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CHAPTER 11

POPULATION AND LABOUR INPUTS

- 11.01 Comparisons between countries, or between industries or sectors within the same economy, are more useful for some purposes when aggregates in the national accounts (for example, gross domestic product, the final consumption of households, the value added of an industry, compensation of employees) are considered in relation to the number of inhabitants and labour input variables. For such cases, definitions of population and labour inputs must be consistent with the concepts used in national accounts, and reflect the production boundary of national accounts.
- 11.02 The aim of this Chapter is to describe the frameworks and measures of population and employment statistics, and to provide guidance to the extent those frameworks correspond to the system of national accounts.
- 11.03 Labour inputs are classified on the basis of the same statistical units as used for the analysis of production, namely the local kind-of-activity unit and the institutional unit.

11.04 The aggregates to which the figures for population and labour inputs are related are often annual totals. In such cases, average population and labour inputs during the year have to be used. When surveys are conducted several times during the course of the year, the figure taken is the average of the results obtained on those various dates. When a survey is carried out over a period within the year, the period used must be representative; the latest available information on variations throughout the year must be used in estimating data for the year as a whole. For example, when estimating average employment, allowance must be made for the fact that certain people do not work throughout the whole year, for example casual workers and seasonal workers.

TOTAL POPULATION

11.05 *Definition:* on a given date, the total population of a country consists of all persons, national or foreign, who are permanently settled in the economic territory of the country, even if they are temporarily absent from it. An annual average of head counts will provide an appropriate basis for estimating national accounts variables or for use as a denominator in comparisons.

11.06 Total population is defined for national accounts according to the concept of residence as described in Chapter 2. A person who is staying, or intends to stay, on the economic territory of the country for a period of one year or more is regarded as permanently settled there. A person is regarded as being temporarily absent if he or she is permanently settled in the country but is staying, or intends to stay, in the rest of the world for a period of less than one year. All individuals who belong to the same household are resident where the household has a centre of predominant economic interest: this is where the household maintains a dwelling, or succession of dwellings, which members of the household treat, and use, as their principal residence. A member of a resident household continues to be a resident even if that individual makes frequent journeys outside the economic territory because their centre of economic interest remains in the economy in which the household is resident.

11.07 The total population of a country includes:

- (a) nationals settled in the country;
- (b) national civilians who are staying abroad for a period of less than one year. Examples are frontier workers, seasonal workers, and tourists;

- (c) foreign civilians settled in the country for a period of one year or more, including the personnel and accompanying members of their households, of the institutions of the European Union and of international civilian organisations located within the geographic territory of the country;
- (d) foreign military personnel working with international military organisations located within the geographic territory of the country;
- (e) foreign technical assistance personnel on long-term assignments who work in the country for over a year, and are deemed to be employed by their host government on behalf of the government, or international organisation, which is financing their work.

The total population also includes the following, irrespective of the length of their stay outside the country:

- (a) national students however long they study abroad;
- (b) members of the country's armed forces stationed in the rest of the world;

- (c) nationals who are on the staff of national scientific bases established outside the geographic territory of the country;
- (d) nationals who are on the staff of diplomatic missions abroad;
- (e) nationals who are members of the crews of fishing boats, other ships, aircraft and floating platforms operating outside the economic territory;
- (f) patients taking medical treatment abroad.

11.08 Conversely, the total population of a country does not include:

- (a) foreign civilians staying on the territory for less than a year, such as frontier workers, seasonal workers, tourists, and patients;
- (b) national civilians staying abroad for a period of one year or more;
- (c) national military personnel working with international organisations located in the rest of the world;

- (d) national technical assistance personnel on long-term assignments who work abroad and are deemed to be employed by their host government on behalf of the government, or international organisation, which is financing their work;
- (e) foreign students however long they study in the country;
- (f) members of the armed forces of a foreign country who are stationed in the country;
- (g) the foreign personnel of foreign scientific bases located on the geographic territory of the country;
- (h) members of foreign diplomatic missions stationed in the country.

