

Labour accounts, core of the statistical system on labour

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This article reflects some of the main issues dealt with in a thesis on labour accounts, a part of the statistical system of labour. The thesis, successfully defended at the University of Amsterdam by the authors of this article, will be published in English later this year by Statistics Netherlands.

1. A statistical system on labour

1.1 A statistical system

A statistical information system on labour consists of efficiently organized statistical data. 'Efficiently organized' as an element of a system means that the system of data is more than the sum of its parts. The first step towards organizing the data is to structure the different kinds of data from a practical point of view (e.g. the viewpoint of actors and activities). The next step is to bring about uniformity in definitions, classifications and to harmonize the coverage and period of statistical surveys. However, even after this second step, the data of the system (obtained from various surveys) will still conflict because of measurement errors (sampling and non-sampling errors). A third step should consist of correcting these errors so that all the data are consistent. In practice the application of this step is limited to a selected number of variables from the statistical system on labour. This latter step results in the so-called labour accounts, a consistent body of information on labour.

1.2 The data of the system

Which data on labour should be incorporated in a statistical system on labour and which data in the labour accounts? The users of statistics require an enormous amount of data. However, only part of their wishes are made explicit to a central statistical office. At Statistics Netherlands, the statistician makes an inventory of data needs for policy-making, research and other uses, and arranges them, inter alia, according to urgency. The statistician is of course aiming for a good and balanced statistical system. However, decisions on which data to bring into the system by producing statistics are not taken by the Director-General of Statistics Netherlands but by the Central Commission for Statistics, an independent commission with up to ten members. The competence of the Commission consists of consenting to or commissioning statistical

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research. It has a number of advisory committees consisting of experts in certain areas of statistics. One of these committees is the Advisory Committee on Labour Statistics.

In the thesis, the inventory of the required statistical data on unpaid labour was based on national and international publications on well-being and time use. The inventory of data on paid labour for research was based on a number of recent text-books (from the continent of Europe as well as from the United Kingdom and the United States, the last two having a longstanding tradition in the study on labour economics). The inventory for policy-making was based on official government documents on employment policy, labour market policy etc. Thirdly the daily request for data on labour for practical purposes (indices based on salaries in contracts etc.) was taken into account.

It must be said that such an inventory cannot be definitive because of an interplay between available data and theory ('all empirical observations by statisticians are necessarily theory laden' (Blaug 1980, page 45)) but on the other hand the study of labour economics is influenced by the availability of data, and because of changing policy¹).

Up to now labour accounts are restricted to paid labour. This choice does not imply any underestimation of the importance of unpaid labour. From certain points of view, paid and unpaid labour can be looked upon as two sides of the same coin and literature now pays much more attention to the relevance of unpaid labour than in the past. This would argue in favour of the elaboration of a statistical data system applying to both forms of labour. However, there are some reasons for focusing the labour accounts in this phase on paid labour. One is that paid labour has a meaning of its own for the socio-economic position of the employed, and enables them to satisfy needs with income obtained.

Even when we limit ourselves to paid labour, the description of the statistical data system will be very extensive. Within the labour accounts the part of the data that maps the main lines of the phenomenon of paid labour, the so called core variables, has been separated. This gives a bird's eye view.

The core variables of the statistical data system on labour are the supply of labour (person, hours), the demand for labour (job, hours) and the pay for work done (earnings and costs). The choice of the characteristics of these variables is based on the characteristics mentioned in the ILO Labour Statistics Convention, 1985 (Convention No. 160).

2. Labour accounts

2.1 Introduction

Labour accounts were designed to remove the main shortcomings of the system at the end of the 1980's: lack

of coherence and fragmentary presentation. Labour accounts can be described as a statistical system of core variables on labour acquired through integration, within the statistical information system on labour. At the start unemployment and vacancies were not included.

