

INTERNATIONAL LABOUR ORGANIZATION

Report II

Measurement of working time

18th International Conference of Labour Statisticians

Geneva, 24 November–5 December 2008

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1. Introduction

Historical background and need for revision

1. The International Labour Organization has long been concerned with the regulation of working time as an aspect having a direct and measurable impact on the health and well-being of working persons and on their levels of fatigue and stress (and on those of the people close to them). It has also considered its important impact on productivity levels and on labour costs for establishments, and on the general quality of life in all countries. Measuring the levels and trends of the hours worked in an economy, for different groups of working persons, is therefore important when monitoring working and living conditions, as well as when analysing economic developments. The importance of working time is reflected in the Preamble to the ILO Constitution:

Whereas universal and lasting peace can be established only if it is based upon social justice; And whereas conditions of labour exist involving such injustice, hardship and privation to large numbers of people as to produce unrest so great that the peace and harmony of the world are imperilled; and an improvement of those conditions is urgently required; as, for example, by the regulation of the hours of work including the establishment of a maximum working day and week ...

2. It is also demonstrated by the over 30 Conventions adopted by the International Labour Conference that have dealt with working-time issues such as the regulation and reduction of maximum daily and weekly working time, the regulation of night work, weekly rest, annual leave, maternity leave and part-time work, as well as the production of statistics. The first of these, the Hours of Work (Industry) Convention, 1919 (No. 1) introduced the standard of an eight-hour day and a 48-hour week.
3. The International Conference of Labour Statisticians (ICLS) has dealt with the measurement of working time, adopting two resolutions on the subject: one concerning statistics of wages and hours of labour (1923) and one concerning an integrated system of wages statistics (1973) that recommends the measurement of working time as part of a system of wages statistics. The first ICLS recognized the importance of working-time statistics when constructing wage indices to measure changes in the standard of living of the working class. The ICLS has only adopted one resolution, however, defining working time for measurement purposes. The current international standards date back to 1962, when the Tenth ICLS defined the concepts of “normal hours of work” and of “hours actually worked”. The resolution mentioned the concept of “hours paid for” but did not adopt an international definition because of important variations in establishment practices in different countries.
4. The description and analysis of patterns and trends in the time people work around the world, however, increasingly requires more comprehensive working-time statistics. In view of the changes that have taken place in recent decades, these statistics need to reflect the new realities and serve policies in both the economic and social spheres. To meet this growing need, in 1993 the 15th ICLS already requested that the measurement of absence from work be the subject of international guidelines, to be integrated within a framework for measuring working time as a whole. The 16th ICLS (1998) recommended to further develop its measurement, particularly in three areas: (a) the time worked by the self-employed, useful for analysis of income from employment statistics; (b) the volume of employment, expressed as total hours actually worked, useful as a basis for statistics on labour productivity; and (c) working-time arrangements as a complement to working-time statistics. The 17th ICLS (2003) considered as a priority activity the development of

statistics of working time and working-time arrangements. In discussing the need for revised guidelines on the subject, its Working Group on Statistics of Working Time provided guidance on the direction and issues to be considered. The revision of the international standards will enable countries to improve or develop a comprehensive system of statistics of working time that can account for all productive activities, in order to provide an adequate statistical base for their users of working-time statistics. In turn this base will facilitate the presentation and international reporting of these statistics for the purpose of comparisons between countries.

5. Several international organizations have been instrumental in developing and implementing guidelines for the measurement of working time on behalf of their constituents: the Statistical Office of the European Communities (EUROSTAT); the Organisation for Economic Co-operation and Development (OECD); and the United Nations (Statistics Division). Under the United Nations' auspices, the Paris Group on Labour and Compensation (a city group for the purpose of informal consultation) was created in 1997 involving all of these organizations as well as national labour statisticians. This group has made substantial contributions to the work of revising the prevailing international standards on hours of work.
6. At the national level, many statistical offices, in particular in countries with well-developed national statistical systems, have collected statistics of hours of work for years. There is consequently a wealth of national practice, which has aided the revision process. These practices to produce statistics of working time have gone beyond the scope of the Tenth ICLS resolution and vary considerably. The heterogeneity in quantity and quality of national statistics on working time seriously hampers international comparisons. This is reflected in the ILO publication the *Yearbook of Labour Statistics*, which publishes national series on average weekly "hours actually worked" by sex, major industry groups and division in manufacturing industries. However, some countries provide annual averages taking into account paid leave, public holidays and other types of irregular absence from work. Others provide simple averages of weekly observations, while still others provide statistics only for a particular reference week. For some countries the statistics refer to "hours paid for" and sometimes even to "normal hours of work". Monthly or quarterly statistics on average weekly hours actually worked published in the *Bulletin of Labour Statistics* have the same limitations. The *ILO October Inquiry* publishes statistics on "normal hours of work" per week and on "hours actually worked" (as well as statistics on wage rates and earnings) for selected detailed occupational groups in selected industry groups. In both cases the statistics actually provided can be for national concepts and/or reference periods that all differ. These differences in scope and coverage exist partially because of the complex nature of the topic but also because of a lack of international guidance or consensus on how they are to be defined and measured or estimated. In order for the international revision of the measurement of working time to succeed, it must take place within the spirit and principles of tripartism. For this reason, the social partners have been actively involved throughout.

Structure of the report

7. The report is organized in nine chapters as follows: Chapter 1 introduces the background and reasons for the need to revise the existing international standards on working time. Chapter 2 presents the main objectives and uses of statistics of working time and as embodied in other international instruments. Chapter 3 describes the limitations of the current standards that need to be addressed in new standards. Chapter 4 explains the revised framework for working time and presents each working-time concept and proposed definition. Chapter 5 discusses issues of data collection and measurement methods using modern statistical sources. Chapter 6 deals with the analytical, compiled measures of total and annual hour concepts. Chapters 7 and 8, respectively, set out the recommended

tabulations and data presentation important for analysis, and the requirements and recommendations for international reporting of results. Finally, Chapter 9 concludes with the proposal to review, for the purpose of adoption, the revised international statistical standards concerning the measurement of working time.

2. Objectives and uses of working-time statistics

8. Statistics on working time, referred to as hours of work since they were first collected, were used to assess and monitor working conditions. A main interest at the outset was to assess working-time regulations. This gave rise to the development of the concept of *normal time*. Working time statistics were later used as a tool for economic analysis and to calculate economic indicators, such as average hourly earnings, average labour cost per unit of time and labour productivity. The concept of hours actually worked was mainly developed to estimate the volume of labour for these analyses. Together with normal hours, these two concepts could be used to identify part-time workers, persons affected by time-related underemployment, persons working in annualized schemes or on shift work, etc. They served to compare the number of hours worked, including overtime, with contractual or legal hours. They made it possible to measure the total number of all hours worked and the over-employment of persons working long hours each day. They also served to observe the hours not worked due to absence and the reasons for this, resulting both from negative causes such as illness and to positive reasons such as annual leave.
9. Statistics on working time in their own right have become central to describing and analysing issues relating to employment, productivity and conditions of work. They are important and valuable for all countries (developed and developing alike) to observe all work activities. The amount of time spent at work and the working-time arrangements of this time have far-reaching legal, financial, economic and social implications for individuals and nations. They are necessary (i) to observe the relationships between work and income and other means of livelihood and their impact on the overall quality of life; (ii) to complement the statistics of employment and demand for labour in production, and to examine working conditions; (iii) to produce indicators (such as labour productivity, time rates of wages, average hourly earnings, average labour cost per time unit, rates of occupational injuries, and estimates of time-related underemployment) useful for labour negotiations, economic and social analysis and (iv) to formulate and implement economic, social and labour market policies and programmes that address labour market flexibility, social exclusion, gender justice and the quality of the work-life balance. Thus a comprehensive system of working-time statistics should be consistent with other labour market statistics and coherent with the general statistical system.
10. Information on the distribution of working time for employed persons makes it possible to identify extremes of short and long hours of work, and to distinguish between part-time and full-time work. Statistics on overtime are useful to evaluate conditions of work and the response of establishments to market demands. Statistics on time of absence by reason for absence can show, for example, employer efforts regarding leave entitlements and help to explain the functioning of an economy, including revealing levels of discontent among workers. The regulation of resting time is linked to the regulation of working time. Statistics on leave entitlement and on actual leave taken are useful to monitor the implementation of these leave regulations. Using a refined measure of components of hours actually worked to account for time spent at the workplace on activities considered as not “directly” productive, and the counterpart time spent on direct production may also provide refined measures of productivity and labour cost.
11. New working-time arrangements reflect differences in how people are combining working time and private time for a better balance between the two. This is an area of increasing importance in the context of women’s fuller participation in the labour market and men’s increased participation in household service work. Part-time and flexible work arrangements are well-known means to enable working persons to achieve this balance,

hence statistics on the organization and scheduling of working time as well as on absence from work are important to monitor these new developments.

In ILO Conventions

12. “Hours worked” have been defined in ILO Conventions in terms of the time when (paid) workers were at the disposal of an employer, that is, when available to receive work orders from an employer or person in authority. During such periods of availability, workers were expected to be ready to work if work were possible, requested or necessary. This general concept could also be meaningful for the self-employed if it is taken to mean time when the self-employed are available to do their work, such as being at the disposal of clients, ready to receive purchase orders or available to make sales, etc.
13. The Hours of Work (Commerce and Offices) Convention, 1930 (No. 30), first ascribed “time worked” to availability periods, explicitly excluding “time for rest”, when workers were not available to work:

The term “hours of work” means the time during which the persons employed are at the disposal of the employer; it does not include rest periods during which the persons employed are not at the disposal of the employer.

14. The same issue was taken up in subsequent ILO Conventions, the Reduction of Hours of Work (Public Works) Convention, 1936 (No. 51), and the Reduction of Hours of Work (Textiles) Convention, 1937 (No. 61).
15. “Rest periods” in the context of these Conventions were time not worked during periods when workers were not expected to (be available to) work. Working persons have, of course, generally been able to take short breaks to rest during the time when they were expected to work. The distinction, however, often proved difficult to make in practice, as with other interruptions of work.
16. An attempt to remedy this measurement difficulty may be the reason why the Hours of Work and Rest Periods (Road Transport) Convention, 1939 (No. 67) included periods of rest below a certain length (when workers are neither working nor available to work) in their definition of hours of work:

The term “hours of work” means the time during which the persons concerned are at the disposal of the employer or of any other person entitled to claim their services, or in the case of owners of vehicles and members of their families, the time during which they are engaged on their own account in work connected with a road transport vehicle, its passengers or its load, and includes –

- (i) time spent in work done during the running time of the vehicle;
- (ii) time spent in subsidiary work;
- (iii) periods of mere attendance; and
- (iv) breaks for rest and interruptions of work, which breaks or interruptions do not exceed a duration to be prescribed by the competent authority.

In ICLS resolutions

17. The Tenth ICLS (1962) defined the normal hours of work as:

4. (1) Normal hours of work are the hours of work fixed by or in pursuance of laws or regulations, collective agreements or arbitral awards.

(2) Where not fixed by or in pursuance of laws or regulations, collective agreements or arbitral awards, normal hours of work should be taken as meaning the number of hours per day or week in excess of which any time worked is remunerated at overtime rates or forms an exception to the rules or custom of the establishment relating to the classes of workers concerned.

This statistical definition is the same as the legal definition defined for payment purposes.

- 18.** The normal hours have restricted worker coverage as they relate to wage earners and salaried employees. The hours could be daily or weekly hours based on a legal or administrative concept, which could vary among categories of workers and activities. They could also include periods when workers do not work (such as commuting time, meal breaks, paid public holidays).
- 19.** The second concept defined by the Tenth ICLS, hours actually worked, relates to time worked during a specific reference period:
5. (1) Statistics of hours actually worked should include:
- (a) hours actually worked during normal periods of work;
 - (b) time worked in addition to hours worked during normal periods of work, and generally paid at higher rates than normal rates (overtime);
 - (c) time spent at the place of work on work such as the preparation of the workplace, repairs and maintenance, preparation and cleaning of tools, and the preparation of receipts, time sheets and reports;
 - (d) time spent at the place of work waiting or standing by 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;
 - (e) time corresponding to short rest periods at the workplace, including tea and coffee breaks.
- (2) Statistics of hours actually worked should exclude:
- (a) hours paid for but not worked, such as paid annual leave, paid public holidays, paid sick leave;
 - (b) meal breaks;
 - (c) time spent on travel from home to work and vice versa.
- 20.** These are hours during a short reference period, when workers in paid employment are actually at the disposal of their employer and available to receive orders to work, if work is possible, requested or necessary (the same as for the definitions set out in ILO Conventions).
- 21.** The hours actually worked exclude commuting time and other paid leave, such as paid annual leave, paid public holidays and paid sick leave, but make no mention of whether to include any work that is done during such periods.
- 22.** The third concept mentioned during the Tenth ICLS, but not defined, is the hours paid for. This refers implicitly to all periods of time for which paid workers are paid. It makes no reference to whether the hours are worked or not worked, nor to where payments should originate from in order to be included (they were generally assumed to be from the employer). These hours paid for logically exclude all periods of time worked which are unpaid, however that may vary considerably within and between countries. The Tenth ICLS observed that statistics on hours paid for can be used for internal purposes but are not suitable as a proxy to hours actually worked.

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- 23.** The ICLS has adopted two other instruments, cited in the preamble to the revised resolution. They make reference to what may be seen as subsets of time of absence from work: measurement of time lost due to occupational injuries (resolution concerning statistics of occupational injuries, 1982, revised in 1998) and time lost due to labour disputes (resolution concerning strikes, lockouts and other action due to labour disputes, 1993).

3. Limitations of the current standards

24. There is the need to come to agreement on a number of issues that are lacking in the current international standards. The first issue is regarding a revised consistent definition for the concept of hours actually worked that includes guidance on all of the types of work activity which may take place under varying work and compensation arrangements and be performed in all types of work locations. This revised concept should be defined independently of the administrative or legal definitions regarding working time that exist in countries, in order to be applicable to all jobs and all persons. Furthermore, regarding hours paid for, given the wide variations in the payment of public holidays and other periods of inactivity there is no international definition, although statistics on this concept are readily available in countries. This concept should also be defined. The second issue concerns the lack of definitions for working-time concepts not included in the current standards but already being measured in countries, which also need to be adopted. The third issue is that revised standards should provide countries with guidelines on how to measure all concepts in practice using the different sources now available in countries. The fourth issue is the need for the revision to identify methods to compute compiled measures, such as labour input or volume of work, and annual hours of work. The fifth and final issue is to establish recommendations concerning which statistics of working time countries should aim to report at the international level.

