages and salaries, cost-of-living allowances and other guaranteed and regularly paid allowances. The following should be excluded: overtime payments, bonuses and gratuities, family allowances, other social security payments made by the employer directly to employees and *ex gratia* payments in kind supplementary to normal wage and salary rates.
- *Average earnings.* Earnings are the remuneration in cash and in kind paid to employees, as a rule at regular intervals, for time worked or work done, together with remuneration for time not worked, such as for annual vacation, other paid leave or holidays, and including those elements of earnings that are usually received regularly, before any deductions are made by the employer in respect of taxes, contributions of employees to social security and pension schemes, life insurance premiums, union dues and any other obligations of employees. The following should be excluded: employers' contributions in respect of employees paid to social security and pension schemes, and also the benefits received by employees under these schemes; severance and termination pay; irregular bonuses such as year-end and other one-time bonuses that accrue over a period longer than a pay period.
- *Normal hours of work per week.* Normal hours of work are the hours of work fixed by or in pursuance of laws or regulations, collective agreements or arbitral awards, or the number of hours in excess of which any time worked is remunerated at overtime rates.
- *Average hours of work per week.* (a) "Hours actually worked" are the hours actually worked during normal periods of work, time worked in addition to normal periods of work and generally paid at higher rates (overtime), time spent at the place of work in other activities that are part of the tasks and duties of the jobs concerned (for example, cleaning working tools and preparing time sheets), and time spent corresponding to short rest periods at the workplace, including tea or coffee breaks. The following should be excluded: hours paid for but not worked (see below), such as paid leave, paid meal breaks and time spent travelling between the home and the workplace. (For more details on hours worked, see KILM 6.) (b) "Hours paid for" are generally the hours actually worked (see above) plus the hours paid for but not worked, such as paid annual leave, paid public holidays, paid sick leave, paid meal breaks and time spent travelling between the home and the workplace.

A number of different types of sources are used by economies in completing the October Inquiry questionnaire. In general, the minimum wage rates and normal hours of work shown are taken from the relevant laws or regulations, collective agreements or arbitral awards. Sample surveys of establishments, such as occupational or industry wage surveys, are usually the source of information on average earnings and hours of work. In some cases, administrative records of bodies such as social security agencies are used.

Statistics of real wages are not primary statistics. They result from the combination of two

⁹ See website: <http://www.ilo.org/public/english/bureau/stat/res/index.htm>.

types of primary statistics – wages and prices. Users should refer to KILM 15, “Definitions and sources”, for in-depth definitions of both. Ideally, for the purposes of real wage computation, the two sets of data (wages and prices) should cover the same reference population (in the present case, the same employee group or category) and have similar geographic and industrial coverage, and reference period.

The computation of real wage indices involves two steps:

- (a) A nominal wage index (NR_i) is first calculated for year i by expressing the value for year i as a percentage of the value for the base year (1990), by means of the following formula:

$$NR_i = (W_i / W_0) * 100$$

where W_0 is the nominal wage for the base year (1990) and W_i the nominal wage for year i .

- (b) The real wage index (R_i) is then computed by dividing, for each year (i), the nominal wage index (NR_i) by the corresponding CPI (P_i), by means of the following formula:

$$R_i = (NR_i / P_i) * 100$$

Again, for greater detail, users should refer to the corresponding section of KILM 15.

Limitations to comparability

The introduction to the published October Inquiry states: “Care should be taken when using and interpreting the results, particularly for making international comparisons. Despite efforts to promote the comparability and continuity of the data, there are some unavoidable differences between the concepts used, specifications of occupations and items, reference periods, types of sources and methods of data collection in the various countries. As much information as possible is provided in the tables in the form of footnotes, and this should be taken into consideration by users.”¹⁰ It is important to bear this advice in mind when using published information, as there can be differences in definition, coverage or measurement for different occupations in the same country in the same year, as well as changes from year to year.