Data which become available straight from the source statistics often conflict. This conflicting may sometimes grow to an alarming extent and is therefore disturbing to the user of the statistical data. Any statistician who considers his job done upon the presentation of his data, falls short. After all, the user does not know which data are correct and which are not. It is with good reason that this has led to severe criticism of the statistical data on labour both nationally and internationally. Conflicting data can (1) show differences between data on the same subject (the so-called similar data) as far as level and development are concerned and (2) show a lack of arithmetic relation between data, the so-called dissimilar but related data.

Conflicting results on similar data

Within labour statistics, there are two reasons to have different statistical surveys on the same subject. Firstly because the same kind of data can become available in various categories of sources (persons, enterprises, registers of central organizations) and secondly because both structural data and short-term indicators are needed. Conflicting results on similar data, obtained from various source categories occurred in the Netherlands with regard to:

- a. Employment by sex, age, status in employment, working hours and economic activity: with deviations in definitions, populations, and specifications available from household surveys, enterprise surveys and industrial insurance board registrations. Deviations in development figures are caused largely by discontinuities in the source statistics.
- b. Data on hours worked by sex, age, and economic activity, in household and enterprise surveys. The comparability between sources is hampered by a number of factors: in household surveys one tends to state more working hours than has been arranged with the employer; also in household surveys one perceives more small jobs than in enterprise surveys.
- c. The size of unemployment as perceived in household surveys and from social insurances and employment office registrations. Deviations occur because of differences in definition, measurement errors and regulations on entitlement to unemployment benefits.
- d. Wage data aggregated according to economic activity and size-class obtained from enterprise surveys and from the registration of industrial insurance boards. Here discontinuities arise from, for example, changes in law and

administration.

Different results from short-term and structural surveys are available on the following subjects:

- a. Jobs and average pay by economic activity.
- b. Hourly earnings and weekly working hours by sex, type of labour contract, and economic activity.
- c. Labour cost per hour by economic activity and labour cost components.

In general, structural data are more accurate than short-term data, because the latter are always based upon smaller samples. But for integrally observed parts, the results of the short-term survey can still be used to trace errors in the results of the structural data. Also short-term surveys can often trace false changes in characteristics.

Conflicting results on dissimilar but related data

Statistics often supply data on interrelated aspects. The development of the total wage cost, for instance, is related to the development of employment and wages. These relations can be expressed explicitly by definitional equations. Dutch data from enterprise and households surveys give conflicting data on:

- a. The number of jobs versus the sum of persons employed and secondary jobs. Before harmonizing the definition and the population, discrepancies are in the order of 10%. After adjustment the difference is still 2 to 3%.
- b. The direct measurement of total earnings compared with the product of the number of jobs and the average earnings per job.
- c. Average annual earnings per job compared with the product of hourly earnings and average hours worked. In this case the discrepancy is mainly caused by the difference in the reference period between data on hourly earnings and working hours on the one hand (reference week, end of quarter) and the annual earnings (whole year) on the other.

The examples above all comprise a static description of labour. So far, little or nothing has been published in the Netherlands on the underlying dynamics, because there is little data available on transitions which are of good quality. Because flows into and out of the working labour force during a period have to correspond to the difference in stocks between the beginning and end of that period, the relations between stocks and flows are quite suitable for an integrative approach as described in this paper.

2.2 How to arrive at consistent labour accounts data?

Data consistency can partly be realized by the harmonization of populations, definitions and classifications between the various sources. But even if such harmonization is possible, conflicting data would still occur. As mentioned above each survey has some degree of errors, both sampling and non-sampling errors. Separate processing of the various source data is required to achieve completely compatible data. During this processing, the data are adapted in such a way that they reach an approximation which is as close to reality as possible. This is done by what we call the process of statistical integration. There should be no or hardly any room for subjective manipulation of the results. In order to be able to check this condition, it must be possible to reproduce the way in which the adaptation took place. With labour accounts this is indeed possible.