Link to legal/administrative concepts

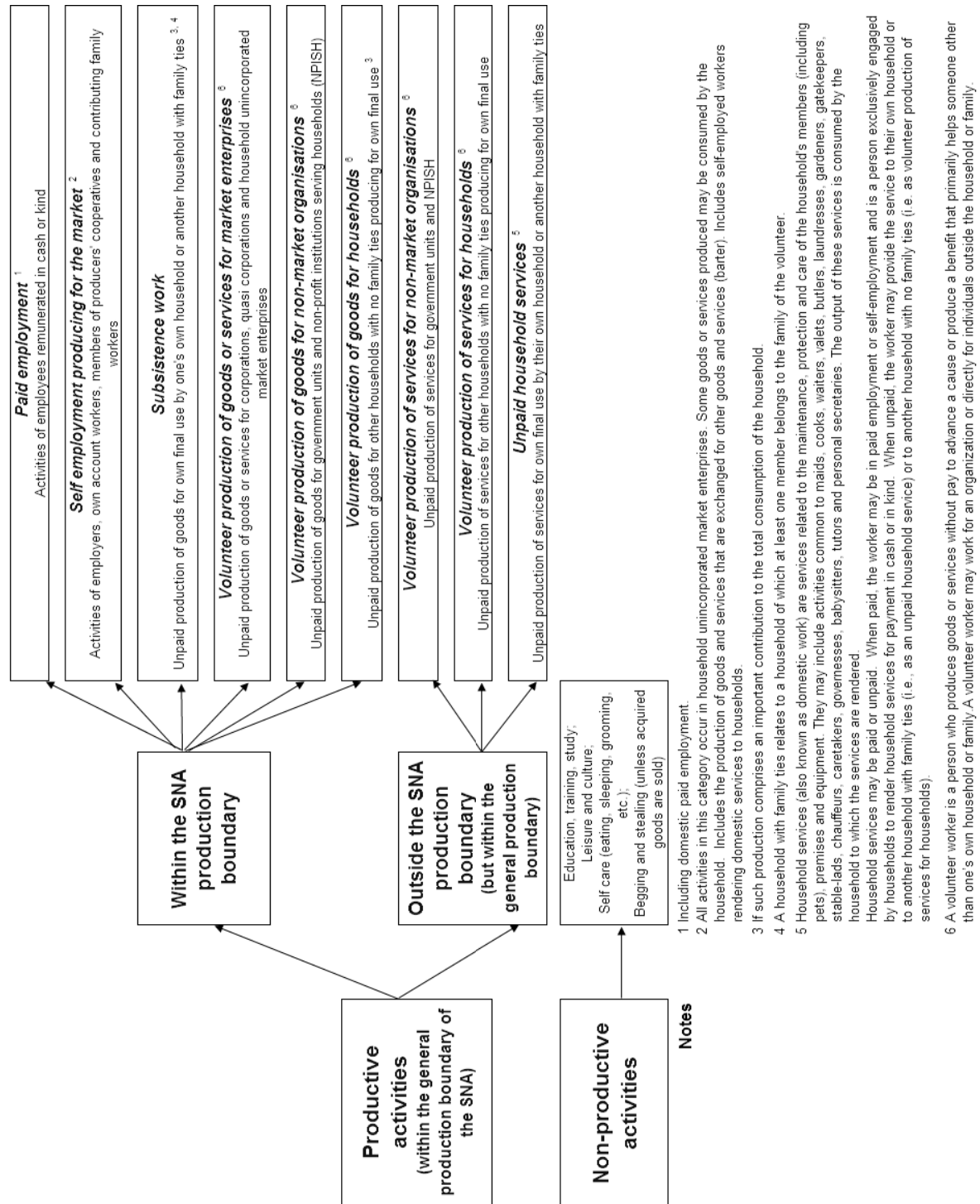
25. Working time as defined through “legal” or “administrative” definitions (linked to payment practices in a country or establishment) may differ from the notion of working time defined for statistical measurement purposes (linked to activities, independently of their payment and location). Labour law is important, including for labour negotiations, yet is often specific to different groups of workers and may not be comparable between them.
26. The administrative context of working time will generally cover all periods of time for which an agreement has been reached between the parties concerned (individuals, workers’ organizations, employers, employers’ organizations, government). This may be regardless of whether the time is spent working or not. One agreement may consider a certain activity as work and pay for it. This may include time spent changing clothing for uniforms, commuting time between home and work and vice versa, or meal times. Another agreement may exclude all such periods and not pay for them. The content of working-time activities defined in one agreement will be specific to the group of working persons covered. It may not be comparable to the time defined in another agreement for a different group. Statistics relating to working time thus defined cannot be aggregated to produce a national measure as they are too heterogeneous in content and therefore quite possibly misleading. The current definitions are not clearly separated from legal or administrative concepts.
27. In contrast, working time defined purely for statistical purposes will reflect the time spent on a standard set of types of activities. Statistics of working time should correspond to the time spent towards the production of goods and services and be capable of providing estimates that are comparable between different groups of working persons. This requires standardized concepts and thus may differ from labour legislation designed for particular workers or activities. Some of the activities included within the statistical concept may be excluded from legislation on working time. The statistical definition should, in principle, be applied uniformly to all persons working to be comparable between the different groups and, when aggregated, produce a coherent national figure that may also be compared over time and between countries.

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28. It is not the role of international statistical guidelines to impose a particular limit of working time, nor will they affect or modify national legislation or documents that define working time. What is important with statistics of working time is to be able to observe the hours actually worked compared with the legal, normal hours.

Link to production

29. An operational consideration that the existing international standards did not address was the application of working-time concepts to all time spent towards the production of all goods and services as defined within the general production boundary of the United Nations System of National Accounts, 2008 (SNA). Since their adoption, the hours of work concepts have been applied to the employment concept and linked to the labour force framework in the context of the 1982 resolution (concerning statistics of the economically active population, employment, unemployment and underemployment, 13th ICLS). Employment itself is based on the SNA production boundary, which is more restricted than the general boundary and excludes the production of certain unpaid services. Working time applied to work activity outside of employment is the time spent on what is referred to as all “household service and volunteer work”. Figure 3.1 shows the classification of activities according to whether they are productive or non-productive and, if productive, whether they are included within the SNA production boundary or only within the general production boundary.
30. This household service and volunteer work comprises production of unpaid services for own final consumption within households (such as cleaning, cooking, repairs, and transporting and caring for dependent persons). The general boundary includes volunteer work producing services for households and non-profit institutions not operating in the market, as well as unpaid production of services by households for other households. Owing to the fact that such activities are beyond the restricted SNA production boundary and therefore not included in employment statistics, working time derived from household service and volunteer work activities would thus be unlikely to be measured in working-time statistics applying the Tenth ICLS current standards.
31. These activities may have been left out under the SNA production boundary and definition of employment: (a) on the grounds of the difficulty of putting a value on them as they supposedly do not easily have market equivalents; (b) because they are not considered to contribute much to national production, including the perception that they have limited repercussions for the rest of the economy; and (c) as including all such hours would also make virtually all persons “employed”. Increasingly, however, the importance of productive activities performed in household service and volunteer work in terms of not only the working time devoted to them, but their monetary value for the well-being of society, has been much researched. These activities have been recorded in satellite accounts that are consistent with the central framework of the SNA. The working time spent on them can be used together with the national accounts as a much improved basis for economic and social policies.

Figure 3.1. Classification of activities in relation to the System of National Accounts



Inadequate worker coverage

32. The Tenth ICLS definition of hours actually worked looks at work mainly from the economic standpoint and its coverage of paid work is conceived primarily to obtain useful measures of volume of labour for national accounts purposes. It even limits the coverage to subsets of paid employment, that is to wage earners and salaried employees. Total coverage of all persons associated with all jobs is important to perform meaningful labour market analysis and to observe work integrated into a socially productive process that refers to the contribution of all persons, including those performing household service and volunteer work. The normal hours concept refers to paid workers covered by laws or collective agreements, or whose establishment fixes a normal working schedule, while the hours actually worked concept refers to paid employees (typically in manufacturing jobs). With the increasing trend towards self-employment in many economies, this inadequate worker coverage has important implications, particularly for the informal economy and for social policies that require an extension of working-time concepts beyond paid employment jobs to jobs in self-employment and to all jobs performing work activities. A call for complete worker coverage was made in the resolution concerning self-employment promotion, adopted by the International Labour Conference (1990). An important aim in revising the international working-time standards, therefore, is to provide a framework and definitions that can ensure the complete coverage of all jobs and all persons who perform any work, which may very well no longer conform to the notion of a regular eight-hour office or factory job.

Inadequate activity coverage

33. The current definition of hours actually worked leaves out a number of activities that may occur in many paid and self-employment jobs, as well as in household service and volunteer work. These include: the time spent, for example, awaiting customers, business, patients or other persons under one's care; on-call duty; travelling from one work location to another; work done at home as well as professional training or re-training, also called skills enhancement. As mentioned above, the current standards make no reference to time spent on production for barter or for free as volunteer service or to production of goods or services for own final use (own housekeeping, household meal preparation, own childcare, transport and special care of dependent persons, including the elderly, etc.).
34. Because the Tenth ICLS definition does not explicitly mention these examples of (common) activities or situations, and since it can be difficult to assign some of them to the list of activities that it provides, it is not clear whether they are to be included or excluded from the concept of hours actually worked. Furthermore, as all household service and volunteer work is not included within the more restrictive SNA production boundary, that time will not normally be included.

Lack of measures

35. In view of the changes in employment and other work situations, there are more working-time concepts that have been found to be important, such as hours usually worked, annual hours and working-time arrangements. These other useful concepts are currently being measured in many countries, according to their own national definitions. Revised standards, therefore, should provide international definitions for all such concepts, encompassed within an integrated framework for working time (see Chapter 4).

Limited measurement methods

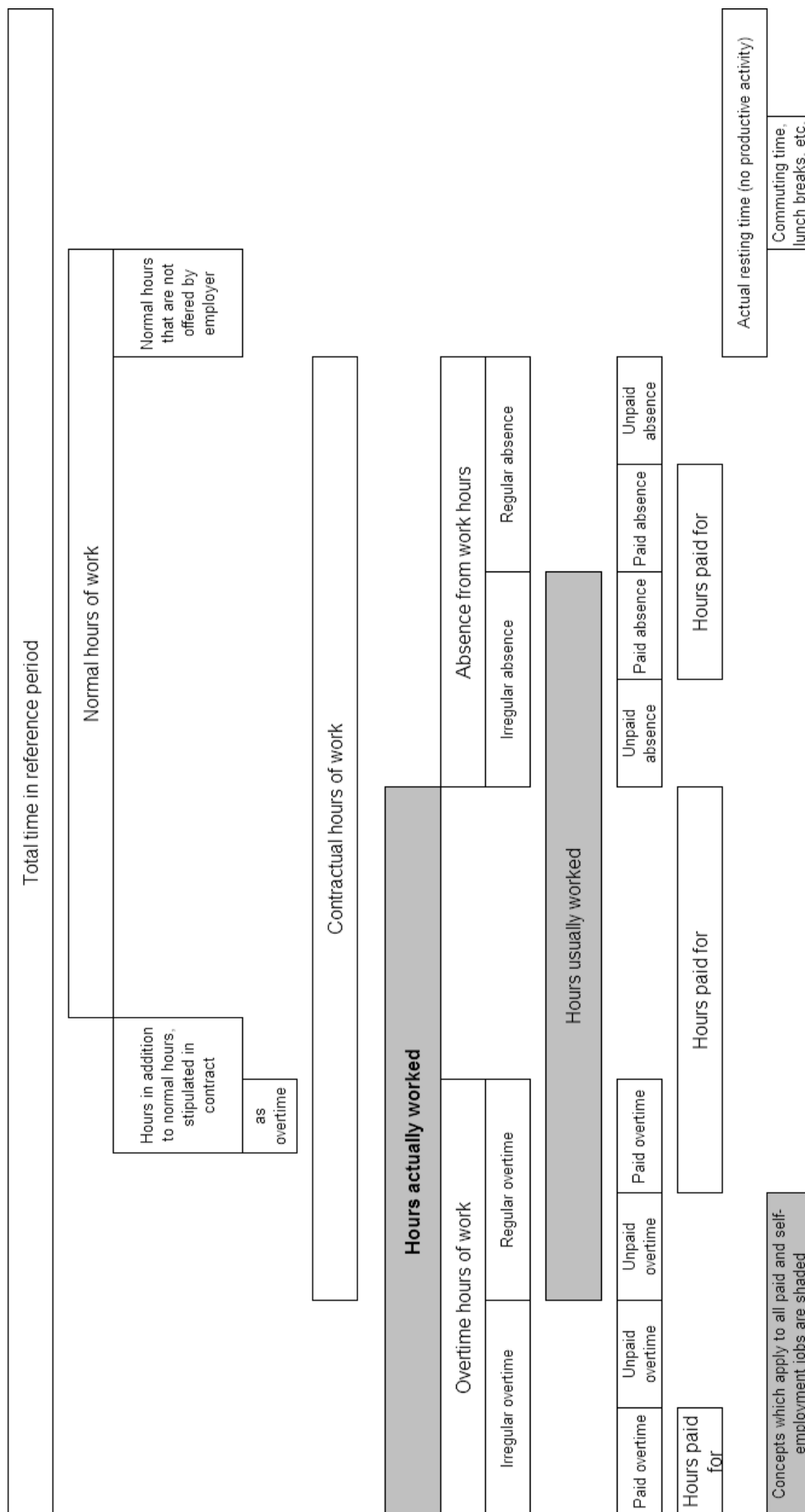
36. Linked to the other issues of limitations in scope and coverage is the increased need for international definitions that can be applied using different measurement tools depending on the measurement capacities and circumstances of countries. The current standards are based implicitly on a short reference period of one week and on time units of one hour. Their implementation is not straightforward when other reference periods or time units exist or are required. Although the resolution of the Tenth ICLS refers to two possible survey types, namely establishment surveys and household sample surveys, there is little discussion of measurement concerns and little guidance for specific data sources. Given that one main objective of international standards in general is to assist countries in developing national definitions according to their own realities, the international concepts should be as independent as possible from particular data collection methods, reference periods or time units and the revised resolution should provide adequate advice to enable countries to implement, or improve, the measurement of working-time concepts in their own statistical systems.

4. Framework, concepts and definitions

Conceptual framework

37. The proposed measurement framework for working time is defined in relation to all activities within the general production boundary of the SNA. It incorporates:
- (a) complete job and person coverage;
 - (b) complete activity coverage;
 - (c) complete time coverage;
 - (d) integration of all concepts relating to working time;
 - (e) integration of concepts relating to working-time arrangements.
38. In this framework, the concept hours actually worked applies to all workers and defines what work is for statistical purposes, which is not linked to administrative or legal concepts. In the Tenth ICLS it was defined to cover only workers in paid employment, mainly in the formal economy. The proposed framework covers all productive activities and all jobs in paid employment and self-employment, and in unpaid household service and volunteer work. Previously, the concept of hours actually worked did not account for time spent on work activities that have since become significant, such as work at home, travelling time and the different forms of professional training, for which guidance is needed. Similarly, the reference period to define the Tenth ICLS concepts is short, namely one day or one week. Increasingly, however, working time is required and defined for longer reference periods, such as a year or a lifespan. The proposed framework makes complete time coverage possible. New concepts are already being measured in countries, for example “hours usually worked” and “absence from work”, and international definitions are incorporated into the framework. Finally, in the complexity of the modern world of work, the arrangement of working time itself has become more complex and varied, so the means to describe these variables are an integral part of the overall framework of working time and need to be internationally agreed.
39. Within this framework, there are seven proposed concepts of working time associated with the productive activities of persons and performed in jobs (see figure 4.1, which presents the relationships between concepts), namely: (i) **hours actually worked**, the key concept; (ii) **hours usually worked**, which are the most common hours actually worked in a job during a short reference period such as a week over a long observation period; (iii) **hours paid for**, which are linked to practice in establishments to remuneration of hours that may not all correspond to production; (iv) **normal hours of work**, which refer to legally prevailing collective working hours; (v) **contractual hours of work**, which relate to the time that individuals are expected to work according to contractual relationships; (vi) **overtime hours of work**, which are the hours actually worked in excess of contractual hours; and (vii) **absence from work hours**, which are the hours that persons are expected to work but do not work.
40. There are two more concepts of working time relating to the organization and scheduling of working time in jobs, namely: (i) the **characteristics of working-time arrangements**; and (ii) **formalized working-time arrangements**, which are specific combinations of the characteristics of organization and scheduling as recognized in various types of legal documents.

Figure 4.1. A framework for working time concepts



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41. The working-time framework avoids source-specific references to avoid bias. The definitions are therefore as independent of measurement sources, techniques or national capacities as possible. There are concepts of working time, however, that are inevitably administrative by their nature (such as hours paid for linked to payment practices in establishments). Their scope is not universally applicable to all persons or jobs.
 42. The framework for working time accommodates different scopes to measure it. Countries will decide how to operationalize the concepts based on national circumstances, and whether to produce working-time estimates only in relation to the employed population corresponding to estimates of GDP or, in addition, to produce working-time estimates of unpaid household service and volunteer work for a broader understanding of and approach to labour market, economic and social policies.
 43. Countries will need to be able to adapt the international working-time definitions to national realities, as no international standards can take into account all national concepts. The detailed concepts and definitions proposed should help countries to map their national measures to the international concepts.