11.09 The definition of population given above differs from the present, or de facto, population, which consists of persons actually present on the geographic territory of a country at a given date. It also differs from the registered population.

ECONOMICALLY ACTIVE POPULATION

11.10 *Definition:* the economically active population comprises all persons, who provide, or are available to provide, the supply of labour for productive activities falling in the production boundary of national accounts. It includes all persons who fulfil the requirements for inclusion in employment or in unemployment as subsequently defined.

The relevant standards on labour force statistics are maintained by the International Labour Organisation (ILO). The ILO standards are contained in 'Resolutions', which are adopted by sessions of the International Conference of Labour Statisticians (ICLS). The one most relevant to collecting and compiling labour force data is the Resolution concerning statistics of the economically active population, employment, unemployment and underemployment¹. This resolution was adopted by the 13th International Conference of Labour Statisticians in October 1982, and amended by resolution of the Eighteenth ICLS in December 2008. In that resolution the labour force is defined in terms of individuals engaged in an activity included within the national accounts production boundary.

¹ http://www.ilo.org/global/statistics-and-databases/standards-and-guidelines/resolutions-adopted-by-international-conferences-of-labour-statisticians/WCMS_087481/lang--en/index.htm

EMPLOYMENT

11.11 *Definition:* employment covers all persons engaged in productive activity that falls within the production boundary of the national accounts.

Persons in employment are employees or self-employed persons. Persons holding more than one job are classified as employees or self-employed according to their main job.

Employees

11.12 *Definition:* employees are defined as persons who, by agreement, work for a resident institutional unit and receive a remuneration recorded as compensation of employees.

'Employees' correspond to the ILO definition of 'paid employment'. The relationship of employer to employee exists when there is a contract, which may be formal or informal, between an enterprise and a person, entered into voluntarily by both parties, whereby the person works for the enterprise in return for remuneration in cash or in kind.

Persons having both a job as an employee and a job as a self-employed person are classified as an employee if the employee job constitutes their principal activity by income. If income is not available, then hours worked is to be used as a proxy.

11.13 The following categories of employees are included:

- (a) persons engaged by an employer under a contract of employment. Examples are manual and non-manual workers, management personnel, domestic staff, and people carrying out remunerated productive activity under employment programs;
- (b) civil servants and other government employees whose terms and conditions of employment are laid down by public law;
- (c) the armed forces, consisting of those who have voluntarily enlisted for both long and short engagements, and conscripts including conscripts working for civil purposes;
- (d) ministers of religion, if they are paid directly by general government or a non-profit institution;
- (e) owners of corporations and quasi-corporations if they work in those enterprises;

- (f) students who have a formal commitment whereby they contribute some of their own labour as an input to an enterprise's process of production in return for remuneration in cash or in kind as education services;
- (g) outworkers if there is an explicit agreement that the outworker is remunerated on the basis of the work done: that is, the amount of labour which is contributed as an input into some process of production; an outworker is an employee if their contract with the employer is essentially to provide labour;
- (h) persons employed by temporary employment agencies, who are to be included in the industry of the agency which employs them, and not in the industry of the enterprise for which they actually work.

11.14 Persons temporarily not at work are also considered as employees provided they have a formal job attachment. This formal attachment shall be determined according to one or more of the following criteria:

- (a) the continued receipt of a wage or salary;

- (b) an assurance of a return to work following the end of the contingency, or an agreement as to the date of return.

This covers persons temporarily not at work because of illness or injury, holiday or vacation, strike or lockout, educational or training leave, maternity or parental leave, reduction in economic activity, temporary disorganisation or suspension of work due to reasons such as: bad weather, mechanical or electrical breakdown, or shortage of raw materials or fuels. It also covers other temporary absences with or without leave.

Self-employed persons

- 11.15 *Definition:* self-employed persons are defined as persons who are the sole owners, or joint owners, of the unincorporated enterprises in which they work, excluding those unincorporated enterprises that are classified as quasi-corporations. Persons having both an employee job and a job as a self-employed person are classified here if the self-employed job constitutes their principle activity by income.

If income is not readily available, then hours worked may be used as a proxy.