The integration process is conducted in four stages: harmonization, completion, minimalization of measurement errors and balancing. In the first two, harmonization and completion, all data are made to relate to the same definitions and populations respectively. As a result of this, data can be compared and linked. If, after these two stages, there still is no full compatibility, it can be concluded that the data material contains errors. Here, the data are checked for the definitional equations which have to hold both for the annual and the quarterly data. Furthermore the relationship between the quarterly - and the annual data lead to extra identities (via averaging or aggregating quarterly data).

In the third stage of the integration process, which is called the minimalization of measurement errors, errors are traced and eliminated whenever possible. An example of this is the comparison of sample data with integral data. In doing so one can check whether stratification, raising and further processing lead to under- or overestimation. Very small differences are neglected. These are smoothed out in the fourth and final step of the integration process: the balancing by using a Powell minimization-algorithm procedure. Through an iterative search-process the adjustments during this stage are minimalized under the condition that the values attached meet the definitional equations we discussed in this paragraph. An extensive description of how the whole integration process is effectuated in practice is given in Statistics Netherlands 1996. Below an example has been given of the effect of the integration process on the number of jobs of employees.

Integration of the number of jobs of employees, 1993

000

Number of jobs according to the Annual Survey

Effects by

| | | | | | |
|--------|--|------|---------|----------|---------------|
| - | | | | | harmonization |
| -27 | | | | | |
| - | completion | | | | |
| - | jobs not obtained via enterprise surveys | | | | |
| 379 | | | | | |
| - | | | | | others |
| 120 | | | | | |
| - | minimalization of measurement errors | | | | |
| 12 | | | | | |
| - | | | | | balancing |
| 0 | | | | | |
| ----- | | | | | |
| Number | of | jobs | (annual | average) | |
| 5,929 | | | | | |
| ----- | | | | | |
| ----- | | | | | |

2.3 Degree of detail

When making data compatible via the integration process some limits must be set on:

- a. The quality of the source material. In general, integration improves the quality of data as compared with the separate source data, because supplements and improvements are applied by way of using other survey results. Still reliability demands can impose limitations to detail, because in the case of low absolute numbers the reliability becomes insufficient.
- b. The technical feasibility. During the final stage of the integration, the balancing, the optimization algorithm sets a limit to the number of relations.
- c. The cost. In-depth analysis is time consuming and meets personnel capacity constraints.
- d. Controllability. In compiling the labour accounts one must be able to maintain an overview of the integration process.

2.4 Specific characteristics of labour accounts in comparison with source data and other accounting systems.

Completeness

Labour accounts present a description which includes all economic activities, all jobs, and the entire labour force.

Internal consistency

Contradictory results do not occur within a system of integrated data.

Accuracy

This is achieved by combining the strong points and correcting the weak points of various source statistics.

Comparability over time

The various steps in the integration process are executed in such a way that the data incorporated in the labour accounts can be traced and compared in subsequent years. With results from source statistics, this does not necessarily have to be the case because of changes in survey questions, changes in the registers of central organizations, and sampling and non-sampling errors.

Timeliness

It is sometimes assumed that integrated statistical systems cannot be up to date, because of the tuning of many source statistics during the integration process. This is not correct. Preliminary results become available four months after each period under review (quarter and year).

Flexibility

Of course it is true that a key focus of such a system is compiling consistent time-series for a set of variables. Regularly introducing or deleting core variables within the integrated system is out of the question. However, such a system does not function independently from the source statistics which supply supplementary data on the objects pertaining to the areas concerned.

Extra possibilities for applying integration systems

Integration systems supply consistent results which can function in macro-economic models as explanatory and explainable variables. Stone describes this as 'components must add to totals; accounts must balance; prices and quantities must multiply out to values' (United Nations, 1975, page 3).

Comparison with national accounts

A difference between labour accounts and national accounts concerns the process of integration. It is obvious that when national accounts are compiled, differences in population and definition will be corrected, but no

distinction is made for specific corrections, for measuring mistakes, and fitting-in corrections, and no quantified justification of the steps taken in the compilation of the national accounts is supplied. This difference in approach results in a production process which is not as transparent as that of labour accounts. Because labour accounts were developed only very recently, and thanks to advanced technology, we were able to indicate which adjustments were made in the source statistics in various parts of the integration process.

