VOORBURG GROUP ON SERVICE STATISTICS

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Proposal for an Employment Module for Model Surveys for the Services Sector

Session 8

Abstract

The paper presents a proposal for an enlarged employment module of the model survey. As the output of some services activities is difficult to measure, the employment information proposed in the module is seen as a proxy for measuring real output for these activities. In addition, the employment information in itself is essential in understanding the developments and future requirements of the services industries and the individual service enterprises. The paper takes as its starting point the enterprises, ie the demand side.The paper also includes considerations on the possible implementation of the proposed module, introducing a list of priority for the proposed variables (core, core plus and discretionary content of the module) and a collection frequency as well. The paper also contains suggested text for the questions in the proposed expanded module.

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1. Introduction

The services sector continues to account for an increasing share of the output of most Western economies. As a result, the future prosperity of these economies is linked to the productivity gains and employment performance of this large and diverse sector. As regards the latter, the employment share of the services sector has continued to grow, representing nearly all new job growth. Nonetheless, most Western economies face high unemployment, which has persisted since the recession of the early 1980s. There are also many issues and concerns regarding the quality of what jobs have been created. As regards productivity, the services sector presents particular challenges in the quantification and valuation of real output. For example, these economies have witnessed an increasing use of information technology in all types of activities over the last 20 years but the effect of this trend on productivity is still debated. These factors point to the importance of services in general, and business services in particular, as a key sector for future prosperity and job creation and highlight the needs - and gaps – for statistical information on employment in the services sector.

In 1990, Statistics Canada, with the co-operation and assistance of the Voorburg Group participants, developed a proposal for a model survey of the computer services industry. The United Nations Statistical Office published a report on the model survey in 1991 as part of the regular United Nations methodological series.[1] Since then, there has been discussion on further elaboration of the different modules of the survey, in particular the employment module.

The importance of detailed information on the employment in the services sector and the qualifications of the employees was focused upon in a common Nordic paper presented at the 8th Voorburg Group Meeting on service Statistics in Oslo 1993.[2] The paper concentrated on the possibilities of providing employment information from different administrative registers. The paper concluded: *"By more frequent use of registers and by building up statistical systems for the use of administrative data, variables such as sex, age and education can be completed without increasing the respondent burden of the enterprises. On the other hand, information about the external and internal costs for the additional education of the persons employed also ought to be included in the Methodological Manual and tested in the pilot or model surveys, even if this information is only available through direct contact with enterprises."*

As a result of the discussions in the Group it was agreed that a survey on the availability of statistics on employment qualifications within the service sector in member countries should be undertaken. The results of this survey, presented at the 9th Voorburg Group Meeting in Sydney 1994, showed that in a majority of the respondent countries at least some data exist on employment qualifications.[3] The most common sources were labour force surveys and population censuses. In the concluding remarks of the paper, it was stated that: *"we could also request these data on employment* (qualifications) *from the businesses direct which means that the employment module in the model surveys should be enlarged."*

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[1] United Nations, "A Model Survey of Computer Services", Statistical Papers, Series M No. 81, New York, 1991.

[2] Peter Bøegh-Nielsen, Heli Jeskanen-Sundström and Berit Olsson: Needs and possibilities of statistical information on employment in the services industries in Papers and Final Report, Voorburg Group 8th Meeting on Service Statistics, Oslo 1993, pp 22-38.

[3] Samuli Rikama, Peter Bøegh-Nielsen, Heli Jeskanen-Sundström and Berit Olsson: Summary results of the questionnaire on employment qualifications within business services in Papers and Final Report, Voorburg Group 9th Meeting on Service Statistics, Sydney 1994, pp 191-228.