When using the October Inquiry data, particular attention should be paid to the types of wage rates presented. Some are the minima fixed by laws, regulations, collective agreements or arbitral awards, while others are the average rates paid, or the prevailing rates, or rates predominantly paid; in a few cases ranges of minimum-to-maximum rates are shown. Similarly, the average hours of work may be hours actually worked or hours paid for; the figures for normal hours are usually the number of hours due to be worked by a full-time worker before overtime payments are made, but in a few cases they are the average number of normal hours actually worked by members of that occupation.

Another concern in the construction of real wage indices is the use of minimum wage rates by

¹⁰ ILO: *Statistics on occupational wages and hours of work and on food prices, 2000 and 2001* (Geneva, 2002), p.vii.

some economies. Minimum wages may be very close to the wages actually paid, but in some cases the actual minimum wage may be only a small percentage of total actual weekly wage. For this reason, KILM limits the construction of the indicators to those economies providing average or prevailing wage rates and earnings. Minimum and minimum-to-maximum rates have not been used for the construction of the indices.

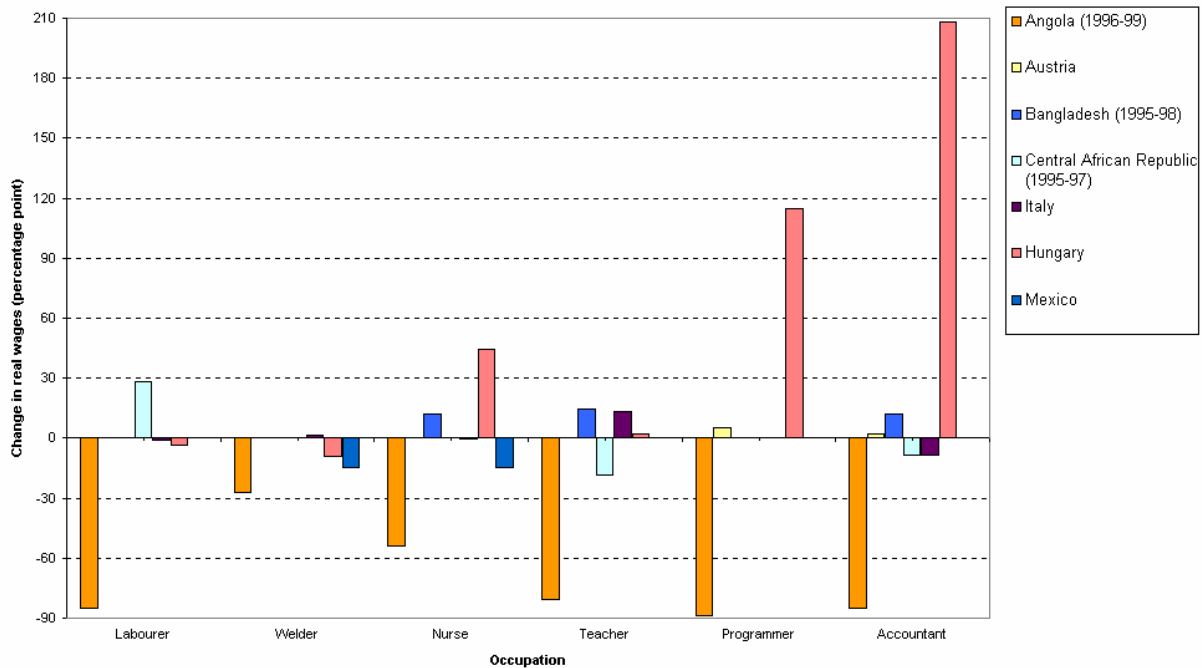
Generally speaking, most of the limitations to comparability pointed out in KILM 15 apply to the construction of nominal and real indices of wage rates and earnings as well, in terms of types of sources, concepts, and collection and measurement methods, including the choice of the price deflator (CPI). Other limitations are specific to the source of the information: as mentioned earlier, an occupation may appear more than once in the October Inquiry if it is listed for more than one subdivision of economic activity. Some economies provide details for an occupation by subdivision, while others do not distinguish different sectors of economic activity below the major division level. In the latter case, the wage figures do not necessarily refer only to members of the occupation in the specified subdivision of economic activity but to members of that occupation in a major division or broad sector of economic activity. Users are advised to review carefully the table notes associated with the indicators. There are numerous cases where an economy does not adhere strictly to the definitions of the October Inquiry, and users should take careful note of “anomalies” before attempting cross-country comparisons.