3. Macro-to-micro linkage

3.1 Introduction

Statistics Netherlands is giving more priority to the consistency and coherence of data at a more disaggregated level. The process of statistical integration is limited to a certain amount of detail. Nevertheless, once integration has been achieved, additional parts can be introduced by linking detailed source data to aggregated accounts data. This has various ramifications:

1. Accounts data can be complemented by characteristics from source data, such as educational attainments, by means of raising survey data. This automatically leads to extensions of the accounting system.
2. The sample error in the source data can be reduced. Accuracy will be improved when reweighted with data which are correlated with the target variable.

Statistics Netherlands has already accomplished two of such linkages: one for the determination of regional employment data and the other for the description of persons employed.

3.2 Regional employment data

In the Annual Survey on Employment and Earnings, the number of jobs are also classified by region. The original data from these surveys are not published, but directly reweighted by 'corresponding' labour accounts data. Does this mean that the national totals of the regional employment figures fully coincide with those of the labour accounts? Not yet. A definitional and a coverage difference still remains.

As far as the definition is concerned, the regional data refer to a point in time (end of the third quarter), whereas the labour accounts data give quarterly and annual averages. Within the processing method of the labour accounts, a unique link between 'end-of-quarter' data and quarterly averages has been achieved. With this linkage, the average labour accounts data can be translated into end-of-quarter data. The coverage difference is due to a lack of regional information in the case of jobs not observed in company records. Therefore, the regional disaggregation

resulting from linking micro data from establishment surveys to macro data from the labour accounts only holds for data from 'company records'.

3.3 Employment structure

A person may have more than one job. Therefore, the number of jobs will always be equal to or higher than the number of persons employed. The process of statistical integration has been effectuated for jobs, not for persons employed. Within the labour force survey (LFS) the linkage between jobs and persons employed is described. By using this relationship in linking micro LFS data to labour accounts data, persons employed data can be incorporated in the labour accounts, and both jobs and persons employed can be further characterized by such characteristics as occupation, education and ethnic background.

This can be achieved by (1) adjusting the LFS micro data according to the corrections implemented during the process of statistical integration and (2) reweighting the resulting LFS data with labour accounts data. The raising totals for this reweighting procedure are the number of jobs from the Labour Accounts subdivided by sex, weekly hours of work, and economic activity. Contrary to the regional breakdown of employment data, this linkage clearly results in identical macro totals (no differences in definition and population).

The linkages described above are not without obstacles. In case of large differences between the original raising totals and those resulting from the labour accounts, one should be aware of the danger of selectivity within the stratification categories.

3.4 Improvement of present production processes and the macro-to-micro linkage

Since the end of the eighties, Statistics Netherlands has paid more attention to the development of accounting systems for social statistics. In order to make as much progress as possible, this process has been developed more or less apart from the current production of statistical data from surveys like the LFS and the Annual Survey on Employment and Earnings. Here, the linkage from micro-to-macro can be improved without much effort. Checks and adjustments made by integration departments, can mostly be embedded in the various current production processes of source data. After all, persons involved in these processes have a more detailed knowledge of the ins and outs of a particular (original) data source and, in addition, have access to all individual (rough) data. Considerable improvements could be obtained on three aspects: (1) the avoidance of "doing things twice", (2) a stronger commitment from the producers of source data figures to the figures resulting from accounting systems, and (3) further quality improvement of in all stages of the statistical process.

At the same time, the synergy described above between accounting systems and their basic sources must be accompanied by an overall synergy between all statistical accounting systems. We propose the use of a framework of a Social Accounting Matrix to achieve an overall synergy.

4. Uniform definitions and classifications

In order to exclude any misunderstanding when information is interchanged it is a precondition for a statistical system that the objects described are well-defined and that definitions of interrelated objects are linked to one another. With this in mind, some proposals are formulated to improve definitions. The proposals concern the definitions of posts, jobs, vacancies, wages and labour costs. The last two definitions are elaborated in the thesis.