Working time

44. *Working time* is the time associated with the productive activities of jobs and the arrangement of this time during a specified reference period. It comprises the concepts of working time associated with periods of time spent on or towards the production of all goods and services, and the concepts of working time that relate to characteristics describing how that time is organized for the performance of work. Working time does not reflect the intensity or efficiency of time spent on work. Working-time measurement units may be short, such as minutes or hours, or long, such as days, weeks or months. For ease of language, working-time concepts use the measurement unit of “hours”. These hours may be observed over short or long reference periods, such as a day, a week, a season or a year.
45. With working time being defined in reference to production, it may be measured in relation to different productive activities, depending on the objective. These may be all productive activities as defined within the SNA general production boundary (as discussed in Chapter 3) or the activities that fall within the SNA production boundary in the system. Working time that is based on the latter boundary suffers from the same drawback as statistics of production, namely it will only reflect a partial reality. In applying the stricter production boundary, for example, the statistics collected on working time commonly indicate that men work longer hours than women. This observed difference, however, becomes less pronounced, or even reverses, if all productive activities are included, when observed through studies of time use. In most countries, when unpaid household service work is also accounted for, the working time of women will exceed the working time of men.
46. For complete coverage of persons and all types of jobs, each concept and its definition must be described in terms of whether or how it relates to paid employment, to self-employment and to household service and volunteer jobs. Rapidly transforming labour markets and heterogeneous working-time arrangements pose a challenge to measuring working time for all these jobs.
47. Defining some working-time concepts (such as overtime or absence) for all jobs may be more complex than, for example, fixed paid employment job settings. The working-time patterns of the self-employed may not lend themselves to using the “objective” scales for inclusion or exclusion that are available for employees; for example, some self-employed

persons may consider that they work overtime hours. The difference between hours actually worked of self-employed persons and their typical working time (hours usually worked) may be considered as a measure of their overtime hours. This relationship is therefore foreseen and made explicit in the revised resolution.

48. The working-time concepts of hours actually worked and hours usually worked, absence hours of work, overtime hours of work and the characteristics of working-time arrangements may apply to all jobs in paid and self-employment including, in principle, household service and volunteer jobs. The concepts of hours paid for, normal hours, contractual hours and formalized working-time arrangements apply to paid employment jobs and, in some circumstances, may also be relevant to certain self-employment jobs.

Hours actually worked

Operational definition

49. Hours actually worked is the time persons spend in the performance of activities that contribute to the production of goods and services during a specified reference period. This is coherent with determining working time in relation to all work and all jobs. This revised definition overcomes the limitations of the current international definition (described in paragraph 19 above) by addressing the variety of work activities and situations that take place, under varying working and compensation arrangements, at all types of work location (including at home, on the street, and elsewhere away from the usual work location). It applies definitional criteria to identify those types of activity on which time is spent for their inclusion or exclusion, including activities that enable production.
50. Hours actually worked is the aggregate of time spent on the performance of the job directly and the time spent in relation to productive activity, which (i) enables (ii) facilitates or (iii) enhances production.
51. Working time also includes periods of unavoidable “in-between time” in the course of the production process when persons continue to be available to work (long recognized in international standards). The revised definition of hours actually worked also comprises these periods, specifying their relationship to both paid and self-employment situations.
52. Short rests that have been traditionally granted to workers or taken by the self-employed and persons in household and volunteer work, to enable healthy working conditions to prevail and to allow the body and mind to recuperate and relax, are also retained in the revised definition.

Criteria for inclusion

53. The principle criterion to define hours actually worked is that the activities performed during such time contribute to the production of goods and services according to the SNA.
54. To implement the definition correctly, particular attention should be paid to ensure that these activities carried out during the reference period, whether carried out in the economic territory, an establishment, on the street, at home, while commuting or during lunch breaks, etc., are included in hours actually worked.

Direct and related hours

55. While the inclusion of “direct and related hours” that enable, facilitate or enhance production during hours actually worked may pose no conceptual problem, its measurement can be less straightforward. Irrespective of the data source, the measurement of hours actually worked performing activities outside the normal work location may be problematic. For example, the exact number of hours spent on work performed while at home may not be correctly assessed or recalled, given the fact that a wide range of activities may be performed simultaneously (together with food preparation, shopping, coaching, transporting or awaiting persons under one’s charge) and may also change frequently.
56. The definition and examples of activities performed (the components) clarify the criteria for deciding whether certain activities should always be included when measuring hours actually worked, or whether they should be included in some situations but not in all. One type of supplementary criterion is the assessment of restrictions that may apply to persons during the time spent on the activities under consideration. For example, waiting time must be to enable production (such as selling to customers or treating patients); the supplementary criterion is that it must be part of the working-time arrangement of the job or be explicitly paid for (in the case of a sales person). It is supplementary in the sense that alone it does not serve to classify as hours actually worked if the waiting was not in the context of productive activity to be performed. Similarly, for persons who are on call, their movements must, for example, be restricted (that is they may not go too far, to enable them to return easily to duty when called). These important components are discussed in detail below.
57. If time spent on certain activities is required for production to occur, then this time should be included, such as for cleaning the workplace, transporting children to school, preparing materials, thinking about and discussing work processes and methods or putting on work uniforms. The time spent on activities that facilitate the performance of work, such as travelling time, should by the same logic also be included.
58. Time receiving training to acquire new skills or techniques, and the upgrading or enhancement of skills, is increasingly vital to maintain and enhance production. Training is therefore included, provided that the activity is required for the economic unit in question, either for the same job or for another job. There are different arrangements or agreements in place for workers to receive training and to practice skills enhancement in regard to paid employment jobs. The different forms may be provided directly by the employer at the work location. They may be paid for by the employer but be provided away from the work location by other units. They may be arranged or approved by the employer but be provided in another location with, for example, payment arrangements shared between employees and employers. For self-employed workers undergoing training or skills enhancement, the requirement for such training to be for the productive activity performed by the economic unit also applies as the person and the unit are the same.
59. Most information on hours actually worked will not detail all of the different activities performed in a job and the (portions of) hours spent on each of them as described in the list of activities within the revised definition. Information is generally recorded or collected in a much simpler way, mainly due to administrative and data collection costs and response burdens. That list is intended to clarify the meaning of the basic definition, not to constitute a requirement for countries to collect data for each of the components described under direct and related hours. The examples provided in the list may also help to produce an activity checklist for all sources and to improve the recording of the information. In statistical surveys using interviews it may serve as a tool for training purposes. The list may also help producers of statistics to analyse whether time spent on activities that should be (a) included, might be under-reported in statistical sources, and (b) excluded, were

included and to what extent, and accordingly to take steps to avoid such misreporting. The lengthy list of types of activity provides definitional criteria to guide the implementation of the key concept of hours actually worked in the most uniform and consistent way and should not be considered as the complete list of all possible activities on which hours actually worked may be spent.

Waiting time

- 60.** Waiting time occurs in many jobs for all types of work, be it paid or self-employment or household service and volunteer work. Salespersons and shop owners must await business or customers in shops and this may take up a significant portion of their time. Doctors await patients, while household service workers wait for persons in their charge – for example to come out of school (children) or therapy (the elderly). These are duties that are part of a paid employee's work arrangement, which employers consider necessary and which the self-employed must perform as necessary for production. These types of waiting time are therefore included when they are a part of the working-time arrangement or explicitly paid for.

On-call duty

- 61.** The time spent on on-call duty should be classified as hours actually worked whether it is specified as paid or unpaid. Receipt of (special wage) compensation for on-call duty is not used as a definitional criterion because its application is based on administrative and national factors. The amount of payments cannot be a proxy for degree of restriction, etc. Besides, in certain borderline cases, higher payment per hour as an outcome of collective bargaining could imply a higher estimate of hours actually worked, without any real change in number of hours.
- 62.** When persons remain at their work location during on-call duty, all the hours should be classified as hours actually worked.
- 63.** When persons are away from the work location during on-call duty, the resolution proposes minimum criteria to be fulfilled in order to determine the hours actually worked. In part due to modern communication facilities, more of these on-call duty work activities can now be performed outside the ordinary work location. This may typically be from the worker's home (although it could be across the world, a computer mouse-click away). As a result, the person is able to take up other personal activities while remaining on-call, seemingly rendering the situation closer to leisure time. For this reason, on-call duty applies to persons away from their work location whose movements are restricted or whose activities are limited (for example, they may not consume alcoholic beverages). The hours actually worked are measured as from the time when they are called back to duty, that is including the necessary travelling time (for example, from home to the work location).
- 64.** All the hours of persons whose job implies availability on a 24-hour basis, such as top managers, media spokespersons, security guards and so on, are not considered to be on-call duty. Persons without a job who are on a list or register of persons who may be called upon to perform work – usually for a limited period of time – are not to be taken as being on-call.

Travelling time

- 65.** It is proposed to include travel time connected to work. This may involve travelling, for example, to field projects, field assignments or to international conferences; getting from one agricultural field or fishing area to another; going to meet clients, patients or other persons in one's care. Persons are generally restricted as to where they may go, possibly how they may go and what they may do while travelling. Economic units will normally

pay for, or absorb the cost of, travel time and connected costs. Travel time is therefore included because it is seen as necessary for the performance of the direct and related hours, thus a necessary contribution to the production of goods and services.

66. Travel time excludes commuting time to and from work, such as between the work location and home and vice versa (when the work location is not at the home), and when no productive activity is carried out. Persons commuting by train, however, may work during commutes, in which case this time should count as hours actually worked. In the case of long travelling time, such as by aeroplane, the hours naturally spent in personal rest (sleeping, eating, entertainment, etc.) are excluded. It will include, however, time spent waiting to travel, such as at airports.

Training time

67. The absence of any international agreement for the treatment of education and training within working time has led to differential treatment of these elements across countries and between statistical sources. While the principle of the inclusion of some professional training within hours actually worked is accepted, there needs to be agreement on where to draw the line.
68. Time spent receiving training may be considered as a means of maintaining or improving human capital in economic units. In that way, it has a parallel to activities that maintain and improve fixed capital, already defined as direct and related hours. Using this parallel, it is proposed to restrict training time in hours actually worked to training that is relevant for the production of goods or services within the economic unit. This may relate to a person's actual job as well as to training for another job in the same economic unit and applies to all jobs.
69. For persons in paid employment, the relevance of the training for the economic unit may be assessed by whether or not the employer approves the training by paying all or some of the costs, such as wages or a training fee. However, not all training (partially) paid for by the employer should be classified as hours actually worked. An example of this is when an employer, in certain situations, pays for some or all training costs to ease the downsizing of company staff. By paying for training that helps employees to qualify for a job outside the economic unit, they become able to voluntarily leave the company subsequently.
70. For application to self-employed and household service and volunteer jobs, inclusion should be limited only to training and course work (whose relationship to work might be subject, for example, to tests of the training subject matter and the tasks and duties of the job).

In-between time

71. Periods of unavoidable time spent “in-between” work activities are generally unplanned or inherent in the nature of the job or work process. Such in-between time is in a sense involuntary and persons still remain clearly intent on production. The criterion to include these periods relates to whether or not the persons continue to be available for work during this time. Workers in paid employment continue to be at the disposal of their employer. The self-employed continue at their workplace or at the disposal of clients or, because of a power loss for example, will switch to another job activity and continue working. This is the same for household service and volunteer work; in other words, they all remain available to continue working.
72. This in-between time and availability for work activity is also considered part of production by the SNA. The term “in-between time” is preferred to describe these periods

rather than down time (defined in Dictionary.com as “a time during a regular working period when an employee is not actively productive, an interval during which a machine is not productive, as during repair, malfunction, maintenance”), dead time or idle time (defined in Dictionary.com as “unproductive time spent by employees due to factors beyond their control”). The revised definition lists examples of interruptions of a technical, material or economic nature that may result from machinery breakdown or accident, lack of electrical power or Internet access, lack of supplies, etc. In-between time remains part of the hours actually worked counted as productive. Terms such as down time, dead time or idle time all incorrectly refer to non-productive time.

Resting time

73. Resting time included within hours actually worked is the short periods used for rest, refreshment and to satisfy natural needs. Such rest periods are generally authorized by custom or contract, and may vary slightly in length according to national circumstances. They include breaks such as for tea, coffee or prayer, and are not expected to break the work session or last as long as other breaks for daily meals, which are excluded. They allow persons to continue to function in good health within the time spent on productive activities. For these same reasons, “resting time” must also be applicable to the self-employed and to persons working in household service and volunteer work.

Criteria for exclusion

74. It seems clear, theoretically, that hours actually worked exclude all time not worked, even if paid for, when persons are normally resting from work and are not expected (to be available) to work. Hence, all periods of leave, for whatever reason, are excluded from hours actually worked, as are long meal breaks that are distinguished from short resting periods.
75. By similar logic, the commute between work and home and vice versa, applicable to persons who do not work from or at home, is excluded because the persons are not directly working nor are they available to work during these periods. This exclusion applies even if the commuting time is paid by the employer, for example, to entice workers to a far-off worksite. As discussed (in paragraph 66) only time during a commute when some productive activity is performed is included.
76. Educational activities that are not intended for the economic unit (either in the same or another job within the unit) are excluded even if they provide or upgrade skills related to (other) productive activities. Educational leave, therefore, should be excluded even if authorized or paid for by an employer in the case of paid employment. Similarly, the hours of a self-employed person who took up an educational project and whose enterprise ceased to function or exist during the educational leave, would not be included within hours actually worked.

Incorporating new activities

77. The revised definition of hours actually worked does not modify the Tenth ICLS definition of the concept. It (a) expands coverage to all workers and work situations, and (b) clarifies the content of the categories of components. In this way, if or when new work activities emerge it will be possible to incorporate them into hours actually worked within the framework of working time, without the need to revise the international standards.

Hours paid for

78. The hours paid for concept logically applies to persons in paid employment. It refers to all the hours for which payment is received directly from the employer during a specified reference period. This may include time worked as well as time that is paid for but not worked. One main difference between hours paid for and hours actually worked is that these hours are not necessarily connected to productive activities. Hours paid for may include paid leave and other paid absences. Statistics of hours paid for are commonly available from payrolls and other records. However, practice relating to payment for hours worked and for periods when no work is performed (lunch breaks, commutes, etc.) in establishments vary widely within, as well as between, countries.
79. For conceptual clarity, the definitional criterion proposes that hours paid for are to be included only when payment is made by the employer. Hours of absence that may be paid using government or other national funding, such as social security, are excluded. Payment of these hours (such as for parental, maternity or paternity leave in some countries) is defined as transfer income according to the SNA.
80. To standardize this concept, the definition excludes all hours not paid by the employer (even if actually worked by employees). Its usefulness for the calculation of unpaid overtime hours thus becomes apparent.
81. Countries may need to further determine a national definitional criterion for the application of hours paid for in regard, for example, to subsidized working hours where payment is equally distributed between the employer and a government institution.
82. Hours paid for may also, in some circumstances, apply to self-employment jobs. These are jobs that are paid on the basis of time units for specific tasks. This is often the case in informal units, as well as for certain occupations, such as teachers, medical doctors or lawyers. The hours paid for are, in these cases, equivalent to the hours actually worked.