A first response to the call for enterprise survey data on educational qualifications was given by an Australian paper at the 10th Voorburg Group Meeting in Voorburg 1995.[4] The paper outlined the Australian experiences with collection of linked employer-employee data. The paper *"point to the capability of such a methodology to obtain more detailed information on the qualifications and skills profile of employees engaged by businesses and, more generally, the capacity to relate information about employees, e.g. their qualifications, training experiences, occupations etc., to that of employers in the industry in which the work."*

The work of the Voorburg Group on the employment issue was continued at the 11th meeting of the Group in 1996, as the Group discussed a general labour market model emphasizing both the demand and supply side and a more concrete and detailed proposal for an enlarged employment module basically orientated towards the demand side of the labour market, the enterprises[5].

It was decided by the Group at its meeting in Newport, Wales 1996 that a final proposal for a general employment module enlarging the employment module already decided upon in the Model survey of the Voorburg Group should be elaborated and presented for adoption at the forthcoming meeting of the Group in Copenhagen 1997. Setting out from the above mentioned experiences related to the possibilities and feasibility of producing statistical information on the qualifications and skills of the employees whether gathered from the use of administrative registers or collected directly from the enterprises themselves, this paper presents a proposal for an enlarged employment module of the model survey.

2. General design principles for the module

In general, the content of the employment module can include demography indicators, indicators of the employer-employee relationship and qualifications indicators. The specific variables to be included in each component of the module can be selected from the general model for labour market analysis, which was presented in the Statistics Canada paper last year, see box 1.

[4] Robin Green: Employment qualifications in the services sector: A note on the possible use of a two stage sample survey in Papers and Final Report, Voorburg Group 10th Meeting on Service Statistics, Voorburg 1995, pp 117-120.

[5] Paul Johanis and Albert Meguerdichian: A Framework for Statistics on Employment in the Services Sector in Papers and Final Report, Voorburg Group 11th Meeting on Service Statistics, Newport 1996, pp 133-152 and Peter Bøegh Nielsen: Elements to an Enlarged Employment Module in Papers and Final Report, Voorburg Group 11th Meeting on Service Statistics, Newport 199, pp 51-61.

Box 1. General Model for Labour Market Analysis

Labour supply	**Employment**	**Labour demand**
Population	Characteristics of workers	Total jobs
Participation rate	Characteristics of jobs	Industry
Characteristics of workers:	Salaries and benefits	Characteristics of jobs:
Age		*Occupation*
Sex		*Status*
Education	**Unemployment**	*Duration*
Training	Characteristics of unemployed	*Education*
Experience	Duration	*Experience*
Skills		*Skills*
	Vacancies	
	Characteristics of jobs	
	Duration	

The employment module is designed as a data model where information is collected from enterprises, i.e. the demand side of the labour market and thus not relying on the supply side as the main data supplier as is the case with most labour market surveys. The employment module is a supplementary set of information in relation to the information collected in the above mentioned labour force surveys or other supply side based surveys and population censuses.

The purpose of the employment module is two-fold. First, it is intended provide information to support the analysis of employment in the service industries as part of traditional labour market analysis. It is also intended, however, and this is what gives this module its specificity, to act as a proxy in the valuation of output in areas where real output is difficult to measure. Take the case of a specialised legal service for example. Services that seem identical to an observer may be valued very differently based on the qualifications and prestige of the service provider. In such cases, the employment module would provide additional information that could explain the price differential.

As the real output of some services is difficult to measure, the employment information defined below is seen as a proxy for measuring real output of the services activities. The basic information is the volume of employment , i.e. the variable ***No of persons employed at a certain point in time***. In order to arrive to a more precise measurement of the volume of production, the employment module also contains information about ***no of full and part time employment***, especially as the part time employment is of huge importance for the services sector in general and for some activities as industrial cleaning in particuliar. It should be noted that part time employment seems to be of growing importance in the services sector, probably due to the large proportion of female employment in this sector. The employment module also contains a more accurate measurement of the labour input, ie ***no. of hours worked***, even though this information is not easily obtained. This basic information gives only a very imprecise measurement of the value of the output, however.