Grouping members of an occupation by broad division of economic activity may limit the ability to make comparisons. Where main divisions of industry are used, there must always be some uncertainty as to whether observed changes in wage levels for an occupation represent an increase in average wages for a similar group of workers or whether the change reflects a change in the composition of the broad group of workers, so as to include relatively more or fewer workers from higher- or lower-paying sub-sectors. Even with information based on the ILO industry-specific definitions, there may still be problems related to changes in the composition of the employees covered in an occupation. Different proportions of employees from higher- or lower-paying areas or establishments can affect the occupation average from one survey to the next without any change in the rate of pay.

A final limitation arises not from the nature of the information itself but from the infrequency of collection. Relatively few economies provide information on a consistent basis for a number of years. Spasmodic or occasional reporting, while providing some useful information for snapshot one-year comparisons, prevents the construction of time-series which are often the most useful data for determining what is happening.

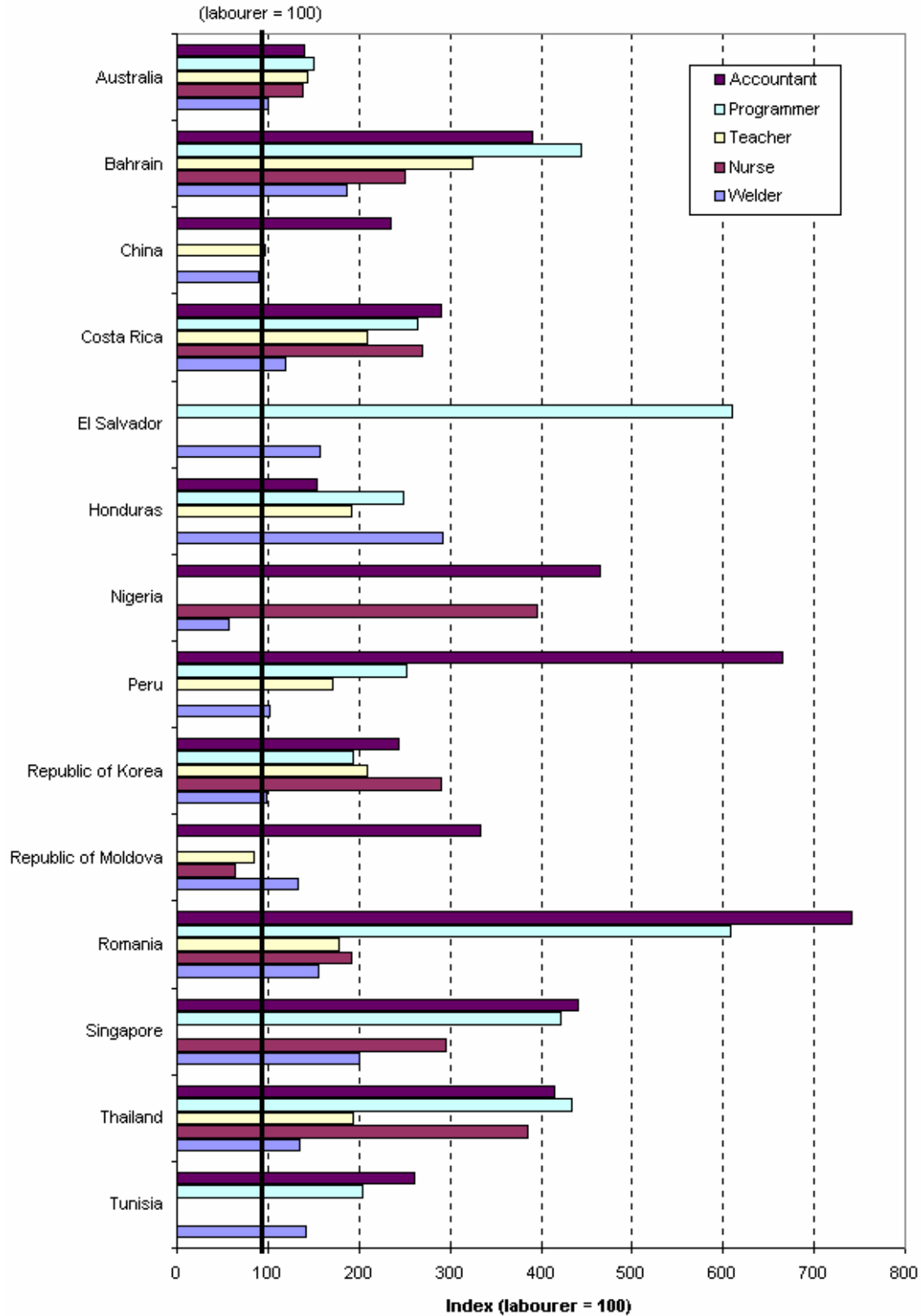
Trends

Figure 16a. Change in real wages, selected economies, 1995-2001



Time-series data on real wages by occupation are often lacking; however, the economies shown in the figure – those for which data are available from 1995 onwards – offer a fairly broad representation of geographical regions as well as varying stages of economic development. The performance of wages over the last five years of the twentieth century varied greatly. Wages decreased in all six occupations in Angola, whereas they increased slightly for labourers in the other represented African economy, Central African Republic. The largest wage increases were seen in Hungary, where nurses, computer programmers and accountants seemed to benefit from the newly opened economy (although real wages decreased for labourers and welders). No one occupation fared better than the others in terms of wage performance. Where data were available for six of the seven economies – for nurses and accountants only – the split between those with increased and decreased wages is exactly equal.

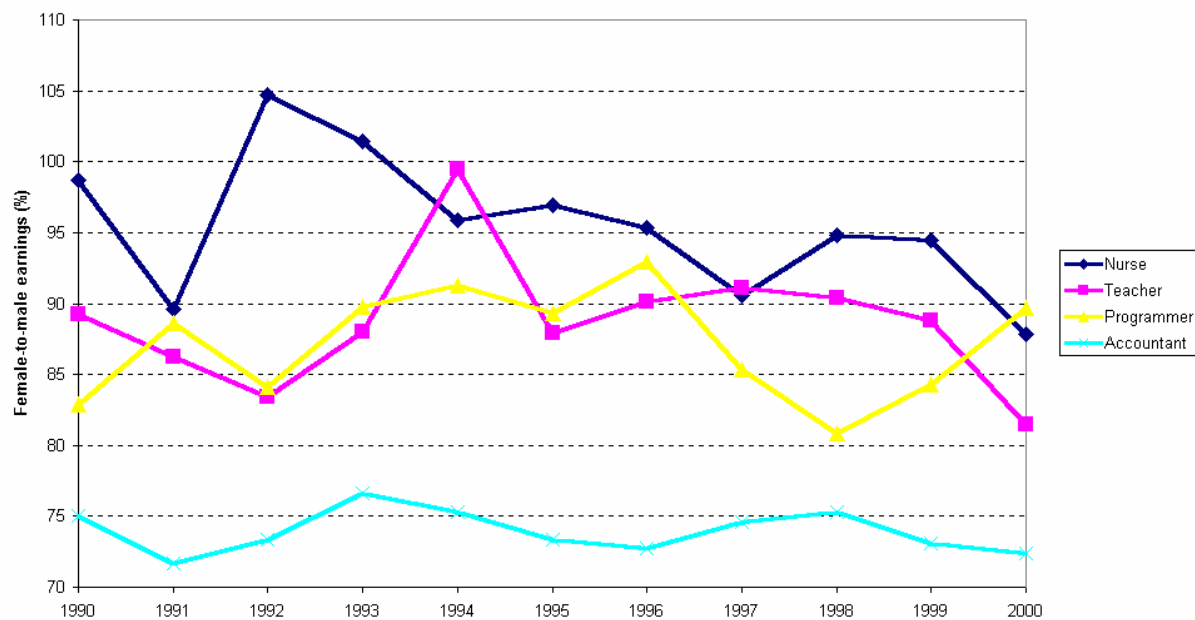
Figure 16b. Wage differentials for males relative to construction labourers (=100), selected economies, latest years