Normal hours of work

83. The concept normal hours of work is defined as the number of hours fixed by or in pursuance of laws and regulations, collective agreements or arbitral awards, to be performed in paid employment jobs over a specified daily, weekly, monthly or annual reference period. This proposal remains consistent with the Tenth ICLS but splits that definition into two in order to distinguish the normal hours that may be worked by people (notion of maximum), as embodied in legal norms and documents, from the hours expected to be worked by individuals and fixed in practice by employers in written employment contracts or in implicit (verbal) work agreements.
84. Normal hours may differ for persons in different groups of paid employment jobs or for persons or jobs within different occupational or industry groups. The concept refers to collective, prevailing working hours that apply to persons in paid employment covered by normal hours legislation, etc.
85. Normal hours in countries where this legal concept is widely used may also apply to persons in self-employment who follow such normal hours. Their practice of these hours may be related to hour limits mandated for normal “opening hours” or for other work relationships. Care should be taken when applying this concept to the self-employed not to confuse hours of “presence” with hours actually worked, for example after “closing time”.

Contractual hours of work

- 86.** Contractual hours of work is defined as the hours expected to be spent on productive activities in a job as predetermined by individual explicit or implicit employment contracts of persons in paid employment. Contractual hours may include contractual overtime, but not cover other regular or irregular unpaid overtime hours. The number of contractual hours in a job may vary between reference periods, depending on the organization and scheduling of the job and/or the length of the reference period. Contractual hours do not apply to persons in paid employment jobs that are paid for work done, as compared to hours worked.
- 87.** Establishments employing workers who belong to groups covered by legislation or collective agreements have to apply such normal hours and working schedules on their premises. In practice, however, they may offer shorter or longer working schedules than the normal hours. These contractual hours may be stated as “full time” or as a percentage of normal full-time hours. The periods during which employers expect workers to (be available to) work may be stipulated in an explicit way through written employment contracts, and/or in internal regulations where work schedules are set out. These expected schedules may also be understood implicitly, as in oral work agreements between workers and employers. Implicit agreements may also exist according to the type of working arrangement connected to a job or that was specified in the job advertisement.
- 88.** Contractual hours in the same work setting or establishment may differ for individual jobs and contracts. The number of contractual hours of work in a contract may be equivalent to that established in conformity with the prevailing normal hours of work. In contrast with normal hours of work, however, contractual hours will be specific to each job and person and may distinguish between part and full-time schedules and other special time arrangements that are followed by different individuals. The measure of contractual hours is individually based and distinct from the collectively defined normal hours of work concept.
- 89.** Self-employment jobs and household service and volunteer jobs have no contractual hours. In some countries, contractual hours do not exist or are not common for many paid employment jobs. One of the main purposes of statistics on contractual hours for users will be to apprehend the degree of connection to the labour market and/or to all work activity in terms of the number of hours that individuals in the economy are expected to work.

Hours usually worked

- 90.** Statistics of hours usually worked relate generally to the hours most commonly or typically worked in a short period of time, over a long observation period. The short reference period used to measure hours usually worked may be one week; the same as the reference period used to measure employment or household service and volunteer work. This is important in order to be able to exclude other periods of inactivity or unemployment that may occur outside of the reference week, which will affect the typical hours over the long observation period. The “typical” value may be considered as the modal value of the distribution of the hours actually worked (per week) over the long period. This will reflect the inclusion of overtime hours that are regularly worked and the exclusion of absences that are only irregular in nature, hence do not unduly influence the typical schedule.
- 91.** Hours usually worked are useful to measure the hours in the short weekly period over the long observation month, season or year, independently of whether or not persons possess an employment contract. For persons with relatively regular or steady work patterns over the weeks, its measurement should be straightforward. The relevant long observation period selected may depend upon the stability of work schedules. For sales and agricultural

jobs with different schedules during the high and low commercial or agricultural seasons, it could be the current season. For most office-based clerical jobs, the choice of long observation period may be irrelevant because their working schedules tend to be stable. Among temporary and casual workers, the relevant long period could be the current working period or season. The long observation period may also be set as a function of the frequency with which data is collected.

92. Hours usually worked are applicable to all jobs. They are of particular relevance for persons in groups of jobs such as self-employed jobs and some jobs in household services in which there is no employment contract stating the expected number of working hours. They are also useful when collected for paid-employment jobs where the contractual hours are continuously lower than the hours actually worked.
93. The concepts of hours usually worked and contractual hours of work may result in the same number of weekly hours for many persons in paid employment. Both concepts could be considered as parallel concepts that may meet similar user requirements. Nonetheless, there are important differences. Hours usually worked include all regular overtime and exclude all regular absence. The number of hours usually worked will be the number of contractual hours plus non-contractual overtime hours performed on a regular basis (often unpaid overtime hours) minus regular absences from work, for persons having contractual hours. For persons in the same job whose typical weekly hours may have changed before the reference week, hours usually worked will show the distribution of the two levels, while contractual hours will provide the new level.

Overtime hours of work

94. Overtime hours of work are the hours actually worked during a short, specified reference period in excess of contractual hours. They are also any hours defined as overtime in the employment contract, where relevant. The concept of overtime hours applies also to part-time employment contracts. They are the hours actually worked in excess of the part-time contractual hours (even though the cumulated hours may not exceed legal (full-time) limits per day or per week). This concept applies to paid employment jobs with explicit or implicit employment contracts. Self-employment jobs and jobs in household service and volunteer work with no employment contract nonetheless may also perform hours longer than their hours usually worked. These overtime hours are the hours actually worked in excess of the hours usually worked. Regular overtime hours are the hours usually worked in excess of contractual hours.
95. Overtime hours of work may be paid in cash, kind or service at the same rate as the other hours in the job, or paid at higher rates, or compensated with paid time off at later periods. Unpaid overtime hours may be compensated with time off from work but they may not necessarily be compensated at all.
96. The concept of overtime hours excludes hours actually worked in excess of contractual hours that occur as a result of working-time arrangements (such as flexitime or shift work). In practice, when the hours actually worked over the whole rotation period are higher than the contractual hours for that period due to modifications permitted within scheduled rotation periods, which may vary depending on national circumstances, these should be excluded from overtime. Also, in practice jobs may experience both overtime hours and absence from work hours during a short reference period; in these cases, the overall effect of overtime performed and absence hours not worked may not change the hours actually worked under the contract.

Absence from work hours

97. Absence from work hours may be defined in relation to contractual hours where they exist, and to hours usually worked where no contractual hours exist. Absence is the excess resulting from the number of contractual hours compared to the hours actually worked during a specified short reference period, such as one week in the first case. These absence hours include leave periods taken according to the employment contract that also may refer to part-time employment contracts. Where contractual hours do not exist, absence hours are the number of hours usually worked in excess of the hours actually worked during the short reference period.
98. Time that is not worked during the reference period as a result of rotation periods in work arrangements, for example of a shift not worked or flexitime taken off, is excluded from absence hours.
99. Absence refers to time not worked due to events such as working persons falling ill, a machine or system breaking down, or the weather becoming so inclement that one cannot work or reach work locations (if outside the home). In some cases, and not only for paid employees, persons may be forced to stop working due to lack of clients. Such absence may be more common among the self-employed.
100. Absence refers also to time not worked due to positive or socially desirable events, such as vacations, maternity and paternity leave or educational leave. Terms such as absenteeism or time lost give a negative connotation that rules out the positive elements and other aspects of the reality that some absence can be unpaid or is involuntarily imposed on working persons and on economic units as well (such as bad weather). The 13th ICLS (1982) also defined temporary absence for specific reasons.
101. It is useful to distinguish between regular absence hours (an element of hours usually worked) and irregular absence hours, as well as between paid and unpaid absence.
102. The resolution includes a list of examples of reasons for absence from work. These include annual leave, illness or occupational injury leave, maternity or paternity (parental) leave and other care leave for dependants (including the elderly). They also cover educational leave and other types of personal absence, such as for military conscription, jury duty, death in a family, etc. Further reasons for absence relate to compensation for overtime hours (distinct from flexitime off) and absence affecting or stemming from the economic unit, workplace or establishment for technical or economic reasons, industrial relations processes, including disciplinary sanctions and strike activity, as well as absence caused by bad weather. Absence for public holidays varies in number of days from country to country. The list is not exhaustive; nor does it imply that countries must collect information on each of the given reasons for absence.
103. Absence data from statistics aimed at measuring working time may not be complete to study the phenomenon of absence in general. Separate international recommendations exist for absences specifically associated with strikes and lockouts and with occupational injuries that affect the economic unit. Statistics on absence from work hours contribute to the study of variations in total hours actually worked and of movements in employment estimates, and also help to monitor the state of health (including maternal health) of workers. The comprehensive treatment of absence requires information on all absences and their duration by important categories, including health, education, family context and public holidays.

Working-time arrangements

- 104.** The concept working-time arrangements describes the characteristics that relate to the organization and scheduling of work and non-work periods during a specified reference period, such as a day, week, month, year or longer period. The resolution clarifies two characteristics – “organization” and “scheduling”. The former relates to the length and the timing of the hours in the job. Length refers to number of hours worked on a daily or weekly basis or number of days worked, for example per week (short reference period) or part-year (long reference period). The length is compared to a norm that will be based on national circumstances. The other variable under organization relates to the timing when the hours are performed, such as during core hours or not, during the night or on weekends, which are generally considered as days of rest.
- 105.** The characteristic “scheduling” relates to the stability or flexibility from one period to the next of the above variables “length” and “timing” in jobs, over a specified period. It describes, for example, jobs whose entry and exit times change from one rotation period to the next or jobs with shift periods that may be flexible from one period to the next. Flexitime arrangements of seafarers on vessels, for example, may be modified at any time by skippers for immediate safety reasons, suspending regular schedules of hours of rest until the normal situation is restored, with subsequent provision of an adequate period of non-work (Seafarers’ Hours of Work and the Manning of Ships Convention, 1996 (No. 180)). Characteristics may also refer to more than one feature of stability or flexibility, such as a fixed part-time job that also practises a flexible schedule each week or month.
- 106.** Working-time arrangements are applicable to all types of jobs and all types of arrangements, in all settings. This also means jobs in all sectors, including in the informal sector, in rural, agricultural communities (whose working-time arrangement may be work from sun up to sun down), as well as informal employment jobs in the formal sector.
- 107.** Specific combinations of the characteristics of working-time arrangements generate what may be called “formalized working-time arrangements”. Formalized working-time arrangements are recognized by law, collective agreement, etc. They are generally established explicitly in written employment contracts. They may be established implicitly in oral agreements, based on the conventional, legal norms or collective agreements, or the rules or practice followed by establishments. These are applicable to persons in paid employment jobs whose establishment practises them. Formalized working-time arrangements are also applicable to self-employment or household service and volunteer jobs that practise an arrangement (such as fixed hours or part-time). Self-employed persons, it may be argued, are not subject to working-time arrangements in the usual sense. They may decide themselves when and for how long they work. Nonetheless, the individual working-time arrangements of self-employed persons in atypical jobs may not be as self-decided as could be inferred from their status in employment. In fact, they may follow a pattern based on work requirements, “imposed” on them by their clients or customer contracts, or necessitated by regular office hours, or personal or household preferences (such as fixed opening hours, school hours).
- 108.** Among the various possible combinations of characteristics that have generated existing formalized working-time arrangements, many may go by different names depending on the country. It is therefore considered useful to provide a typology and description of the features of well-known formalized arrangements in an annex to the resolution, which could be updated more frequently than the body of the text, if necessary.
- 109.** The comprehensive treatment of working-time arrangements and formalized working-time arrangements will entail collecting information on further characteristics that relate to the choice, control or influence that working persons have over their arrangement itself or

some of its characteristics and to the extent to which the arrangements are chosen by individuals or imposed on, for example, employees in an establishment. Other important factors concern the predictability of the characteristics (such as advance notice given regarding shift assignments or the prevalence of discussion or consensus between workers and employers about the characteristics or arrangements), and the duration of arrangements for individual jobs. The number of arrangements practised in countries, industries, regions, establishments, etc., by the nature of their stipulation (by law, contract, custom or determined for oneself) and the type of work location where arrangements are practised, such as fixed or mobile locations, establishments, at home, by type of arrangement, is also useful.

5. Methods of data collection

Measurement issues

110. Given the development of the range of statistical sources available in countries (see figure 5.1), guidance concerning the specificities of measurement for the various working-time concepts is considered necessary for revised international standards. A number of key measurement issues, such as the type of unit, the reference period used and approaches to question formulation may be common to the various sources of data. However, for countries wishing in particular to develop (or improve) a data collection source for working-time statistics, the resolution presents the guidelines according to type of statistical source. This is expected to improve the usefulness of the revised resolution. The important advantages and disadvantages of each different statistical source are therefore described. Guidance and cautions regarding their use for the separate working-time concepts are discussed, as are the different computations possible, adjustments to be made and the use of supplements from other sources where multiple sources exist. The use of a single source is not considered to be the best solution if more than one source is available.

Figure 5.1. Statistical sources

Type	Possible statistical data sources			
	Concept content	Detail	Concept coverage	Reference period
ES, AR	Administrative concept; paid hours; contractual hours	Heterogeneous; depends on reporting	Limited; worker and industry	Long
HS	Possible to control – in practice close to administrative concept	Heterogeneous; depends on questionnaire	As complete as possible	Short; full-year possible when continuous
TUS	Greatest control possible – in practice close to administrative concept	Homogeneous; generally vast	As complete as possible	Short; full-year possible when continuous
POP	Possible to control	Heterogeneous; depends on questionnaire; generally minimal	As complete as possible	Short; full-year possible

AR = Administrative records; ES = Establishment survey; HS = Household survey; POP = Population census; TUS = Time-use survey.

Source: ILO Bureau of Statistics, 2007.

111. Theoretical concepts must be measurable. The revised resolution assumes that data collection in statistical surveys of both establishments and households/persons is eased if conceptual definitions are in line with a common understanding of the terms used. Working time may be a familiar concept, but individuals or employers may have their own understanding of the term. For the purpose of implementing the measurement of all of the concepts and definitions, the methodological recommendations are made in terms of the most complete person, time and concept coverage and relate to question formulations by source .

112. To obtain in-depth information on the more problematic components of hours actually worked (such as work at home, commuting time, short breaks), on overtime and absence from work during the reference period, and on working-time arrangements, countries will need to establish the balance between the level of detail desired and the capacity of their statistical sources to provide it.

Definition of units

- 113.** The revised resolution adheres to the principle that the basic unit of data collection for statistics of working time is the job, although it recognizes the importance of statistics being available for both jobs and persons. For working-time measurement, the job relates to paid and self-employment jobs and to household service and volunteer work.
- 114.** Measures of working time in establishment surveys generally use the job as the unit rather than the person. Often these surveys will collect only aggregated data for groups of jobs belonging to persons with similar characteristics (such as sex, age group, occupation, status in employment or work schedules of the persons performing these jobs). Working time can be collected for averages of hours paid for, for groups of workers or for the number of jobs by different categories of hours paid for, and in various categories of working-time arrangements for groups of jobs practising the same arrangements. If the number of jobs is collected, the average number of hours per job or per group of jobs in each establishment/enterprise can yield the distribution of average hours by establishment variables, such as industry or size of establishment.
- 115.** The hours actually worked of multiple jobs in household-based surveys may be counted differently; the unit is the person but it is possible to obtain separate information for each of the jobs and all jobs held by this person. Alternatively, information may be collected only for the main job. The main job is defined as the job with the longest working time. This is understood to be the job to which the most time is devoted overall; preferably the job with the longest average contractual hours or, when contractual hours are not available, with the longest hours usually worked. The hours from establishment-based surveys will always be counted as separate jobs.
- 116.** The job may be more appropriate to measure labour input because in each job the working time is assigned to its corresponding economic activity and status in employment category; not to the activity and status category of the main job only. This allows for disaggregation by economic activity and for a correct distinction of working time in paid and self-employed jobs. For labour market analysis, especially for the socio-demographic analysis of persons in employment or all work, the measurement of hours actually worked by persons may be preferable. This implies that hours actually worked in all jobs are aggregated for each person.
- 117.** The observation time unit chosen by convention is generally of one hour. Working-time concepts are formulated in terms of "hours" of work or "hours" not worked. International statistical standards have established the "one-hour" time unit when defining or referring to employment. Working time can also be measured in terms of days and converted to hours for presentation of the statistics. The Tenth ICLS resolution recommends this practice, which is not retained in the revised resolution because it can be misleading as it conveys a level of precision that may not be reliable.
- 118.** The time unit used depends on the measurement feasibility and objectives (broad estimates of annual vacations or very precise estimates of direct and related hours actually worked). Data collection methods also influence the time unit used. Household-based surveys may use time units of one hour or less. Administrative registers will record the time units necessary to their specific purpose and establishment-based surveys will generally use a day or more but may record more precise hours for certain time not worked (in periods of economic loss).