To establish better tools for measuring the output value, the qualifications of the persons employed has to be established. A traditionalproxy for identifying the qualifications of the labour force has been the description of the job contents, i.e. ***the occupation of the persons***

employed. In services activities where the services offered by individual person is the core of the job, however, the requirements of exact measurement are very demanding. Thus the employment module includes the collection of information about ***educational attainment,*** as this variable is understood to influence the nature, quantity and especially the quality of the services produced.

Information about the educational level of the persons employed cannot be seen as the ultimate information about the qualifications of the persons employed. Information about educational attainment normally reflects the formal education attained by the individual and thus neglects both the skills and competencies acquired in the course of employment through informal education and training. For this reason, the employment module contains variables such as ***seniority in same occupation, same firm or same branch.*** The module also contains information about ***number of days spent in training*** and also ***the purpose of training.***

The employment module is also foreseen to fulfill the information needs of policy makers. This is reflected mainly in questions related to the basic demographic characteristics of the person employed, i.e. ***gender and age of the persons employed***. For reasons of labour market policy, it is important to monitor the differences in gender and age structure between different sectors, for example, the participation of female workers in the requiring high-skill qualifications, especially within business services.

Enterprises are altering their way of engaging labour, increasingly loosening the ties between the enterprise and the individuals in the labour force in order to increase flexibility and reduce costs and thus increase competitiveness. One basic and classic variable to measure this is ***the no. of employees***. The type of contract between the enterprise and the labour input can also be measured by requiring information about the duration of the job contracts, i.e. ***permanent and temporary employees.***

Additional content may be required to deal with specific policy-relevant issues regarding employment in the services sector. In Canada, for example, the ability of information technology enterprises to attract and retain qualified personnel is a pressing policy issue and a survey of these enterprises to explore recruitment problems and practices was conducted (see last section of Appendix 2).

Box 2: Contents of the employment module

1. Input volume of the labor factor of production:

1.1 No of persons employed at a certain point in time
1.2 No. of hours worked
1.3 No. of persons employed in full time equivalent units (calculated variable)

2. Breakdown of no. of persons employed by type of contract:

2.1 No. of employees at a certain point in time
Of which:
2.1.1 Full time employees
2.1.2 Part time employees
2.1.3 ***Permanent employees***
2.1.4 ***Temporary employees***

3. Breakdown of no. of persons employed according to gender:

3.1 Male:
***3.2 Female*:**

4. Breakdown of persons employed according to age:

5. Breakdown of persons employed by type of occupation:

6. Breakdown of persons employed by type of education:

7. Breakdown of persons employed according to seniority:

7.1 Seniority in same occupation:
7.2 Seniority in same firm:
7.3 Seniority in same branch:

8. Number of days spent in training:

8.1 Type of training purpose:
Of which**:**
8.1.1 Items related to strategy, market and clients:
8.1.2 Items related to new technology including teaining in information technology (e.g. word processing):
8.1.3 Items related to quality and standardisation:
8.1.4 Other items:

9. Personnel policy of the firm:

9.1 Use of free lancers
9.2 Use of teleworking

10. Recruitment policy of the firm:

3. Implementation considerations

In the model surveys discussed and presented at the previous Voorburg Group Meetings, the employment module has consisted of more traditional employment variables as number of persons employed, full/part time employment and, in some model surveys, information on occupation. These variables are characterised by their relative easy availability for the administration of the enterprises.

Detailed information about the qualifications of the employees, however, is not known or easily available to the administration of the enterprises. This information must be collected from the employees him or herself. This is clearly stated in the Australian paper: *"Information on employees' formal qualifications and training experiences would only be capable of collection if the employer gained the cooperation of the selected employee by arranging, for example, for the detailed information required to be provided by the employee."*

The Nordic national statistical institutes have been in a position to utilize administrative registers containing information about gender, age, occupation and educational level of the population and through their statistical system, including the statistical business register, been able to merge information on the individuals with information about their place of work - at the enterprise or local unit level.