Self-employed persons may be temporarily not at work during the reference period. The compensation for self-employment is mixed income.

11.16 Self-employed persons include the following categories:

- (a) unpaid family workers, including those working in unincorporated enterprises engaged in market production;
- (b) outworkers whose income is a function of the value of the outputs from some process of production for which they are responsible. The contract of those outworkers is to provide goods or services to the commissioning party;
- (c) workers engaged in production undertaken entirely for their own final consumption or own capital formation, either individually or collectively. Such production must be a significant part of their final use for it to be recorded.

Unpaid voluntary workers are included with self-employed persons if their volunteer activities result in goods; for example the construction of a dwelling, church or other building. But if their volunteer activities result in services, for example caretaking or cleaning without payment, they are not included under employment, because those volunteer services are excluded from production.

Although the services householders provide to themselves as owners of their dwellings are included within the national accounts production boundary, there is no labour input in the production of such services; owner-occupiers of dwellings are not considered as self-employed persons.

Employment and residence

11.17 The results of the activity of producer units are consistent in coverage with employment if the latter includes both the residents and the non-residents who work for resident producer units.

Employment, therefore, also includes the following categories:

- (a) non-resident border workers, i.e. persons who cross the border each day to work in the economic territory;
- (b) non-resident seasonal workers, i.e. persons who move into the economic territory and stay there for less than one year in order to work in industries which periodically require additional labour;
- (c) members of the country's armed forces stationed in the rest of the world;
- (d) nationals who are on the staff of national scientific bases established outside the geographic territory of the country;

- (e) nationals who are on the staff of diplomatic missions abroad;
- (f) members of the crews of fishing boats, other ships, aircraft and floating platforms operated by resident units;
- (g) local employees of general government bodies situated outside the economic territory.

11.18 The following categories are excluded from employment:

- (a) residents who are border workers or seasonal workers, i.e. who work in another economic territory;
- (b) nationals who are members of the crews of fishing boats, other ships, aircraft and floating platforms operated by non-resident units;
- (c) local employees of foreign government agencies located on the geographic territory of the country;
- (d) the personnel of the institutions of the European Union and international civilian organisations located within the geographic territory of the country (including local employees directly recruited);

- (e) members of armed forces working with international military organisations located on the geographic territory of the country;
- (f) nationals working in foreign scientific bases established in the economic territory.

11.19 In order to be able to make the transition to the concepts generally used in labour force statistics (employment on a national basis), the ESA specially provides for the following items to be shown separately:

- (a) the conscripted forces (not included in the labour force statistics, but included in the ESA under general government services);
- (b) residents working for non-resident producer units (included in labour force statistics but not included in employment as defined in the ESA);
- (c) non-residents working with resident producer units (not included in labour force statistics but included in employment as defined in the ESA);
- (d) resident workers living permanently in an institution;
- (e) resident workers under the age taken into account in labour force statistics.

UNEMPLOYMENT

11.20 *Definition:* in accordance with the guidelines established by the International Labour Organization (13th International Conference of Labour Statisticians), further specified in the European Union context by Commission Regulation (EC) 1897/2000¹, the concept of unemployment comprises all persons above a specified age who during the reference period were:

- (a) 'without work', i.e. not in paid employment or self-employment;
- (b) 'currently available for work', i.e. were available for paid employment or self-employment during the reference period; and
- (c) 'seeking work', i.e. had taken specific steps in a specified recent period to seek paid employment or self-employment.

¹ Commission Regulation (EC) 1897/2000 of 7 September 2000 implementing Council Regulation (EC) No 577/98 on the organisation of a labour force sample survey in the Community concerning the operational definition of unemployment (OJ L 228, 8.9.2000, p. 18).

11.21 The specific steps may include: registration at a public or private employment exchange; application to employers; checking at worksites, farms, factory gates, markets or other assembly places; placing or answering newspaper advertisements; seeking assistance of friends or relatives; looking for land, building, machinery or equipment to establish own enterprise; applying for permits and licences or financial resources, etc.