Reference periods

- 119.** The reference period often implemented in household-based surveys for working time is a short reference period of one day or one week, often measured in terms of hours. The reference period implemented in establishment surveys, in contrast, is a long reference period of one month or one year. For national accounts and production statistics generally, a measure of volume of work is required for a period longer than one week, such as a month, quarter or year.
- 120.** The resolution determines the reference period for each concept, which may be short – a day or a week (which may then be aggregated for longer reference periods) and/or long, such as a month, quarter, season or year. The latter imposes some measurement problems which are addressed below. Measurement of the distribution of working time for employed persons for the short period is more developed and used in countries and at the international level.
- 121.** Continuous household-based surveys provide estimates for a long reference period based on observations for all of the weeks in the long period, with adjusting for any days not covered, where relevant. For non-continuous household-based surveys, targeting the desired reference period implies extrapolation to those periods not directly covered by the survey. The resolution recommends spreading the sample over the year rather than expanding the reference period in order to capture seasonal variations and calendar effects on the working-time concepts. Use of a short reference period helps to minimize measurement error associated with recall problems. Non-continuous reference periods may introduce bias when the observed values are not representative of the non-observed values.

Household-based surveys

- 122.** Household and person-based surveys can collect most working-time concepts for persons in all types of employment, for the population as a whole and for all jobs, including in informal employment and in household service and volunteer work, for a short reference period. Special labour force surveys or modules to general household surveys with supplementary question sequences are also able to collect good estimates of working-time concepts, including for household service and volunteer work defined within the SNA general production boundary. They may also yield information on components of activities that will indirectly improve measurement for certain groups of persons in employment, such as in farming and teaching activities. Measurement of the working time of producers of unpaid household services and volunteer services for households and non-profit institutions not operating in the market will certainly involve the development of specific question sequences within such surveys to obtain an estimate of all time spent in the reference period on the different types of activities involved (coaching children in schoolwork, housework, preparing meals, etc.), prompting for their identification and recollection by respondents. Some national experience already exists.

Question formulation

- 123.** To ensure that the producers of the statistics are able to implement the correct definitions in household-based surveys, the use of supplementary questions is recommended. This, however, may imply increased cost and response burden, with surveys being at greater risk of response errors. The advantage is that concepts initially perceived as very difficult to measure in surveys can be measured through well-designed question sequences. As information on hours actually worked is particularly prone to rounded answers and to recall problems due to hours being the small units they are, the resolution describes possible approaches.

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124. In a labour force sample survey, questions on hours actually worked and absence from work hours should, if possible, be collected for each job separately or for the main job and all other jobs at least. It is recommended to filter question sequences separately for paid and self-employed jobs, then probe for all jobs in the reference period in order to collect data regarding multiple job holders.
 125. Collecting information on the contractual hours or number of hours usually worked, prior to the hours actually worked, is recommended as being easier for respondents to remember because it relates to employment contracts or to the typical working schedule (including for proxy respondents). For employed persons with a contract, specifying the number of contractual hours is more clear-cut than giving the hours usually worked. For paid employment, hours actually worked can be computed by interviewers based on contractual hours and on use of follow-up questions that prompt for any hours of overtime and/or absence.
 126. For self-employment, for employees in informal employment and for household service and volunteer work, information on the hours actually worked is best collected day by day for the reference week, and for each job separately in the same manner. For adequate measurement of all components of the hours actually worked in multiple jobs, and total hours in all jobs, detailed questions on work at home, short breaks, etc., help to reduce response error and improve data quality, although the overall number of questions then increases. The working time spent on household service and volunteer jobs that have many work activities and that may change frequently in the course of a short period such as a day (or that may alternate on a daily basis) should be estimated for the total time spent, based on prompting for all of the possible types of activity that should be included and may not be considered. The question formulations for these jobs may require further testing in national circumstances.
 127. Many respondents in labour force surveys have very irregular work activity and therefore working time. In practice, the main way to obtain hours usually worked will be to compute the modal value of the distribution of hours actually worked of the job over a short period, for specific longer observation periods that may be less than or up to a year. When the modal value is not meaningful, the median or mean number of hours actually worked may be used to determine hours usually worked. There are more and more situations where the typical working time varies in a certain pattern, for example, from week to week or over a longer period. In such cases, to determine the hours usually worked the median number of hours actually worked in the job over the weeks can be used. Hours usually worked can also be obtained by subtracting from the number of contractual hours any irregular overtime and adding back regular hours of absence where relevant. If the arithmetic mean number of (weekly) hours actually worked in the job is computed over a long period, then any weeks of unemployment or inactivity are to be excluded.

Time-use surveys

128. Time-use surveys can capture detailed information on all productive activities performed within a short period, when all activities are recorded. They can prove effective in measuring working time and certain aspects of working-time arrangements (such as daily or weekly flexible working schedules). They can also yield good quality measures of absence from work hours. Time-use surveys may also be the more common collection method to obtain working time for household service work, including volunteer work.
129. The overall quality of statistics collected using the time diary will depend on the capacity and willingness of respondents to use the diary. The level of detail of the information obtained regarding specific activities carried out in all locations where any productive activity takes place may not be adequate when work activity is not the focus of the survey. These constraints are not specific to working-time measurement. This source is very useful

for adjusting and improving estimates of hours actually worked and refining the questionnaires in other household-based surveys.

Population censuses

- 130.** The population census can yield statistics on hours actually worked or hours usually worked for small geographic areas and for small population groups. Where the census is the only data source available (especially in statistically developing countries), the resolution recommends the introduction of at least one question on one of these working-time concepts. The question sequence may consist of a single question on hours actually or usually worked during the reference period in respect of the main job or economic activity, or of all jobs or economic activities. A set of questions over a single question on each concept and on the main or combined jobs/activities, or separate questions on each concept in respect of the main job/activity and of all other jobs/activities, should improve measurement accuracy. Census operations generally, however, may not have the interview time and questionnaire space required for a thorough set of questions to obtain the hours for each day and for each job or activity in the reference period. Although the data quality will be less good than other household-based surveys, there is the benefit of obtaining national estimates of working time.

Mixed household-enterprise surveys

- 131.** Another important, although more infrequent, source that may be of particular relevance in developing economies, is mixed surveys that target informal-sector units. This source is useful for obtaining information on working-time concepts such as hours actually worked or hours usually worked for workers in the informal sector, many of whom work in private dwellings. Such surveys may resemble household-based surveys and their interviews of self-employed persons. Nonetheless, given the costs it is often not possible to integrate many variables nor to provide adequate interviewer training, so data quality can be an issue.
- 132.** Agricultural surveys of farm employment may also collect information that could be used to produce estimates of hours usually worked in agricultural holdings for the computation of agricultural labour input over a long reference period such as a year.

Other measurement-related issues

- 133.** Full-time hours, although not defined internationally, may be defined in countries in reference to normal hours. Part-time working hours could then be defined as a percentage of normal hours. These notions may be defined at the establishment level and differ from a collective norm (where relevant). The approach to measure full-time and part-time work in household-based surveys as a working-time arrangement is usually self-reported in the sense that respondents classify themselves as part-time or full-time workers. As a result, some persons identified as part-time workers may work hours in excess of normal hours in the country while some workers identified as full-time might work fewer hours than normal hours. For this and other reasons, it is difficult to develop an objective measure of part-time hours.
- 134.** The effect on the measurement of absence from work hours of the employment definition used in household-based surveys can be important. Countries that have a more restrictive employment definition, which excludes persons absent from work on periods of extended absence, will identify fewer persons absent from work and fewer days of absence from work than countries with a wider inclusion in their definition of employment of persons on extended leave.

Establishment-based surveys

- 135.** The resolution describes the types of data that can be collected from establishment-based surveys and that relates mainly to working-time concepts linked to payments and to employment contracts. These are generally the hours paid for, contractual hours, paid overtime hours and those absence from work hours that are recorded to monitor entitlements. Data on formalized working-time arrangements practised in the establishment may also be produced, as well as statistics on normal hours of work, hours actually worked and leave entitlements. There may be limitations that make establishment-based information more problematic, as in countries with a large informal sector that will be poorly covered by this source. Similarly, the hours of some of the more atypical forms of employment, of casual workers or of persons not covered in the scope of the survey, such as the self-employed, may not be captured and may need to be supplemented by other sources.
- 136.** This source may cover all or a subset of employees and establishments. Establishments may collect aggregate-level information as averages for groups of jobs and, less commonly, for individual jobs. The data from this source will be for a long reference period, such as a month or a year.
- 137.** Contractual hours may be specified in groups of hours, as a percentage of normal hours of work for full-time work, as full-time/part-time units, or as the number of hours. In some establishments the information may not be recorded as exact hours, but as a percentage of “full-time” jobs (as establishments will usually know the number of hours that constitute full-time work in different jobs). The contractual hours may correspond to normal hours of work if normal hours is a concept used in the country. Questionnaires should collect information specifically about payment of particular activities, such as paid lunch breaks, commuting time, changing time, short breaks as well as absence and overtime that may be paid.
- 138.** If establishments do not report the hours paid for or hours actually worked, they can be derived based on contractual hours of work. Anticipating that all contractual hours are paid if performed, the hours paid for can be computed from the number of non-contractual paid overtime hours minus unpaid absence hours added to the contractual hours. If each of these elements is requested in questionnaires and reported separately, then the information will help to perform quality checks and enable the national statistical agency to produce hours paid for when this is not produced at the establishment level.
- 139.** Some establishments may be unable to report working-time concepts for some groups of employees. These may be management staff or persons who are not paid on an hourly basis. Nonetheless, countries should note that such figures, although biased as a result of their incomplete coverage, can usefully be analysed to detect and observe changes in working time.
- 140.** For establishment-based statistics to reach full population coverage, the statistics may need to be supplemented by estimates of the hours actually worked of self-employment jobs or of employees in out-of-scope units (such as small establishments, agricultural or informal units, or household service and volunteer units). The levels of hours actually worked may systematically differ from those of employees in in-scope units (for example own-account workers often have longer hours than employees) and need to be accounted for.
- 141.** Where establishment surveys cannot capture working time for some atypical forms of employment or casual work, or the hours of the self-employed or contributing family workers, estimates for the hours actually worked by such persons not covered in the source will need to come from household-based statistics and/or relevant administrative statistics in order to achieve full-population coverage.

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142. Where the reference period is shorter than required, data from repeated observations (continuous collection) is the best option. To cover the required long reference period extrapolation is required for any missing periods and, in principle, for all elements used to derive hours actually worked from hours paid for or contractual hours.

Administrative registers

143. Administrative registers can usefully provide information for the working-time concepts linked to employment contracts, such as contractual hours, hours paid for, compensated absence from work hours and normal hours of work, including leave entitlements. The records relate to jobs and persons covered by the registration so the information recorded on working time may not conform to statistical definitions. Nonetheless this source can yield information for records individually and for all records, as well as for long reference periods, such as a quarter or a year.
144. The data from this source may come from records of social security institutions, labour inspectorates and other registrations specified in collective agreements or legislation. Depending on national circumstances, records of income or tax registers on income from employment and income from benefits may be a useful source, in conjunction with information from other survey data, to calculate hours paid for and certain compensated absence hours.
145. Registers of information for filled jobs usually contain more details on working time than those for job vacancies or jobs sought. By its very nature, the information on working time contained in administrative records will necessarily be restricted. In the case of administrative records held by public authorities, the unit reporting the information is normally the employer, meaning that data is collected for jobs. When reported at the job level, the authorities may aggregate data at the person level where possible and depending on the purpose of the register.
146. Administrative register-based reports will generally cover information on contractual hours. The contractual hours may only be specified in groups of hours, as a percentage of normal hours of work for full-time work, or as full-time/part-time units, instead of number of hours. Pension and social benefit agencies register the contributions paid into the system to reflect normal hours of work or hours paid for by the system, or hours of certain absences, such as due to own illness.
147. Administrative registers generally cover all periods of the year. They are useful to supplement information from surveys not run on a continuous basis. Registers, by definition, cover specific groups of persons in employment, and in some countries also in household services. Their coverage is not affected by sample-related error. However, there may be underreporting, especially of vacancies and jobs searched for, and of groups not covered, such as (illegal) immigrant labour. Registers provide detailed breakdowns for the groups, sectors or industries covered that may not be possible from sample surveys. The number of characteristics contained, however, may be limited and the classifications used may not be standardized between registers and with the statistical system. The possibility of identifying reference periods in registers is important for the quality of the statistics.
148. The overall quality of the data collected as the basis for statistics and analysis depends on the purpose of the register, its objectives as determined by the administrative agency and the type of registrations kept in the responsible agencies. Legislation determines these responsibilities and practices specific to the administrative agencies. It is important, therefore, that the statistical and administrative authorities within countries coordinate their efforts to achieve the most efficient use of such data from administrative registrations for statistical purposes.

6. Compiled measures

149. Among the various working-time indicators, compiled measures, also referred to as derived measures, are widely used. The total hours actually worked by all persons in all jobs in a country, geographical region or economic sector, and by categories of working persons or jobs (such as by different occupations, industries or statuses in employment), during a long reference period, is also known as the volume of employment or labour input. For its measurement, countries will need an adequate measurement of all hours actually worked, total coverage of the reference period (however defined) and complete job or person (worker) coverage. Inclusion of the hours actually worked in household service and volunteer work in this measure, if it is to be used for national accounts that exclude such activities, may not be pertinent.
150. The annual hours actually worked per working person is another related measure. This compiled measure is important to describe working time in the various sectors of the economy, its relation to working-time arrangements and to compare different economies. Its computation method(s) should therefore be agreed on internationally in order not only to evaluate differences in national methodologies but to progress towards improved harmonization to best serve the purpose of international comparisons. An estimate of the annual hours actually worked relates to the average hours actually worked per worker and per year, in the economy or for a group of workers. Alternative denominators (discussed below) will result in a different measure each having its applications. Annual hours incorporates variations in part-time and part-year employment, in annual leave as well as in flexible daily and weekly working schedules. This is an important complement to the conventional measures of weekly working time in employment.
151. Statistics of working time suitable for national accounts relate to the hours performed in domestic economic units. The hours actually worked from household surveys cover only the hours performed by a subset of the resident population. Since the coverage of each is different, it is necessary to make adjustments so as to include persons working in domestic economic units but not resident in the country, or living in resident institutional households, who may be excluded from household-based surveys, and to exclude those in the resident population working in non-domestic units. Guidance is provided in the resolution to deal with these issues.
152. Economic indicators such as labour cost per hour and labour productivity both use estimates of volume of employment as denominators. The two indices are very sensitive to changes in the estimation of volume, therefore it is essential that international consensus be reached in order to perform reliable analysis as well as for the purpose of international comparisons between countries.

Total hours actually worked

153. Total hours actually worked expresses the aggregate number of hours actually worked by all persons in all jobs for the required group (such as economic sector, geographical region) over a specified, generally long, period that may be a month, quarter or year. The SNA considers the number of hours actually worked to be the preferred measure of labour input to be used as the denominator in labour productivity computations.
154. To compile total hours actually worked, data from more than one statistical source is usually needed to achieve acceptable results in line with national accounting requirements. This will depend on the range, type and quality of available information in countries. Measures of hours actually worked in employment may be directly available from a

household survey that collects data on working-time concepts, whilst establishment surveys (and administrative registers) will generally require other computations.