The existence and possible access to these administrative registers give the Scandinavian statistical institutes wide possibilities of producing detailed statistics on the characteristics of the total labour force without placing any further respondent burden on the enterprises and thus avoiding the relatively burdensome system of collection of linked employer-employee data.

In order to describe these two ways of collecting employment information and also to a certain extent evaluate the feasibility of the proposed employment module, a short description of the Canadian and Danish employment statistics is presented below.

The Danish statistical production has since the 70'es to a larger and larger extent been based on the use of administrative registers. The core of the employment statistics, whether labor market statististics or business statistics, is administrative data. Of course, surveys are carried out as well but this paper shall concentrate on a short description of the register based statistics.

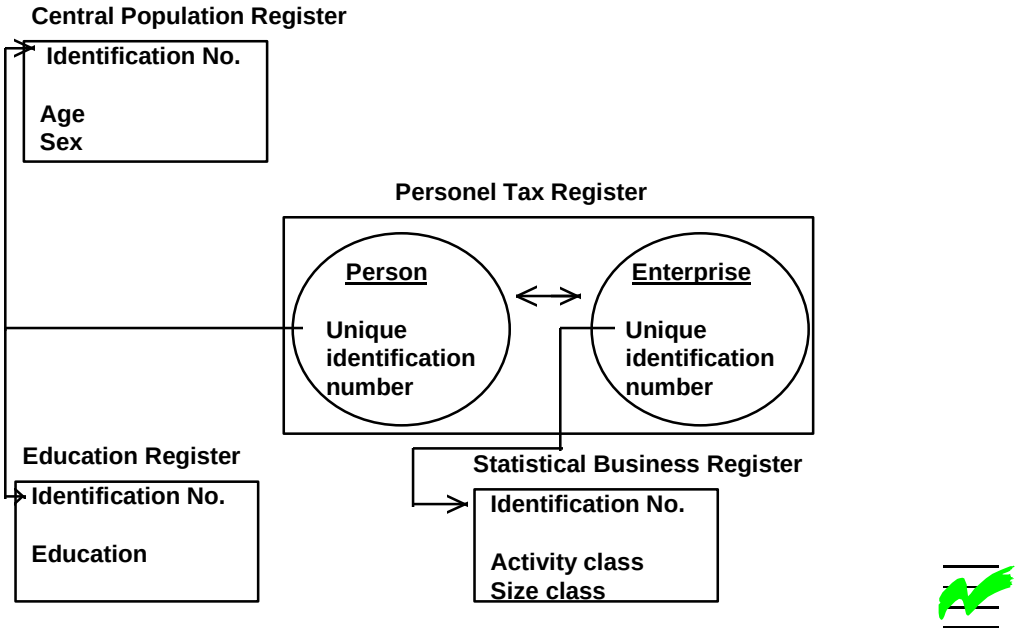
One of the main registers is the Central Population Register (CPR) run by the Ministery of Interior since 1968. For the entire Danish population, the CPR has information covering i.a. name, address, unique personal identification number allocated to every person born or a permanent resident in Denmark, sex and gender (indicated by the idno.), marital status, nationality, place of birth. The CPR no. is used throughout the public administration (by tax and social security authorities, schools, municipality administrations, etc). This makes it possible to combine information from different administrative registers as educational register, income tax registers, unemployment registers, etc.

Another main register in the Danish statistical system is the Business Register (BR) run by Statistics Denmark. The basic units in the BR are the legal unit and the local unit. The BR is fed from the administrative registers in Tax and customs authorities concerning registration for VAT and registration as an employer. The BR contains i.a. the identification no. of the legal units/workplaces, activity classification, address, type of ownership and size class.

The register based information about the individual persons and the register based enterprise/local unit information is linked via the annual salary declaration slip which all employers submit to the tax authorities for each employee. On this declaration the identification no. of the local unit where the employee was actually employed End of November is indicated. In addition to the local unit information the declaration slip contains information about i.a. the identification no. of the employee, period of employment, annual earnings and the Labour Market Supplementary Pension Scheme payments.