JOBS

11.22 *Definition:* a job is defined as an explicit or implicit contract between a person and a resident institutional unit to perform work in return for compensation for a defined period or until further notice.

This definition covers the following terms:

- (a) the explicit or implicit contract relates to the provision of labour input, not to supplying output of a good or service;
- (b) work means any activity which contributes to the production of goods and services within the production boundary. The legality of the work and the age of the worker are irrelevant;

- (c) compensation is to be interpreted here in a wide sense, including mixed income of self-employed persons.

In this definition of a job, both employee and self-employment jobs are covered; that is, an employee job if the person belongs to another institutional unit than the employer and a self-employment job if the person belongs to the same institutional unit as the employer.

11.23 The concept of jobs differs from the concept of employment as defined above.

- (a) Jobs include second, third, etc. jobs of the same person. Those second, third, etc. jobs of a person may either successively follow one another within the reference period (usually, a week) or, as when someone has an evening job as well as a daytime job, run in parallel.
- (b) On the other hand, jobs exclude persons temporarily not at work but who have a 'formal attachment to their job' in the form, for instance, of 'an assurance of return to work or an agreement as to the date of return'. Such an understanding between an employer and a person on lay-off or away on training is not counted as a job in the system.

Jobs and residence

11.24 A job in the economic territory of the country is an explicit or implicit contract between a person (who may be resident in another economic territory) and an institutional unit resident in the country.

For measuring labour input to domestic economic activity, only the residence of the producer institutional unit is relevant, because resident producers alone contribute to gross domestic product.

11.25 Moreover:

- (a) jobs are included in the count of jobs in the economic territory when the employees of a resident producer are working temporarily in another economic territory and when the nature and duration of the activity do not warrant its treatment as a notional resident unit of that other territory;
- (b) jobs are excluded from the count of jobs in the economic territory when performed for non-resident institutional units, that is, for units with a centre of interest in another country which have no intention of being active on the domestic territory for a year or more;
- (c) the jobs of the staff of international organisations and those of locally recruited staff engaged by foreign embassies are excluded from the count, since the employing units are not resident.

THE NON-OBSERVED ECONOMY

11.26 Value of production activities that are not directly observed are, in principle, included within the national accounts production boundary. The following three types of activity are therefore included:

- (a) illegal activities where the parties are willing partners in an economic transaction;
- (b) hidden and underground activities where the transactions themselves are not against the law, but are unreported to avoid official scrutiny;
- (c) activities described as 'informal', typically where no records are kept.

In principle, the remuneration of these workers is included in compensation of employees or mixed income. This adjustment is to be taken into account in the data on employment and self-employment when calculating ratios and other statistics.

Illegal activities where either of the parties are not willing participants (e.g. theft) are not economic transactions and so are not included in the production boundary.

TOTAL HOURS WORKED

11.27 *Definition:* total hours worked represents the aggregate number of hours actually worked as an employee or self-employed person during the accounting period, when their output is within the production boundary.

Given the broad definition of employees which covers persons temporarily not at work but with a formal attachment, and part-time workers, the appropriate measure for productivity calculation is not a head count but total hours worked.

Total hours worked is the most appropriate measure of labour inputs for the national accounts.

Specifying hours actually worked

11.28 Total hours actually worked represents those hours of labour that have contributed to production and can be defined with reference to the production boundary of national accounts. The ILO standard contained in the Resolution concerning the measurement of working time, adopted by the 18th ICLS in December 2008¹, defines hours actually worked as the time persons spend in the performance of activities that contribute to the production of goods and services during a specified reference period. The resolution defines hours worked as follows:

- (1) hours actually worked occur in all types of jobs under varying work and compensation arrangements paid or unpaid, that can be performed at all types of location;
- (2) hours actually worked are not linked to administrative or legal concepts and therefore apply to all working persons and may occur within normal or contractual hours or as overtime;
- (3) statistics for hours actually worked shall include:
 - (a) hours actually worked during normal periods of work and directly contributing to production;

¹ http://www.ilo.org/global/statistics-and-databases/standards-and-guidelines/resolutions-adopted-by-international-conferences-of-labour-statisticians/WCMS_112455/lang--en/index.htm