155. For non-continuous household surveys, targeting the required long reference period will imply extrapolation to periods within the reference period that are not directly covered. For surveys carried out only a few times during a longer observation period, and if the reference week is chosen to avoid special weeks containing public holidays or similar, extrapolation can be more difficult, therefore the draft resolution draws attention to some of the issues to take into account, such as possible calendar effects, regulations about working time specified in legislation, collective agreements and arbitration awards, and data from other statistical sources. The quality of extrapolation is essential for level estimates and may also have an impact on estimates of change, depending on how representative the survey weeks are for the variables measured.
156. For statistics based on establishment surveys or administrative registers where the reference period is shorter than required, it is preferable to use data from repeated observations (continuous collection) if that is an option. In order to cover the required long reference period, extrapolation will be required for any missing periods. In principle it is also required for all elements that are used to compile the hours actually worked from hours paid for or from contractual hours.
157. As establishment-based surveys may not reach full population coverage, the statistics may need supplementing by estimates of the hours actually worked, for example of self-employment jobs or of employees in out-of-scope units. These may be small establishments, agricultural or informal units and household service and volunteer units. The levels of hours actually worked for jobs in these units may systematically differ from the in-scope units. For example, own-account workers often have longer hours than employees, a factor also to be allowed for.
158. Calculations by components will start with the hours of paid employment jobs, to which the estimates of the hours of self-employed jobs should be added. Estimates of the hours worked in unregistered or “underground” work also need to be added.

Annual hours actually worked

159. The resolution defines the average hours actually worked per employed person during the year. This unit currently varies, depending on the country, as does the annual period, which is usually the calendar year. The ideal measure would need to comprise all hours dedicated to producing the goods and services accounted for in production statistics in countries during the accounting year. These statistics cannot be obtained directly using conventional instruments of data collection. In view of the difficulty of accurately measuring the time spent producing goods and services for the relevant employed population and for the whole accounting year, the proposal indicates different calculations of the averages to be used for the denominator.

Denominators

160. In computing annual hours actually worked, an average can be compiled using various denominators (which should be consistent with the numerator used) that will vary between countries. The choice of denominator depends on data availability and the analytical purpose of the measure. It will also have an influence on the comparability of the indicator between countries. All of these factors require assessment by the authority responsible for these statistics. Since the methods to compute annual hours are generally complicated it is

particularly important for countries to document for users the denominator used as well as the reasons for its choice.

161. *The average number of employed persons, per week, over the year:* use of total number of persons for whom the hours were counted as the denominator (for a wider measurement this could include unpaid household service workers and volunteers). If the number of persons is measured only in a limited number of weeks, extrapolations to cover all weeks should be made. If that is not carried out, that information should be made available. When using persons employed as the denominator, the rate will be influenced by the number of contractual/usual hours and both short-term and long-term absences, as well as by the number of overtime hours worked by the average number of employed persons per week.
162. *The average number of jobs over the year:* for countries using establishment surveys as their basis for calculating annual hours, data on jobs will be readily available, giving higher numbers for the denominator than the number of persons employed if calculated as weekly averages. Data may be obtained for periods other than a short reference period (a week) and should be converted to data referring to a week, on the basis of the ratio between the number of working days in the period covered and an average week for that period.
163. *The average population size (average number of inhabitants) over the year:* this figure is generally available in all countries. The number is more robust or stable than estimates of employed persons or jobs. While using persons employed as the denominator indicates how many hours each person on average actually worked, using population size as the denominator additionally includes the effect of the level of the employment rate.
164. The average number of employed persons is the denominator used by many countries and some international agencies to produce annual hours actually worked series for their members. Use of the employed population as the denominator can result in a measure not comparable between countries, as employment concepts may vary in the degree to which they include or exclude persons on extended forms of leave.
165. Use of the average number of employed persons “at work” as the denominator may remove the effect of including persons “not at work” on any given week (coherent with a numerator based on hours of persons “at work”). It may reflect the typical weekly hours. However, use of persons “at work” will overestimate annual hours actually worked since it overlooks the fact that people will not work every week of the year.
166. The choice between using employment or jobs as the denominator is important in countries where multiple job-holding is widespread. When the denominator is computed using the number of jobs, the rate obtained will be influenced by the number of full- and part-time jobs, full-year and part-year work, absence and overtime hours, etc. in the economy. When using the number of persons employed, the rate is affected, in addition, by the number of contractual hours or hours usually worked and the number of jobs people hold. Use of population size (for countries with a large share of young persons not working) may increase the denominator. In addition it will reflect whether employment is increasing or not (although the increase may be due to more part-time work) so the annual hours actually worked decrease per employed person and increase per person in the population.

Average weekly hours actually worked

167. Annual hours actually worked, when divided by the total number of weeks in the year, is defined as the average hours actually worked per week. The calculations used vary widely between countries. Some countries measure averages of punctual observations that relate to weeks with no public holidays. Different calculations of average hours actually worked

per week in one or more reference periods during the year, may relate to (a) employed persons (i) “at work”, or (ii) “at work and not at work”, and (b) per job. For countries using these weekly measures the results will inevitably be higher than for those using annual hours actually worked, and therefore will not be comparable.

- 168.** These calculations and measures are an extension of the compiled measures defined earlier. When the year is 365 days, the number of weeks is equivalent to 52.14. During leap years, when it is 366 days, the number of weeks will be 52.29. To calculate the number of weeks in a year, account needs to be taken of the fact that not all years have an equal number of days and not all years have the same number of working days.
- 169.** Given that these various denominators are possible and that their choice will depend on the purpose for the measure and the sources available (generally establishment surveys produce estimates of jobs and labour force surveys estimates of persons in employment), countries should clearly document the denominator and methods of calculation used, as well as the reasons for their choice.

7. Tabulation of data and analysis

- 170.** Information on the concepts of working time associated with the productive activities of persons can be tabulated for jobs, persons and economic units; in some cases the economic unit, job and working person are the same. These measures can be aggregated over units of jobs, persons, households and establishments, to produce summary statistics. Statistics of working-time arrangements can be aggregated according to the characteristics of arrangements and by groups of (formalized) arrangements.
- 171.** It will be useful for statistics of hours actually worked, hours paid for, contractual hours of work and hours usually worked to be tabulated by different hour bands for the number of jobs or persons, as well as for the average hours per job, person or economic unit, during the reference period. For national purposes the hour bands should be collected to allow for detailed presentation by the specific hour thresholds that are stipulated in working-time-related laws and regulations. The average hours produced per person should relate to the hours in all jobs held (multiple jobs) during the reference period. Statistics on the normal hours of work may relate to the number of jobs or persons practising normal hours, by relevant national levels of hours. The specific hour thresholds for the distribution of hours actually worked and hours usually worked of persons, and the characteristics of working-time arrangements will depend on national circumstances. It may also be useful to produce indices, in addition to level estimates, for which the percentage changes may be more comparable.
- 172.** Other variables for tabulation, such as statistics on absence from work, may be usefully tabulated according to reason for absence and by main reason/all reasons. Formalized working-time arrangements for which statistics are to be produced should be those that are most commonly practised in the country. These may relate to number of persons or establishments by type of arrangement and/or by the characteristics of arrangements, and persons experiencing the various types of arrangements. Overtime may usefully be tabulated by paid and unpaid overtime hours, the different forms of compensation of paid and unpaid overtime hours, overtime and all hours actually worked in excess of contractual hours (as a result of working-time arrangements), and overtime defined in employment contracts from other overtime hours, where relevant.
- 173.** The choice of tabulations will depend on whether the purpose is to calculate labour productivity or for labour market analysis, etc. When presenting data of hours actually worked per person by different cross classifications, the hours in all jobs held should be assigned to the characteristics of the main job, to be understood as the job in which the longest working time is spent (preferably measured in terms of contractual hours or in terms of hours usually worked when the former do not exist or are not available). When presenting data on hours actually worked per job, the hours should be assigned to the characteristics of the main job only when there is no information on the characteristics of the other job(s). Attention is drawn to the determination of the main job for all persons and situations to be systematic to avoid problems of comparison with other employment statistics. For the analysis of work–life balance and gender justice, it is important to understand the context in which working time is carried out, so cross-classifications, including by household composition and presence of members requiring care, marital status, etc., is important.
- 174.** Statistics on working time for labour productivity need to be classified by industry for the computation of sectoral productivity. They should use sector and industry classifications that are consistent with the production statistics, and where possible adhere to the International Standard Industrial Classification of all Economic Activities (ISIC).

Countries should tabulate the average hours actually worked per week calculated according to the method they decide, which should be explicitly documented.

- 175.** All statistics of working time for labour market analysis should at least be classified by sex. In addition to sex, age and level of education are important classification variables. Where possible for national purposes, countries should also attempt to classify working-time statistics in respect of branch of economic activity, occupational group and status in employment categories, as well as by institutional sector, including a category on the informal sector or informal employment, where relevant. Due regard should be taken for confidentiality and statistical significance when making appropriate cross-classifications, including regional distributions.
- 176.** In all cases it is important that precise information about the statistical sources and methods used to produce working-time estimates be publicly disseminated with the statistical results.
- 177.** Countries that compile estimates of working time for activities within the production boundary and in household service and volunteer work should tabulate and present the statistics separately, or in such a way that a clear distinction is possible between them.

8. International reporting

- 178.** The resolution regards the enhancement of international comparability as an important concern for countries wishing to compare their situation with others, not as a primary objective. It therefore recommends that data collection and processing procedures in countries be designed so as to be able to produce and disseminate information on the differences between these international statistical concepts and definitions of working time and national definitions, for all users. Definitions contained in laws, regulations, collective agreements and arbitral awards that are used within establishments or locally or that are commonly applied should also be documented, as should the adjustments performed by the national statistical authorities to provide estimates of working time that correspond to international statistical concepts for analytical purposes.
- 179.** For international reporting of working-time statistics, the minimum countries should endeavour to report is the average hours actually worked per week and, where possible, the annual hours actually worked. For countries that are in a position to report other statistics, the resolution specifies the average weekly contractual hours or the average weekly hours usually worked.
- 180.** To enable meaningful international comparisons, these statistics should be disaggregated by sex and, if possible, by industry, occupation, institutional sector and status in employment. The resolution recommends other disaggregation variables of interest, such as level of education and working-time arrangements.
- 181.** Statistics for the number of employed persons by hour bands of hours actually worked or hours usually worked should be reported according to specified broad hour bands of (a) less than 15 hours (b) 40 hours (c) up to and including 48 hours and (d) 60 hours or more. The number of workers experiencing an absence should be reported according to the following groups of reason for absence: (a) annual leave, holidays and compensation leave (b) illness and injury absence (c) maternity/parental and care leave and (d) all other reasons.
- 182.** Finally, for international standards on the measurement of working time, it is important to call upon countries, when compiling the relevant statistics and accompanying methodological information, to act in due respect of the United Nations Fundamental Principles of Official Statistics.¹

¹ <http://unstats.un.org/unsd/dnss/gp/fundprinciples.aspx>.

9. Conclusion

- 183.** As described in Chapter 1, since its foundation the ILO has been concerned with and involved in issues regarding the regulation, measurement and compilation of statistics of working time. As also explained, other international and regional organizations and one City Group have been very active in the development of statistics of working time. Following adoption by the Tenth ICLS (1962) of the still current international standards on this topic, national statistical offices have progressively implemented their own measures of working time, in part for lack of updated international statistical definitions and methods. There is the need for a revised resolution to be reviewed for the purpose of adoption by the International Conference of Labour Statisticians to replace the current resolution concerning statistics of hours of work.
- 184.** Regarding future work, a proposal by the Meeting of Experts on Labour Statistics concerning the measurement of working time (April 2008) was made for the International Labour Office to continue work to arrive at a set of best practices for an internationally agreed measurement of annual hours actually worked and to develop a manual to present measurement methodologies for working-time concepts.

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Appendix

Draft resolution concerning the measurement of working time

The 18th International Conference of Labour Statisticians,

Having reviewed the relevant texts of the resolution concerning statistics of hours of work adopted by the Tenth International Conference of Labour Statisticians (October 1962) as well as of the resolution concerning statistics of strikes, lockouts and other action due to labour disputes adopted by the 15th International Conference of Labour Statisticians (January 1993) and of the resolution concerning the measurement of employment-related income and the resolution concerning statistics of occupational injuries, both adopted by the 16th International Conference of Labour Statisticians (October 1998),

Recalling the requirements of the Labour Statistics Convention, 1985 (No. 160), and the accompanying Labour Statistics Recommendation, 1985 (No. 170), and the need for coherence with other international statistical standards,

Recognizing the need to revise the existing standards on statistics of hours of work in order to reflect the working time of persons in all sectors of the economy and in all forms of productive activity and to provide measurement methodologies and guidelines on a larger number of measures than previously defined internationally, thereby enhancing the standards' usefulness as technical guidelines to countries and hence the consistency and international comparability of the statistics,

Acknowledging that the relevance of the various measures of working time in a given country depends on the nature of its workforce, labour markets and user needs, and so their implementation will be determined largely by national circumstances,

Adopts this ... day of ... the following resolution in substitution for the resolution concerning statistics of hours of work (1962) and paragraphs 46 to 48 of the resolution concerning the measurement of employment-related income (1998).

Objectives

1. Each country should aim to develop a comprehensive system of statistics of working time that can adequately account for all labour inputs into productive activity by all persons of either sex, in order to provide an adequate statistical base for the various users of the statistics, taking into account national needs and circumstances.
2. (1) In particular the system should serve to complement the statistics of the economically active population and of the demand for labour in production, with statistics on the number of hours that persons actually and usually spend on all work activities.
(2) To aid the examination and monitoring of conditions of work, including health, safety and gender justice for all population groups, in formal and informal jobs, statistics on the number of hours actually and usually worked, how they are organized over time, and on the number of hours of absence from work in relation to the hours established by national laws and regulations are necessary.
(3) To produce indicators useful for labour-management negotiations and for economic and social analysis (such as labour productivity, time rates of wages, average hourly earnings, average labour cost per time unit, rates of occupational injuries or estimates of time-related underemployment), statistics of hours actually worked for the same reference period and by the same group of working persons as for statistics of production, earnings, labour cost, employment-related income and occupational injuries are necessary.
(4) To design, implement, monitor and evaluate economic, social and labour market policies and programmes targeting labour market flexibility, social exclusion, work-life balance and the distribution of working time in families, etc., the number of hours actually and usually worked and the arrangement of these hours for all members within families and all population groups are necessary.

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3. For all these purposes, countries should aim at consistency between the different statistics on working time, and with other labour market statistics, as well as coherence with the general statistical system.

Scope

4. *Working time* comprises the time associated with the productive activities of jobs and the arrangement of this time during a specified reference period.
5. Working time is determined in reference to productive activity as defined by the general production boundary of the current United Nations System of National Accounts (SNA). Working time includes the time spent towards the production of all goods and services, irrespective of the legality of the activity, the type of contractual agreement covering it or the age of the persons performing it.
 - (1) When the objective is to relate working time to employment statistics, as defined in the current international definition of employment, then working time is determined in reference to productive activities within the SNA production boundary. This restricted measure of working time generally serves the purposes for which national production accounts are compiled and is useful for labour market analysis.
 - (2) When the interest is to relate working time to activities within the SNA general production boundary, that are beyond the SNA production boundary, working time will refer to the time spent on all unpaid household services and volunteer production of services. This other measure (referred to as working time in “household service and volunteer work”) is necessary for the production of satellite accounts and for a broader understanding of, and approach to, labour market, economic and social policies.
6. Working time is measured for jobs in economic units, including households. A job is defined as “a set of tasks and duties performed, or meant to be performed, by one person, including for an employer or in self-employment ...”. Jobs are “... related to persons through the main job currently held, a second job or a job previously held” or a future job. Jobs occur in paid employment, in self-employment, and in unpaid household service and volunteer jobs producing services. Use of the job as the basic observation unit for working time is consistent with the international classifications of occupation (ISCO) and status in employment (ICSE) and with the principles of classification by industry according to the International Standard Industrial Classification of all Economic Activities (ISIC).
7. Working time can be measured for short measurement units, such as minutes or hours, or for long units such as half-days, days, weeks or months. The measurement unit of “hours” is used for ease of reference.
8. Working time can be observed over a short reference period, such as one day or one week, or a long reference period, such as one month, one year or beyond, including a lifespan. For national accounts and production statistics in general, working time should be measured for a long reference period.
9. Working time does not reflect the quality, intensity or efficiency of work.