This information is linked with the information about the local unit contained in the Business Register via the local unit identifier number, (ie information about activity class, location, etc.) and with personal information contained in the CPR via the personal identification number (ie gender, education).

Matching of several administrative registers



As an example of the linked employer-employee survey methodology, Statistics Canada has successfully piloted the Workplace and Employee Survey, in which questionnaires are administered to a sample of employers and to a sample of employees within each sampled establishment. During an initial visit to an establishment, the interviewer selects a random sample of employees from the employers' records. Consent forms are then left for the employees to mail back to Statistics Canada. Those that provide this consent are then interviewed over the telephone. The content of the employee interview can be found in Appendix 3.

The content of this survey is extensive and is presented simply as an example. The content modules and questions can be thought of as a menu, from which items can be chosen, rather than as a prescription of required content. The content modules include:

- Job characteristics
- Work arrangements
- Career path
- Use of computers and other technologies
- Training and development
- Employee participation in workplace decisions
- Personal and family support programs
- Worker representation and industrial relations
- Compensation
- Work history, turnover
- Demographic and socio-economic characteristics

Although there were some difficulties, the pilot established that this methodology was feasible and yielded high quality, detailed information on employees and their place of work. As a result, the first iteration of the Workplace and Employee Survey in production mode is scheduled in the next year.

Information concerning different employment aspects is not always easily collected. Therefore, it is necessary to launch a data collection strategy together with the employment module. Obviously, it is not feasible to collect all variables in the employment module annually for each single activity class within the services sector. The collection of statistical data is subject to certain constraints such as budgetary constraints and responset burden for the enterprises. By launching this detailed module, it is necessary to prioritize amongst the proposed variables.

We propose that the employment module comprise three components:

- **Core content**: Basic questions that would be collected for all sectors;

- **Core-plus content**: Questions that would be required in sectors where output is difficult to measure

- **Discretionary content**: Additional sector-specific content that would deal with particular analytical issues.

Proposed question text for each of these components can be found in Appendix 1.

The core elements of the employment module are number of persons employed, number of employees, no. of full time and part time employees broken down by gender. These information are all central for the basic measurement of the volume of employment and also relatively easy for the responding enterprises to provide.

The remaining variables in the employment module are variables to be collected multiannually or only for certain branches. In order to prioritize which variables and for which activity classes data should be collected, the variables that emerge from the cross-national analysis done by Denmark and Finland[6] have been used as a starting point together with the categorisation used by Statistics Canada in its general strategy for data collection for the services sector[7].

[6] Peter Bøegh Nielsen and Samuli Rikama: Employment Characteristics in Market Services Activities: Case Study of Denmark and Finland, paper to be presented at the 12th Meeting of the Voorburg Group on Service Statistics (1997)
[7] Statistics Canada: Strategy for the Collection of Services Statistics, 1993

Box 3: Collection strategy for the employment module

	Food and accommodation services	Other traditional services	Technology users	Technology producers	Competitiveness enhancinn services
Core content	Annual or subannual	Annual or subannual	Annual or subannual	Annual or subannual	Annual or subannual
Core-plus content	Quinquennial	Quinquennial	Annual	Annual	Annual
Discretionary content	As required	As required	As required	As required	As required

In the Food and Accommodation and other traditional service industries, the measurement of real output is not problematic so that only core content needs to be collected on a regular basis annually or sub-annually. The extended content can be collected optionally on a multiannual basis, for example every 5 years, to track trends as regards the age, education, training and experience of the work force in theses industries.

The measurement of real output is more challenging in the technology using and producing industries and in the competitiveness enhancing industries. As a result, it is recommended to collect the extended "core-plus" content on an annual basis.

Finally, discretionary content can be added as required to any of the regularly scheduled iterations of the module, or collected in stand-alone data collection exercises.