Some proposals for improvement are formulated regarding classifications. A classification has to contain homogeneous groups, which are relevant for research and policy. Measurement problems should be avoided, and the categories of the classification must be recognizable for users. However, some classifications do not fit these requirements. In this article we have to limit ourselves to mentioning the proposals and referring to the publication for arguments and details.

In line with the conclusion of the Fifteenth International Conference of Labour Statisticians (ICLS) in 1993 that the conceptual basis of the International Classification by Status in Employment should be expanded (see ILO 1993, page XXI), a proposal is made for such a classification. Such a classification has to be based on three criteria: taking economic risk, the authority in the enterprise and the relationship between employer and employee. The implementation of these three criteria means that there cannot be a continuation of the main categories in the classification as mentioned in the conclusion of the ICLS in 1993.

Other proposals concern:

- A classification of persons in relation to labour performed or to perform. This classification has to indicate the attitudes of people towards the labour market and has to categorize employed persons not looking for another job, looking for another job, looking for a job with more or fewer hours, not employed persons looking for a job and available for work, not looking because of discouragement, not looking because of problems of availability, not looking because of no interest in paid work at all).
- A classification of persons by main activity. It is not useful to distinguish the main activities only by the highest number of hours per activity. The classification

also has to include combinations of activities such as attending school and having a job. It is confusing to fill in unemployed or disabled to work as a main 'activity'.

- A classification of jobs by type of employment contract. In this context the flexibility of contracts should be mentioned. There are three criteria to identify the type of employment contract: employment on a temporary or a permanent basis, full-time or part-time, and regular or irregular (on call workers). There is more than one classification to identify the flexibility of employment.
- A classifications of jobs by labour conditions. There are several elements of labour conditions: inconveniences such as noise and stench, stress, shifts, risk of injuries etc.. It would be useful to analyze if some of these can be linked to occupations.
- A classification of jobs and posts by the education level and experience required to perform the job. For placement and educational policy it is desirable to compare the structure of supply and demand for labour in terms of education and working experience. One of the difficulties is that employers might mix the two up when they are looking for a candidate. An analysis of realized placements (did the new employee have the education required or was it substituted by experience) could give information about the substitution.

5. The reconciliation of data on labour in other countries

How do statistical offices in other countries deal with the differences between data on labour obtained from households/ persons, establishments/enterprises and from registers of central organizations. This was the subject of a survey carried out in a number of countries²⁾. We investigated whether, and if so to what extent, steps have been taken in other countries comparable with those used in composing labour accounts in the Netherlands. Did they achieve consistency between data in their presentation?

The countries surveyed had to be restricted. The survey, which was confined to paid work (expressed both in term of persons employed and of jobs), the unemployed, vacancies, hours worked, and payments for the performance of work (wages earned and labour costs).

The aim of the survey was primarily to obtain information about the achievement of consistency between data in their presentation. This achievement of consistency is directly connected with the fact that data on the same phenomena obtained from various sources differ, owing to differences in coverage and definitions and to sampling errors and other measurement errors (see above). A well-known example is the difference between the number of persons in employment according to household surveys and to

enterprise surveys. If centrally coordinated registers are the sole or main source of the statistical information on labour in a country (as in the Scandinavian countries), these problems usually do not arise at all or only to a lesser extent. Questions on consistency between data were about:

- coordination (the same coverage and the same definitions);
- comparison between data from different sources and correcting on the basis of this;
- reconciliation of data on the same subject (similar data) if differences still remained after the above-mentioned corrections;
- reconciliation of labour data which do not cover the same subject (dissimilar), but are in fact related (for instance, total sum of wages as the product of hourly wages and the number of hours).

The extent to which consistency between data is realized, differs. One extreme is that it is considered sufficient to state that there are differences in levels and trends between data on the same phenomenon; the other extreme is a complete reconciliation of these data so that there are no conflicting items of information. Between these two extremes there are a number of variations.