- (b) paid time spent on training;
- (c) time worked in addition to hours worked during normal periods of work, known as overtime. Note that overtime hours worked shall be included even if they are unpaid;
- (d) time spent working on tasks such as the preparation of the workplace, repairs and maintenance, preparation and cleaning of tools, and the preparation of receipts, time sheets and reports;
- (e) time spent waiting or standing-by during short-term disruptions during the workday for such reasons as lack of supply of work, breakdown of machinery, or accidents, or time spent at the place of work during which no work is done but for which payment is made under a guaranteed employment contract;
- (f) time corresponding to short periods of rest during the workday, including tea and coffee breaks;
- (g) on-call work arrangements. Where this occurs away from the work-place, for example at home, the time is included in hours actually worked according to the degree to which the person's non-work activities and movements are restricted;

- (h) hours worked by defence force personnel, including conscripts, shall be included even if they are outside the scope of a country's labour force survey;
- (4) statistics for hours actually worked shall exclude:
 - (a) hours paid for but not worked, such as paid annual leave, paid public holidays, paid sick leave, parental leave, strikes, 'short leave' for medical visits etc., bad weather shutdowns;
 - (b) meal breaks;
 - (c) time spent on travel between home and work, although any work undertaken while commuting shall be included;
 - (d) education other than training.

More exhaustive definitions of these criteria can be found in the ICLS Resolution concerning the measurement of working time of December 2008¹.

¹ http://www.ilo.org/global/statistics-and-databases/standards-and-guidelines/resolutions-adopted-by-international-conferences-of-labour-statisticians/WCMS_112455/lang--en/index.htm

- 11.29 Total hours worked is the aggregate number of hours actually worked during the accounting period in employee and self-employment jobs within the economic territory:
- (a) including work outside the economic territory for resident employer institutional units who have no centre of economic interest there;
 - (b) excluding work for foreign employer institutional units who have no centre of economic interest within the economic territory.
- 11.30 Many surveys of enterprises record hours paid not hours worked. In those cases, hours worked have to be estimated for each job group, using whatever information is available about paid leave etc.
- 11.31 For business cycle analysis, it may be useful to adjust total hours worked by adopting a standard number of working days per year.

FULL-TIME EQUIVALENCE

- 11.32 Definition: full-time equivalent employment, which equals the number of full-time equivalent jobs, is defined as total hours worked divided by the average annual number of hours worked in full-time jobs within the economic territory.
- 11.33 This definition does not necessarily describe how the concept is estimated: since the length of a full-time job has changed through time and differs between industries, methods which establish the average proportion and average hours of less than full-time jobs in each job group are used. A normal full time week must first be estimated in each job group. A job group can be defined, inside an industry, according to gender and kind of work. Hours contractually agreed upon constitute, for employee jobs, the appropriate criteria for determining those figures. The full-time equivalent is calculated separately in each job group, then summed up.
- 11.34 Total hours worked are the best measure of labour inputs, but where this information is lacking, full-time equivalence may be the best available proxy; it can be estimated more easily and enables international comparisons with countries which can only estimate full-time equivalent employment.

EMPLOYEE LABOUR INPUT AT CONSTANT COMPENSATION

- 11.35 Definition: for labour inputs of similar type and qualifications in the base period, employee labour input at constant compensation measures current labour inputs valued at the levels of compensation of employee jobs ruling during a selected base period.
- 11.36 Compensation of employees at current prices divided by employee labour input at constant compensation yields an implicit compensation price index comparable with the implicit price index of final uses.
- 11.37 The purpose of the concept of employee labour input at constant compensation is to describe the changes in the composition of the work force, for example from lower paid to higher paid workers. To be effective, the analysis is to be undertaken on an industry basis.

PRODUCTIVITY MEASURES

- 11.38 Definition: productivity is a measure of output from a production process, per unit of input. For example, labour productivity is typically measured as a ratio of output per labour-hour (an input). It is therefore essential that labour measures used in studies where the output is based on national accounts measures are consistent in concept and coverage with the national accounts.