Comparisons of the relative wages of different occupations can give some indication of the extent to which similar skills and qualifications are rewarded. This figure shows wage

differentials for five occupations relative to male construction labourers, for economies that have information available for the 1990s. The differentials were calculated only when wage measurements were comparable (e.g. nominal wages per week of labourers are not measured against nominal wages per hour of nurses). In most of the economies shown, labourers remain the lowest paid of the six occupations, although welders in Nigeria received only 60 per cent of what labourers earned and in China labourers earned more than both welders and teachers. Where there are large differences in skills, qualifications and educational requirements for occupations, such as accountants or computer programmers compared with labourers, the differential is usually in favour of the more highly qualified occupation, although there can be significant differences in its size. In Romania, for example, accountants earned over seven times what labourers earned, whereas in Australia the differential was only 40 per cent in favour of accountants.

Figure 16c. Female occupational earnings as percentage of male earnings, United States, 1990-2000



In the United States, female earnings lagged behind male earnings in all occupations for which comparative data are available, and the gap increased over the decade 1990–2000 in all occupations except computer programming. The largest differential was in accounting, where females earned on average only three-quarters of what males in the same occupation earned. Even in the more female-dominated occupations of nursing and teaching, males continued to earn more than females.



Box 16a. ILO October Inquiry, descriptions of the occupations

These descriptions are provided with the October Inquiry questionnaire to help identify the scope of an occupation and the types of workers covered.

Occupation 67. Welder - Manufacture of metal products (except machinery and equipment)

Welds metal parts by means of oxy-acetylene, other gas flame or electric arc:

ascertains job requirements from drawings and other specifications; examines parts to be welded to determine best method to use; places parts (work pieces) in position; selects torch nozzle and attaches it to blow-pipe, or selects electrode and inserts it into portable holder; lights torch and adjusts flame by regulating flow of gases, or connects welding unit cable to work piece and switches on power supply; heats parts until they begin to melt and fuses them by applying molten metal from a welding rod, or holds electrode a short distance from work piece to form electric arc, adjusting voltage or amperage as necessary; runs flame and welding rod along joint, or guides electrode along line of weld to deposit metal from electrode and fuse parts together and regulates supply of electricity to control deposit of metal; allows metal to cool, cleans and smoothes welded parts, examines weld visually and rectifies any defects.

Occupation 90. Labourer - Construction

Assists building and civil engineering craftsmen in the performance of their tasks on construction sites or projects. Performs one or more manual tasks requiring a minimum of training, little or no previous experience and mainly physical effort:

loads materials, equipment and tools on to and unloads from vehicles; transports materials and equipment to and from work areas using wheelbarrow, driving dumper or hoist, or secures load to be moved by crane driver; digs trenches, foundations and other excavations using pick and shovel or powered hand equipment; lays and levels hard core to form foundation for concrete; mixes concrete to specified consistency manually or operates or assists in operating mixing machines; assists with erection of ladders, scaffolding and working platforms; cleans equipment and tools; performs other manual tasks as directed by foreman.