The survey found that with regard to similar data (for instance the number of working persons according to registers and according to direct observation in a household survey) there were three alternatives:

1. The differences between the results of surveys are indicated and explained. No action is taken to eliminate them and it is noted that the data from each source have their own specific significance. This was found in Canada, Finland and the United States.
2. A comparative study is carried out and corrections are made for errors wherever these are found. Apart from this, the differences are allowed to remain. This is the case to a limited extent in Australia.
3. All differences between the data are eliminated. This is called "reconciliation of data" in the sense of integration. Examples of this are found in France, United Kingdom, the Netherlands and the Scandinavian countries (excluding Finland). It should be mentioned that the Scandinavian countries are faced with this problem only to a limited extent owing to the considerable use made of wholly or partly interconnected registers as the source of data.

In the case of dissimilar but related data few or no activities to bring them into line with each other, were observed in the various countries, except in France (to a

limited extent), the Netherlands and Norway. The degree in detail by characteristics of persons and jobs is greater in the Netherlands than in Norway. The conclusion was that Statistics Netherlands appeared to have a unique position with regard to its labour accounts.

6. International comparability of statistical data on labour

International organizations such as the United Nations and EUROSTAT (Statistical Office of the European Communities) play a special part in improving statistics all over the world, and in bringing about international comparability of statistical data. United Nations bodies which are important for statistics are the Statistical Commission, the regional commissions (e.g. the Economic Commission for Europe) and the International Labour Organization (ILO): the Statistical Commission for the System of National Accounts and the ILO, with regard to labour statistics, by means of conventions, recommendations, resolutions and propositions.

It can be demonstrated that the ILO Convention of 1938 (Convention No. 63) on statistics of wages and hours of work had a positive effect on labour statistics in the Netherlands. The ILO also made a stimulating effort to develop labour accounts. A joint meeting of the ILO and the Economic Commission for Europe in 1983 was important for the start of these accounts. The meeting requested the delegation of the Netherlands to prepare a first draft of the construction of an integrated system of what was called a Labour Accounting System. According to this request a proposal for such a system was submitted as an initial step (Leunis and Verhage, 1984). EUROSTAT's efforts also had a positive effect on labour statistics in the Netherlands particularly as regards the statistics on wages and the labour force survey. Without EUROSTAT's influence there would not have been a yearly labour force survey in the Netherlands from 1987 onwards.

As mentioned above one of the objectives of the ILO is to stimulate international comparability of statistical data via uniform definitions and classifications. There are several resolutions aimed at helping to bring this about. However, taking into account the resolution on the definition of the economically active population (1982) it is remarkable that the *Yearbook of Labour Statistics* (ILO, 1993) points out that there are differences in the definitions of the economically active population from country to country and that this should be taken into account when comparing the data. One of the obstacles to the introduction of uniform definitions in countries is the heterogeneity between countries. Resolutions on definitions would be more effective if they were restricted to countries which are more or less homogeneous in development and socio-economic background. Logically speaking we would first of all think of groupings under the regional commissions of the

United Nations. This, however, is not sufficient to achieve comparability of international data. Further steps need to be taken. Here the role of EUROSTAT is important, because of the major preoccupations of this office with improving the comparability of statistical data from different countries (see Statistical Office of the European Communities, 1982, page 12). One mean to realize this comparability is the introduction of harmonized statistics (wage statistics) and community surveys (labour force survey).

To what extent are the data based on the labour force survey comparable between countries? These surveys are harmonized with respect to the variables, the sample size and the period of data collection. However, the organization of the data collection and the questionnaires (the wording as well as the sequence of the questions) are different in each country.

Without making a complete inventory we can give some examples (see also van Bastelaer, 1994). In general there are several types of questions to measure employment: a question about the main activity, a question about being at work, and a question about having a job without being at work. However, the routing of the questions can differ which has an effect on the answers. So when a question about having a job is put next to the question about being at work the respondent understands the purpose of the questions better. In the reverse order, the question about being at work does not contribute to a more complete measurement of employment. All sequences are found with respect to the three types of questions.