Concepts and definitions

10. (1) This resolution provides definitions for:
 - (a) seven concepts of working time associated with the productive activities of persons and performed in jobs, namely *hours actually worked*, the key concept of working time defined for statistical purposes applicable to all jobs and to all working persons; *hours paid for*, linked to practice in establishments for remuneration of hours that may not all correspond to production; *normal hours of work* that refer to legally prevailing collective hours; *contractual hours of work* that individuals are expected to work according to contractual relationships as distinct from normal hours; *hours usually worked* most commonly in a job over a long observation period, applicable to all persons and jobs; *overtime hours of work* performed beyond contracts or norms; and *absence from work hours*, when persons expected to work do not work;
 - (b) two concepts of working-time arrangements that describe the characteristics of working time in jobs in periods of work and non-work, namely the *organization* and *scheduling* of working time, applicable to all jobs, and formalized working-time arrangements, that are specific combinations of the characteristics having legal recognition.

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- (2) Not all working-time concepts apply to all jobs; certain concepts apply (a) to paid employment jobs or to a subset of paid employment jobs, and in some circumstances will be relevant (b) to certain self-employment jobs. Their application is specified in each concept defined below.

Hours actually worked

11. (1) *Hours actually worked* is the time spent in jobs for the performance of activities that contribute to the production of goods and services during a specified short or long reference period.
- (2) Hours actually worked **include** the hours spent directly on, and in relation to, productive activity; time spent between these hours; and short resting time.
- (a) “Direct and related hours” is the time spent carrying out the tasks and duties of the job. This may be performed in any location (economic territory, establishment, on the street, at home) and during periods when no work is expected (lunch breaks or while commuting). This includes time spent maintaining, facilitating or enhancing productive activity and should comprise activities such as:
- (i) cleaning, maintaining, repairing, preparing, designing or administering instruments, processes, procedures or the work location itself; care activities; changing time (to put on work clothes); decontamination or washing up time;
 - (ii) purchasing raw or basic materials or resale goods; transporting persons or products to/from the market, source or home;
 - (iii) waiting for business, customers, patients or persons in one’s charge, as part of working-time arrangements and/or explicitly paid for;
 - (iv) on-call duty, whether specified as paid or unpaid, that may occur at the work location (such as health and other essential services) or away from it (for example from home). In the latter case, it is included in hours actually worked only if persons’ activities or movements are restricted, and measured as from the time when they are called back to duty;
 - (v) travelling between work locations, to reach field projects, fishing areas, assignments, conferences or to meet clients (such as door-to-door vending and itinerant activities), patients or other persons in one’s care (excluding natural repose during long trips);
 - (vi) training and skills enhancement received for jobs in the economic unit, at or away from the work location. In paid employment jobs this may be given by the employer or provided by other units.
- (b) “In-between time”, as distinct from “direct and related hours”, is time when persons in paid or self-employment jobs cannot work due to machinery or process breakdown, accident, lack of supplies or power or Internet access, etc., but continue to be available for work. This time is unavoidable or inherent to the job and involves temporary interruptions of a technical, material or economic nature.
- (c) “Resting time” is time spent in short periods of rest, relief or refreshment, including tea, coffee or prayer breaks, generally practised by custom or contract according to established norms and/or national circumstances.
- (3) Hours actually worked **exclude** time not worked, irrespective of payment, such as:
- (a) annual leave, public holidays, sick leave, parental (maternity/paternity) leave, other leave for personal or family reasons or civic duty. This time not worked is part of absence from work hours (defined in paragraph 17);
 - (b) commuting time between work and home when no productive activity is performed, even when paid by the employer;
 - (c) time spent in educational activity not intended for the economic unit even when authorized, paid or provided by the employer;
 - (d) longer breaks distinguished from short resting time when no productive activity is performed (such as meal breaks) even when paid by the employer.

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- (4) Hours actually worked occur in all types of paid or self-employment jobs under varying work and compensation arrangements, paid or unpaid. For paid employment jobs, these may occur outside of normal or contractual hours, such as overtime.
 - (5) Hours actually worked are not linked to administrative or legal concepts.

Hours paid for

12. (1) *Hours paid for* is the time in a paid employment job for which persons have received payment from their employer (at normal or premium rates, in cash, in kind or in services) during a specified short or long reference period, regardless of whether the hours were actually worked or not.
 - (a) Hours paid for **include** time paid but not worked such as paid annual leave, paid public holidays and certain absences such as paid sick leave.
 - (b) Hours paid for **exclude** time worked but not paid by the employer, such as unpaid overtime, and absences that are not paid by the employer, such as unpaid educational leave or maternity leave that may be paid through transfers by government from social security systems.
- (2) Hours paid for in relation to self-employment jobs paid on the basis of time units are equivalent to hours actually worked.
- (3) It may be useful to separately identify those hours paid for that are actually worked (as overtime or not) from other hours paid for (that are not worked).

Normal hours of work

13. (1) *Normal hours of work* are the hours fixed by or in pursuance of laws or regulations, collective agreements or arbitral awards to be performed in paid employment jobs over a specified reference period, either per day, week, month or year.
- (2) Normal hours of work may vary, depending on their regulatory source, between jobs for different groups of persons in paid employment, by occupation or industry.
- (3) Normal hours of work may apply to jobs in self-employment where fixed and practised for all jobs in a specific industry (such as opening hours for shops) or occupation (such as for drivers to ensure public safety). Normal hours of work of self-employment jobs may serve to compare with the normal hours of paid employment jobs in the same occupation or industry.
- (4) In countries where normal hours of work are widely used they may serve as the reference to define full time. Part time may then be defined as a percentage of normal hours, according to national circumstances.

Contractual hours of work

14. (1) *Contractual hours of work* is the time expected to be performed by persons in paid employment jobs as predetermined by individual employment contracts, either explicit (written contract) or implicit (verbal agreement).
- (2) The number of contractual hours of work in a job may be fixed over a short or long reference period or may vary from one period to the next depending on the organization of the job and the length of the measurement reference period. When the reference period is long, leave entitlement periods should be excluded.
- (3) The number of contractual hours of work may vary between jobs in the same occupation, industry or establishment.
- (4) The number of contractual hours of work may be equivalent to, or established in conformity with, prevailing normal hours of work; the number of contractual hours of work may include hours stipulated as contractual overtime hours, above normal hours.

Hours usually worked

15. (1) *Hours usually worked* is the typical value of hours actually worked per short reference period such as one week, over a long observation period of a month, quarter, season or year that comprises the short reference measurement period used.
- (2) The typical value may be the modal value of the distribution of hours actually worked per short period over the long observation period, where meaningful.
- (3) Hours usually worked apply to all jobs; they are of particular relevance for self-employment jobs, and for paid employment jobs where regular overtime occurs. Hours usually worked can be obtained from contractual hours by adding regular overtime hours and subtracting any irregular absence from work hours.
- (4) The short reference period for measuring hours usually worked should be the same as the reference period used to measure employment or household service and volunteer work.

Overtime hours of work

16. (1) *Overtime hours of work* are the hours actually worked during a specified short reference period such as a week, in excess of:
 - (a) contractual hours of work in paid employment jobs;
 - (b) hours usually worked in self-employment jobs.
- (2) Overtime hours of work may also be defined as overtime hours in employment contracts, where relevant (that may include part-time contracts).
- (3) Overtime hours of work **exclude** hours actually worked in excess of contractual hours of work as a result of rotation periods in work arrangements (such as flexitime or shift work) in a short or long reference period.
- (4) Overtime hours of work for paid employment jobs may be paid or unpaid:
 - (a) paid overtime hours may be paid in cash, kind or service at the same rate as the other hours in the job or paid at higher rates;
 - (b) unpaid overtime hours may be compensated with time off or not compensated at all.
- (5) It may be useful to distinguish between overtime hours:
 - (a) that are paid and unpaid, and the different forms of compensation of each;
 - (b) and all hours actually worked in excess of contractual hours as a result of working-time arrangements;
 - (c) defined as overtime in employment contracts from other overtime hours, where relevant;
 - (d) that are regular and other overtime hours, where regular overtime is hours usually worked in excess of contractual hours;
 - (e) in paid employment jobs and in self-employment jobs.

Absence from work hours

17. (1) *Absence from work hours*:
 - (a) is the number of contractual hours of work in excess of hours actually worked during a short reference period such as a week when contractual hours exist; these include periods of leave taken according to the employment contract where relevant, including part-time contracts;
 - (b) is the number of hours usually worked in excess of hours actually worked during the short reference period when contractual hours do not exist.
- (2) Time not worked as a result of work arrangements (such as flexitime off or shift work) is **excluded** from the measurement of absence from work hours.
- (3) Absence from work hours in paid employment jobs may be paid or unpaid, and may be initiated by workers or by employers.

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- (4) It may be useful to distinguish between absence from work hours:
 - (a) that are paid and unpaid; initiated by the worker and initiated by the employer;
 - (b) and all contractual hours in excess of hours actually worked as a result of working-time arrangements;
 - (c) that are regular and irregular, where regular absence hours is the number of contractual hours in excess of hours usually worked;
 - (d) in paid employment jobs and in self-employment jobs.
 - (5) Absence from work hours may occur as a result of annual leave, illness or occupational injury, maternity and parental leave, compensation for overtime (other than, for example, flexitime off), care for others – including family members, educational leave, other personal absence (such as military conscription, civilian service, jury duty, family death), technical or economic breakdown (other than specified in paragraph 11, subparagraph 2(b)), industrial relations processes (labour–management negotiation, strike activity, etc.), bad weather, public holiday, or other reasons.

Working-time arrangements

18. (1) *Working-time arrangements* describe the organization and scheduling of working time of paid or self-employment jobs during a specified reference day, week, month or longer period.
 - (a) The *organization* reflects the length and timing of the working time in a job:
 - (i) the *length* may be shorter or longer than a norm based on national circumstances, there may be fewer or more daily or weekly hours, fewer or more days worked per week for a short reference period or fewer weeks (part-year) for a long reference period;
 - (ii) the *timing* may be inside or outside core hours or core days (performed at night or at weekends).
 - (b) The *scheduling* reflects the *stability* or *flexibility* of the length and timing of working time in a job from one day, week or longer period to the next, shifts that vary every day or week, different entry and exit times, etc.
- (2) *Formalized working-time arrangements* relate to specific combinations of the organization and scheduling of working time that are recognized by law, collective agreement, etc. They may be stipulated in explicit or implicit employment contracts. Formalized working-time arrangements may be more relevant to countries where terminology and established practice is reasonably well regulated and/or standardized, and where the number of persons covered is numerically significant. In order to document the extensive range of existing formalized working-time arrangements in countries, which may be known by different names, a typology of formalized working-time arrangements is proposed in the annex to this resolution.
- (3) Working-time arrangements apply to all jobs, including in informal employment and in agricultural communities. Formalized working-time arrangements apply to paid employment jobs where the economic unit follows such arrangements and to self-employment or household service and volunteer jobs when they practise a formalized arrangement based on work requirements, personal or household preference (such as customer contracts or fixed opening hours of shops, schools, etc.).
- (4) It may be useful to distinguish further characteristics relating to working-time arrangements and formalized working-time arrangements, such as:
 - (a) the choice, control or influence of persons over the arrangement itself or its characteristics; the extent arrangements are chosen or imposed; the predictability of characteristics (such as advance notice given, discussion or consensus between parties); the duration of the arrangement for the specific (or main) job;
 - (b) the number of arrangements practised, by the nature of their stipulation (by law, contract, custom or self);
 - (c) the type of work location where practised (fixed, mobile, in establishments, at home) by arrangements practised;

Methods of data collection

19. (1) Statistics of working time can be collected through statistical surveys and censuses of households and establishments, and through access to administrative registers.
- (2) Some working-time concepts can only be measured from a single source, some others from more than one type of source. When possible and pertinent, use of a combination of data sources is preferable to meet user requirements (such as coverage, scope, response rates, sample size, response burden and costs) and to evaluate the quality of statistics obtained.
- (3) In order to achieve the most efficient use of information on working time for statistical purposes, to harmonize statistical measures and improve coverage, and to ensure appropriate recording, reporting and quality of the resulting statistics, the statistical authorities need to coordinate with the users and the providers of the information, namely administrative systems and establishments.
- (4) To ensure greater coherence for analytical purposes, working-time statistics should be collected for the same reference period and for the same disaggregations or groups of jobs as the statistics collected for employment, wages and labour costs, etc.

Household-based surveys

20. (1) Household-based surveys are well suited to collect data:
 - (a) on hours actually worked and hours usually worked, on formalized working-time arrangements and the characteristics of arrangements;
 - (b) for all persons working and all jobs, including in informal employment and household service and volunteer work;
 - (c) for a short reference period such as a day or a week; for a long reference period such as a month or a year; and when the survey is continuous;
 - (d) for persons individually and for the economy as a whole.
- (2) Household surveys are less well suited to obtain information on working-time concepts that have an administrative or regulatory base such as hours paid for, normal hours of work, or contractual hours of work.
- (3) In order to reduce errors due to problems of recall, proxy response and rounded answers it is recommended that questionnaires targeting working time be designed to:
 - (a) first ascertain the status in employment of respondents in order to filter paid and self-employment jobs for separate question sequences;
 - (b) collect information for each job separately or, at the minimum, for the main job and other jobs;
 - (c) obtain information on contractual hours or hours usually worked before information on hours actually worked, since variables that relate to employment contracts or to the typical work situation are generally easier to remember, especially for proxy interviews;
 - (d) for paid employment jobs, the hours actually worked can be arrived at after prompting for hours of overtime or absence from work that may have occurred during the reference week;
 - (e) for self-employment jobs, for employees in informal employment and for jobs in household service and volunteer work, it is recommended to collect information on their hours actually worked for each of the days of the reference week separately rather than for the whole week, prompting for all time spent on household service type activities;
 - (f) to ensure that hours actually worked is adequately measured, additional questions may target specific working-time components such as work at home, commuting time, short breaks, overtime and absence from work. Such information will serve to improve the measurement of hours actually worked for certain jobs and groups of persons in employment. Countries will need to establish the balance between the aim to obtain more detailed information and the capacity of respondents to provide it.

- (g) to determine hours usually worked, the modal value of the distribution of hours actually worked per week over a long observation period is recommended. When the value is not meaningful because the hours actually worked each week are irregular, or because work schedules are defined for periods other than the week, then the value may be determined using either the:
 - (i) median of hours actually worked in the job over the observation period; or
 - (ii) the average number of hours actually worked in the job excluding periods of unemployment or inactivity within the long reference period;
- (4) The best estimates of hours actually worked come from continuous household-based surveys that focus on the measurement of employment and cover all the weeks in the year. When the survey is not continuous, countries should aim at estimating the periods not covered and spreading the frequency of survey observation periods over the year, rather than expanding the reference period.