4. Conclusion

In this paper we argue for an enlargement of the employment module in the model survey presented within the framework of United Nations statistical work. As the output of some services activities is difficult to measure, the employment information proposed in the module is seen as a proxy for measuring real output for these activities. In addition, the employment information in itself is essential in understanding the developments and future requirements of the services industries and the individual service enterprises. The paper takes as its starting point the enterprises, ie the demand side.

As a consequence of this, we argue for the capturing of data from the enterprises. The reasoning for this approach is that if we want to study the employment structures of the detailed activity classes we need more exact information about the activity class of the enterprise than provided by the labour force survey or other supply side oriented surveys. More importantly, if we want to go one step further in our analysis, this approach allows us to relate the qualifications and characteristics of employees with the output and economic performance

of the enterprises.[8] It is important to underline that we see on the one hand the employment module as a supplementary set of information in relation to the information collected in the labour force surveys or other supply side based surveys and population censuses. On the other hand we also the the detailed employment module as a supplement to the general business statistics which normally only includes information about the quantitative input of labour, ie *no. of persons employed* or *hours worked.*

The paper presents the general design principles for an employment module. In general, the content of the employment module can include demography indicators, indicators of the employer-employee relationship and qualifications indicators. The paper argues that information about educational attainment normally reflects the formal education attained by the individual and thus neglects both the skills and competencies acquired in the course of employment through informal education and training. For this reason, we propose the employment module to contain variables such as *seniority in same occupation, same firm or same branch.* The proposal also includes information about *number of days spent in training* and also *the purpose of training.*

We know that the collection of these variables, especially from the demand side, is very difficult and often burdensome for the respondents as well. Therefore the paper also includes considerations on the possible implementation of the proposed module. We introduce a list of priority for the proposed variables (core, core plus and discretionary content of the module) and a collection frequency as well. The paper also contains suggested text for the questions in the proposed expanded module.
Taking all these considerations in mind, we invite the participants of the meeting to discuss the proposal for an enlarged employment module as outlined in this paper, in generel terms and in terms of country specific experiences and possible feasibility.

[8] As an example of a micro approach to enterprise performance, see Kjartan Bjørnsson, Helle Månsson and Peter Bøegh Nielsen: The Use of Register-based Statistics in Micro analysis. Employment Qualifications and Growth Enterprises in the Services Sector. Paper to be presented at the 12th Meeting of the Voorburg Group in Copenhagen 1997.

Appendix 1 Employment module

1. Core content

1.1 No. of persons employed by gender, education and employment status

	Working Proprietors		Employees	
	Male	Female	Male	Female
Part time				
Full time				

1.2. No. of employees by contract type

	Employees	
	Male	Female
Permanent		
Temporary		

2. Core-plus content

2.1. No. of persons employed by age and gender categories

	Under 25 years		25-39 years		Over 39 years	
	Male	Female	Male	Female	Male	Female
Number of persons employed						

2.2.

No of hours worked during the period covered by the return	

2.3 No of employees by level of education

	Male	Female	Total
Directors, managers and administrative staff			
Professionals			
Technicians and associate professionals			
Other			

Note: The ISCED classification is used

Primary education	ISCED code:1
Secondary education	ISCED code: 2 and 3
Lower tertiary education	ISCED code: 5
Upper tertiary or postgraduate edducation	ISCED code: 6 or 7

2.4 No of employees by occupation

	Male	Female	Total
Directors, managers and administrative staff			
Professionals			
Technicians and associate professionals			
Other			

Note: The ISCO-88 classification is used

Directors, managers and administrative staff	ISCO-88 major groups 1 and 4
Professionals	ISCO-88 major group 2
Technicians and associale professionals	ISCO-88 major group 3
Other occupations	ISCO-88 major groups 5-9: 6 or 7

2.5. Training and post-education

The total number of hours spent in training and post-education broken down by purpose.

	No. of hours
Items related to strategy, market and client	
Items related to new technology ***Including training in information technology and word processing***	
Items related to quality and standardisation	
Other items	

2.6. No of employees according to seniority

	Same occupation	**In same firm**	**In same branch**
< 2 years			
2-5 years			
>5 years			