To identify the unpaid family workers, persons with a minor job, persons with a job but temporarily not at work, and casual workers, it is important to refer explicitly to specific situations, specific kinds of work etc. Therefore, questions for the unpaid family workers have to refer to participation in the family business. For persons with a minor job, the work for a few hours has to be mentioned in the question. Persons with a job but temporarily not at work because of sickness, leave etc. belong to the category of employed persons, and special attention has to be paid in the questionnaire to avoid excluding them. For casual workers, the reference period has to be specified. However, the questionnaires do not always mention a reference period. It can be concluded that labour force survey questionnaires reveal many differences with respect to the categories mentioned and do not produce a valid measurement in a number of countries. At least special attention has to be paid to persons working without payment or profit, because only persons who work for payment or profit qualify as employed. The specification of paid work as far as a specification occurs, differs from country to country.

There is no empirical research on the effects of the differences in labour force survey questionnaires in the European Union. However, the literature indicates the possible effects of only slight differences in

questionnaires on the estimates. In the Netherlands, a small difference in the wording of a question in the 1987 labour force survey is thought to have affected the number of persons employed (the observed increase of the number of women employed of 21 % between 1985 and 1987 does not reflect the actual increase).

The analysis focused on the questionnaires. Other uncommon elements of the design of the survey in the countries are: the professionalism of the interviewers, the extent of self reports or proxy reports and being legally bound or not to participate. These differences may have an even bigger impact on the comparability. More harmonization of these surveys is necessary, but even then it is not reasonable to expect that the surveys will result in completely comparable data. Also sampling and non-sampling errors will always remain. Both kind of errors cannot be neglected in the labour force surveys based on a rather small sample.

The conclusion is that the existing international definitions and classifications based on ILO resolutions and the harmonization of surveys like the labour force survey by EUROSTAT do not result in sufficiently comparable international data. The most comparable data are obtained through labour accounts where strong aspects of different sources are combined in the way discussed for the Netherlands.

Notes

1) "The development of the theory and the empirical estimation of labour supply and demand would come to a standstill if no more databases would be released." Hartog and Theeuwes, 1990, page 320.

2) The survey was carried out in 1990 followed by an update mid-1994. A workshop in 1995 on reconciling employment data, organized by the Netherlands and subsidized by the European Union, brought about that the interest in reconciliation is growing. Participating countries were the member countries of the EU, Hungary, Norway, Poland and Switzerland (see Leunis and Veenstra 1996, page 43-48).

References

Bastelaer, A. van, 1994, Differences in the measurement of employment in the Labour force surveys in the European Community. Journal of Official Statistics 10/3, 1994.

Blaug M., 1980, The methodology of economics (Cambridge University Press, Cambridge).

Hartog, J. and J.J.M. Theeuwes, 1990, Post-war Development in Labour Economics. In: Advanced Lectures in Quantitative Economics (Academic Press Ltd).

ILO, 1993, Bulletin of Labour Statistics 1993-2.

Leunis, Wim P. and Kees G. Verhage, 1984, A Labour Accounting System, A proposal. report submitted to the Informal ECE/ILO Meeting on Manpower Statistics, January 1986 (International Labour Office, Geneva).

Leunis, Wim P. and Cornelis J. Veenstra, 1996, Workshop on reconciling employment data. Netherlands Official Statistics, Volume 11, Spring 1996.

Statistics Netherlands, 1996, Labour Accounts, core of the statistical system on labour; forthcoming (Statistics Netherlands, Voorburg/Heerlan).

Statistical Office of the European Communities 1982, Eurostat News, Seminar on the measurement of employment and unemployment (Statistical Office of the European Communities, Luxembourg).

United Nations, 1975, Towards a System of Social and Demographic Statistics, Studies and Methods, Series F, nr. 17 (United Nations, New York).