21. Other household-based data collection exercises may be used to provide statistics on working time.

- (1) Time-use surveys are able to produce good-quality statistics of hours actually worked, absence from work hours and on the length and timing of working-time arrangements. They capture particularly well the hours actually worked in self-employment jobs that are irregular, atypical, or carried out together with household service work in the home. This source can also be used to assess and compare the quality of and adjust hours actually worked measured by other survey instruments. Time-use surveys may be constrained by their frequency (generally non-annual or irregular), small sample size, high response burden and data compilation costs. They also face the difficulty of assigning time spent on simultaneous activities (multiple jobs) and of distinguishing paid activities outside of the household.
- (2) The population census is able to provide statistics on hours actually worked or hours usually worked for small geographic areas and for small population groups. Census operations may however not have the questionnaire space and interview time required to incorporate a set of questions for each concept, for each day of the reference period and for each job or activity. Where the census is the only available data source it may as a minimum incorporate a single question either on hours actually worked during a short period prior to the census reference date, or on hours usually worked, for the main job.
- (3) Mixed household-enterprise surveys of informal employment are able to provide statistics of hours actually worked or hours usually worked for informal sector workers for a short or long reference period. They use interview techniques close to household-based survey interviews of self-employed persons for informal workers, many of whom work in private dwellings. These mixed surveys may be constrained by overall costs resulting in limited data quality.
- (4) Surveys of agricultural employment and farm structure may collect statistics of hours usually worked in farm employment for agricultural labourers and over a long reference period such as a year.

Establishment-based surveys

- 22. (1) Establishment-based surveys are an appropriate method to obtain good-quality data:**
- (a) on hours paid for, contractual hours, paid overtime hours and absence from work hours usually recorded to monitor entitlements, and on formalized working-time arrangements. They may also produce statistics on normal hours of work, hours actually worked and leave entitlements;
 - (b) for all or a subset of paid employment jobs in the establishment, or all or a subset of establishments;
 - (c) for jobs individually, as averages for groups of jobs or for the establishment as a whole;
 - (d) for a long reference period, such as a month or a year.
- (2) The data from establishment-based surveys relates mainly to concepts linked to payments and employment contracts and to certain types of formal working-time arrangements. These surveys are less well suited to measure concepts which are not administrative or legal, such as hours actually worked and absence from work hours.

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- (3) In order to reduce errors due to differences in payment and administrative systems between establishments, it is recommended that the questionnaire obtain information about the:
 - (a) payment practices for particular work-related activities, including lunch breaks, commuting time, preparation time (including changing time), short breaks, absence from work periods and overtime;
 - (b) coverage of self-employment jobs.
 - (4) The estimates of working time from establishment-based surveys can be combined with statistics from household-based statistics and/or relevant administrative statistics in order to estimate the hours actually worked of all persons. Even where the coverage of jobs is not complete, working-time statistics may be used to indicate changes.
 - (5) The contractual hours may be specified in groups of hours, as a percentage of normal hours of work for full-time work, as full-time/part-time units, or as the number of hours. Information should be collected by components of non-contractual paid overtime hours, absence hours not paid, and contractual hours, that will allow the producers of statistics to perform quality checks or to calculate hours paid for or hours actually worked, if establishments do not provide these directly.
 - (6) If contractual hours or hours paid for are not collected specifically, other data could be used to derive them. An estimate of total contractual hours may be obtained by multiplying the number of workers distinguished by full-time and by part-time hours and adding the two products. An estimate of the total number of hours paid for may be obtained by multiplying the number of workers by their wage rates and dividing the total wage bill by this product.

Administrative registers

23. (1) Administrative registers are useful to provide information for:
 - (a) contractual hours, hours paid for, paid absence from work hours, and normal hours of work including leave entitlements;
 - (b) jobs and persons covered by the registrations;
 - (c) records individually and as a whole;
 - (d) long reference periods, such as a month, quarter or year.
- (2) The data from administrative registers may come from records of social security institutions and labour inspectorates, or from collective agreement records or legislation. Depending on national circumstances, records of income or tax registers on income from paid and self-employment can also be used with other information to calculate hours paid for and certain paid absence hours.
- (3) Data from administrative records is generally useful to verify and correct, or adjust data from, establishment or household-based surveys to obtain estimates of hours actually worked and absence from work hours due to illness, maternity, occupational injuries, and strikes and lockouts.
- (4) Registers of information for filled jobs usually contain more working-time data than for job vacancies or jobs sought.

Compiled measures

Total hours actually worked

24. (1) Total hours actually worked is the aggregate number of hours actually worked by all persons in all jobs for required groups, such as economic sector or geographical region during a specified reference period. The reference period may be short or long. This compiled measure is also known as the volume of work or labour input and refers to all jobs in the country.
- (2) Total production divided by total hours actually worked produces labour productivity indicators and serves for most other social and economic labour indicators. Total hours actually worked should have the same coverage of persons and use the same reference period as the concept of production.

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25. (1) Continuous household-based surveys produce estimates of total hours actually worked for a long reference period, based on observations for all weeks in the period. Obtaining estimates of the hours actually worked throughout the period and adjusting for days not included where relevant, produces total hours actually worked for the long reference period. In a non-continuous survey, targeting the desired reference period implies extrapolation to periods not directly covered. If the survey is not repeated with sufficient frequency and the reference week is chosen to avoid special weeks (containing public holidays, etc.), extrapolation should take account of possible calendar effects, working-time regulations and working-time data from other sources.
 - (2) When the household-based survey only collects hours usually worked, the measure of total hours actually worked will be the number of hours usually worked adding any irregular overtime hours and subtracting all irregular absence hours.
 - (3) For the purpose of estimating labour productivity for a long reference period, household survey-based estimates of hours actually worked need to be supplemented with estimates for jobs not covered in the survey (such as jobs of domestic units held by persons living in collective units or in a foreign country). The hours actually worked in jobs of persons living in the country working in foreign units need to be excluded.
26. (1) Compiling total hours actually worked from establishment-based surveys will generally start from hours paid for, or from contractual hours or hours usually worked that must be transformed into hours actually worked. The computations will depend on the data elements available:
 - (a) total hours actually worked is equal to hours paid for plus unpaid overtime hours minus paid absence from work hours;
 - (b) total hours actually worked is equal to contractual hours plus non-contractual overtime hours minus absence from work hours.
 - (2) Care must be taken to cover the long reference period and the total population by repeated or continued observations or extrapolating for any missing periods; and incorporating estimates of the hours actually worked of self-employment jobs or of employees in out-of-scope units, such as small establishments, agricultural or informal units, or household service and volunteer units.

Annual hours actually worked

27. (1) Annual hours actually worked are the average hours actually worked per employed person during a year.
- (2) The denominator used to estimate the annual hours actually worked should be the average number of persons employed (whether at work or not at work) per week over the year. If necessary, extrapolations to cover all weeks should be made and indicated.
- (3) Depending on the measurement purpose and available sources, the denominator can also be:
 - (a) the average number of jobs over the year that relates to the total hours actually worked used for the calculation of national accounts;
 - (b) the average population size over the year, a figure generally available in countries. This is more stable than estimates of employment of persons or jobs.

Tabulation of data and analysis

28. (1) Statistics on the hours actually worked, the hours paid for, the contractual hours of work and the hours usually worked may relate to (a) the number of jobs or persons by different hour bands, as well as to (b) the average hours per job, person or economic unit, during the reference period. The hour bands should allow detailed presentation by specific hour thresholds stipulated in national laws or regulations. The average hours per person should cover the hours in all jobs held during the reference period.
- (2) Statistics on the normal hours of work may relate to the number of jobs or workers practising different levels of hours.

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- (3) Statistics on overtime hours may relate to:
 - (a) the number of jobs, persons or economic units experiencing overtime;
 - (b) the average overtime hours per job, person or economic unit during the reference period.
 - (4) Statistics on absence from work hours may relate to:
 - (a) the number of jobs, persons or economic units experiencing an absence from work during the reference period, by type of absence;
 - (b) the average duration of absence from work hours per job, person or economic unit during the reference period, by type of absence;
 - (c) the average elapsed duration of absence from work up until the reference period per job, person or economic unit.
 - (5) Statistics on working-time arrangements may relate to:
 - (a) the number of jobs, persons or economic units practising relevant formalized working-time arrangements, by type of arrangement;
 - (b) the number of jobs, persons or economic units experiencing various lengths, timing and scheduling of working time.
- 29.** (1) For the calculation of average hours actually worked per week, countries that do not calculate them by dividing the annual hours actually worked by the total number of weeks in the year should specify whether they relate to average hours actually worked:
- (a) per employed person “at work” during one or more reference periods during the year;
 - (b) per employed person during one or more reference periods during the year;
 - (c) per job during one or more reference periods during the year;
 - (d) any other calculation.
- (2) For the computation of sectoral productivity, statistics on total hours actually worked need to be classified by industry. This classification should be consistent with production statistics.
- (3) For labour market analysis, statistics of working time should be presented at least by sex and in respect of specified age groups and level of education. Tabulations and analysis may include other significant demographic, social and economic characteristics important for users as well as appropriate cross-classifications, such as by occupational group, institutional sector, branch of economic activity, status in employment and, where relevant, by formal/informal sector (or formal/informal employment).
- (4) To bring to light gender justice and reconciliation of work and family life for public policy purposes, it is essential to classify working time, in addition to sex, by variables such as marital status, presence of dependent or accompanying persons (young children, the elderly and others requiring care) and the working time of other/all household members.
- (5) For all cross-classifications, working-time statistics of persons should refer to the main job. This is understood to be the job having the longest working time (preferably as measured through contractual hours or, when not available, the hours usually worked).
- 30.** As percentage changes may be more comparable, it may be useful to produce indices in addition to level estimates. In this case, it is particularly important that precise information about the statistical sources and methods of calculation used to produce these complex estimates accompany the disseminated results.

International reporting

- 31.** (1) For international reporting of working-time statistics, countries should endeavour to report at least:
- (a) average hours actually worked per week and, where possible;
 - (b) annual hours actually worked.

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- (2) Countries may also be in a position to report statistics on:
 - (a) the average weekly contractual hours or average weekly hours usually worked;
 - (b) the number of employed persons by hour bands of hours actually worked or hours usually worked;
 - (c) the number of workers experiencing an absence by reason.
 - (3) These indicators should be disaggregated by sex and, if possible, by industry, institutional sector and status in employment for meaningful international comparisons. Other disaggregation variables that may be of interest are level of education, occupation and working-time arrangements.
- 32.** For statistics on the number of jobs or persons working different hour bands, data should be collected so that it may be reported according to specified hour bands. These hour bands may be of four or five hours and in all cases should include the following:
- (a) less than 15 hours;
 - (b) 40 hours;
 - (c) up to and including 48 hours;
 - (d) 60 hours or more.
- 33.** For statistics on absence from work, the number of jobs or persons should distinguish at least the following groups of reasons for absence:
- (a) annual leave, holidays and compensation leave;
 - (b) illness and injury;
 - (c) maternity/parental and care leave;
 - (d) other reasons.
- 34.** Countries measuring working time for household service and volunteer work should compile and report the statistics in such a way that it is possible to distinguish them from working-time statistics for activities within the SNA production boundary.
- 35.** In order to enhance the transparency and comparability of all working-time statistics reported internationally, countries are urged to compile and disseminate the requisite information on national concepts, definitions and methodology and any departures from the recommendations of this resolution. Countries should, therefore, design their data collection and processing procedures to enable them to fully document:
- (a) differences between the international and national statistical definitions of working time, where relevant;
 - (b) differences between the national statistical definitions compared with legal and administrative definitions in the country;
 - (c) adjustments performed to arrive at estimates that correspond to the analytical and international statistical concepts and, in particular, inquiries undertaken from time to time to determine for each industry the ratio between the number of hours actually worked and the number of hours paid for (defined in paragraphs 11 and 12).
- 36.** All statistics on working time and accompanying methodological information should be compiled and produced in line with the need for confidentiality of persons and establishments, and the requirement of proper documentation and availability for all users, in accordance with the United Nations Fundamental Principles of Official Statistics.

Annex

Working-time arrangements

1. *Working-time arrangement* is the term to describe measurable characteristics that refer to the organization (length and timing) and scheduling (stability or flexibility) of work and non-work periods for all jobs as defined in paragraph 18 of this resolution. These characteristics also apply to ad hoc as well as unusual arrangements. Multiple characteristics (such as a part-time, flexible shift schedule) may apply as they are not mutually exclusive. Specific working-time arrangements defined for different combinations of these characteristics exist in countries and are referred to as formalized working-time arrangements. These are based on laws and regulations, collective agreements or arbitral awards and formalized in written employment contracts and/or practised implicitly in establishments by persons in paid employment jobs. Certain types of formalized arrangements (such as part-time work) are also practised in self-employment jobs.
2. The typology of formalized *working-time arrangements* presented in this annex may serve for consultation, in particular for purposes of comparison at the international level.

Organization (length and timing)

- (1) *Annualized or mensualized hours arrangements*, characterized by variations in daily, weekly and monthly working time within a weekly or monthly average or an annual total, without any requirement that the employer pay overtime rates as long as annual hours actually worked stay below an agreed maximum. Under the annualized/mensualized hours contract, the distribution of the number of hours over the month or throughout the year is generally predetermined by the employer, depending on production or service needs; but employees may be allowed to negotiate the length of their daily and weekly hours, so long as output targets can be met.
- (2) *Compressed working week arrangements*, characterized by organizing the working time over fewer days than what is considered the normal or standard working week, such as work at weekends giving rise to shorter working time during the week.
- (3) *Fixed working arrangements*, characterized by set starting and finishing hours or core hours for individuals or groups of persons in paid employment or for persons in self-employment.
- (4) *Job-sharing arrangements*, characterized by the filling of one full-time job by two or more persons, each working part time, possibly with different arrangements, on an ongoing, regular basis.
- (5) *Min-max arrangements*, characterized by a variable number of *hours actually worked* and paid for, depending on production or service needs, but with a guarantee of a minimum and maximum number of hours to be worked per reference period.
- (6) *Part-time work arrangements*, characterized by normal hours or hours usually worked that are less than those of comparable full-time work (in the same industry or occupation) recognized in the Part-Time Work Convention, 1994 (No. 175).
- (7) *Regular overtime hours arrangements*, characterized by hours worked in addition to the contractual or hours usually worked and that are compensated by the employer for paid employment jobs.
- (8) *Staggered and block working arrangements* (also known as start and end of working day), characterized by different starting and finishing hours around compulsory core hours, for individuals or groups of persons in paid employment.
- (9) *Time-saving account arrangements*, characterized by hours worked in addition to the contractual or hours usually worked with the understanding that the persons will be able to take, for example, early retirement.
- (10) *Working-time banking arrangements*, characterized by the possibility of accumulating hours, which can be taken off as extended leave in a subsequent period or used to reduce the total overall lifespan of work.

Scheduling (stability or flexibility)

- (11) *Flexible working-time arrangements*, characterized by possible daily and weekly working time scheduled outside core hours when presence at the place of employment is compulsory. Hours worked in addition to contractual hours of work for the week (or month) may be taken as leave during subsequent weeks or months, often within a deadline and up to a maximum number of hours.
- (12) *Own working schedule*, characterized by the possibility of scheduling one's daily and weekly hours and presence at the work location.
- (13) *On-call work or zero hours arrangements*, characterized by no fixed schedule of contractual hours, but a requirement that persons be available to work when called with a specified notice period, for as many hours as the employer requires up to legally specified or contractual limits.
- (14) *Shift-work arrangements*, characterized by successive daily work periods involving teams of persons, known as shifts. Shifts enable the establishment to maximize use of equipment and operate for longer than the working time of individuals. Persons may work a morning, evening, night or weekend shift. Shifts may be constant, alternate with different types of shift on a weekly or fortnightly basis (including certain free days) or consist of multiple work periods on the same day, called split shifts.
- (15) *Shift-change work arrangements*, characterized as *shift-work arrangements* with the additional feature that persons may trade their shifts with other workers practising the same arrangement.