Occupation 129. Accountant - Banks

Plans and administers accounting services and examines, analyses, interprets and evaluates accounting records for the purpose of giving advice on accountancy problems or preparing statements and installing or advising on systems of recording costs or other financial and budgetary data:

plans, installs and advises on budgetary, accounts controlling and other accounting systems; assists in formulation of budget policies and advises on financial problems, management, accountancy, administration and organization; keeps record of all taxes, fees, etc. to be paid by the bank in which engaged and ensures that they are paid in time and kept up to date; prepares or reviews tax returns and contests claims before tax officials; plans and directs work of book-keepers, cashiers and book-keeping clerks and supervises workers undertaking routine phases of audit and all other accounting activities; advises on, organizes and supervises the installation and implementation of manual, mechanized and computerized accounting, book-keeping and related systems; conducts financial investigations in matters such as suspected fraud, insolvency and bankruptcy; prepares and certifies financial statements for presentation to board of directors, executives, shareholders or statutory or other bodies; verifies balance sheets, prepares reports including those on profit forecasts and budgets; generally advises on other matters requiring accountancy knowledge.

Occupation 133. Computer programmer - Insurance

Prepares programmes to control automatic processing of data by computer:

studies programme intent, output requirements, nature and sources of raw input data, internal checks and other controls required, or, where available, uses specifications and instructions prepared by systems analyst; breaks down problems delineated by systems analyst into their simplest elements; prepares, from this breakdown, detailed logical flow charts and diagrams to establish the order in which data are to be processed, the points where decisions must be made between alternative courses of action, and the sequence of operations involved; converts flow charts and diagrams into computer programme (the list of instructions which control the operation of the computer) using programme language; converts the programme, or directs its conversion, into code form to derive machine-processable instructions suited to type of computer in use; conducts trial run with

sample data to test validity and logic of programme; amends programme as necessary; compiles written instructions for computer-operating staff; corrects programme errors by such methods as altering programme steps and sequence; analyses, reviews and rewrites programmes to increase operating efficiency or adapt to new requirements.

Occupation 150. First-level education teacher - Education services

Teaches primary academic subjects and elementary principles of social behaviour to children in an establishment of primary education:

prepares annual programme of work in reading, writing, arithmetic, history, geography, nature study and other primary academic subjects, within limitations of specified or standard curriculum, for class in establishment of primary education; gives instruction in primary academic subjects, conducts discussions and supervises work in class; maintains discipline in class and instructs pupils in elementary principles of social behaviour; prepares, assigns and corrects exercises undertaken by pupils; sets tests and marks pupils' work; keeps children's work performance, attendance and other records, and reports on their academic progress and social adjustment to, and discusses with, head teacher and parents.

Occupation 154. Professional nurse (general) - Medical and dental services

Provides professional nursing services and advice in hospitals, clinics and other establishments which provide medical care and treatment:

gives professional nursing care and advice to ill, injured, infirm and obstetric patients and new-born infants in hospitals, clinics and other establishments which provide medical care and treatment; assists physicians and surgeons in examination and operation of patients and accompanies medical staff on rounds, noting changes in treatment prescribed and giving assistance as required; administers medicines and drugs, applies surgical dressings and gives other forms of treatment prescribed by physicians and surgeons; observes, evaluates and records symptoms, reactions and progress and general conditions of patients, and takes and records temperatures, pulse and respiration rates; prepares patients for operations; removes stitches, clips, etc.; gives first-aid treatment in emergencies and attends seriously ill patients; helps patients to become adjusted to place and methods of treatment; washes and bathes patients and attends to their physical needs in general and makes beds; helps to maintain healthy and hygienic environment for patients and takes preventive measures to check spread of communicable diseases in ward; as appropriate, prepares, serves and distributes food and feeds helpless patients; attends women in childbirth and cares for new-born infants; gives instructions and advice regarding care of patients during convalescence; assists charge nurse or sister in the organisation of work, the control of more junior nursing staff and non-medical staff, and the tuition of student and pupil nurses; performs other professional nursing tasks, including supervision of rehabilitation exercises for patients or instruction in the use of orthopaedic aids.

Source: ILO, October Inquiry, Annex 1: Wages and hours of work, descriptions of the occupations (unpublished).