

**Voorburg Group on Service Statistics  
Tenth Meeting  
Voorburg, 11-15 September**

**Inter-sectoral/country comparisons  
of statistics on services. General problems**

**Peter Bøegh-Nielsen (Statistics Denmark)  
Lothar Hake (Statistisches Bundesamt)**

## 1. INTRODUCTION

The needs of the users of business statistics are more and more directed towards the needs for general business statistics, ie statistics covering all sectors including the services industries, and international statistics. And furthermore the demands are statistics comparable across sectors and countries. One of the clearest examples is the draft regulation on structural business statistics by the Council of the European Union which lists a number of variables to be collected in the Member States for all sectors (NACE.Rev1 sections C to K).

The first step in this process of collecting harmonised statistics for the services sector has been the elaboration of *a set of definitions of the variables to be collected on the services sector*, cf. Eurostat. Methodological Manual of statistics on service enterprises. General framework and sectoral manuals.

The second step has been the identification of *a number of common variables to be collected* ( the above mentioned draft regulation or the questionnaires in the pilot surveys on the services sector carried out 1991 - 1995 by the Member States of the European Union.).

The third step has been feasibility studies concerning the actual *data collection* which on an ad hoc basis has been carried out by the Member States in the above mentioned pilot surveys on business services, audio-visual services, hotels and travel agencies and transport activities.

The fourth step - which we address in this paper - is the *interpretation and comparison* of the collected data across (sub)sectors and countries. Even if the conceptual and legal framework are harmonised the differences between the activities and the national legal background and business traditions make the analysis of the collected data a burdensome and problematic task.

The objective of this paper is to present a proposal for approaching these problems of comparisons of statistical results across sectors and countries. We are aware that the problems we approach in this paper is of a demanding and complex character which have to be approached stepwise and we see this paper as a first attempt to start the discussion concerning methods related to intrasectoral and inter country comparisons.

It is also important to underline that the approach chosen in this paper is a micro/branch approach as it is our aim to discuss the problems of the demands put forward by users of the enterprise statistics as governments, branch organisations and other political decision makers. The growing internationalisation and the Internal Market of the EU have accelerated the need for international comparable enterprise based statistics.

## **2. PROBLEMS OF COMPARISONS RELATED TO SECTORAL REASONS**

In this chapter the problems related to the different activities within the services sector shall be illustrated. As mentioned in the introduction a number of pilot surveys on business services, audiovisual services, hotel and travel agencies and transport have been carried out by Eurostat and the Member States. The objective of the pilot surveys has been twofold, namely the testing of the elaborated methodology for data collection and the provision of statistical information.

In this chapter we have used the methodological experiences earned in the pilot surveys. We have chosen 3 variables as illustration of the complexity of the services sector concerning the production process and factors of production. We have selected the variables "turnover", "no. of persons employed" and "gross wages and salaries" and then we have identified the sectoral characteristics and contents of these variables for the sectors business services, audiovisual services and travel agencies and tour operators, see tables 1-3.

<b>Variable No. 8:</b> <b>Turnover</b> (Sum of 8)	<b>Definition:</b> <i>Turnover comprises the totals invoiced by the enterprise (or by the local unit) during the reference period, and this corresponds to market sales of goods or services supplied to third parties. Turnover includes all duties and taxes on the goods or services invoiced by the unit (or the local unit) with the exception of the VAT invoiced by the units vis à vis its customer. It also includes all other charges (transport, packaging, ect.) ascribed to the customer, even if these charges are listed separately in the invoice. Reduction in prices, rebates and discounts as well as the value of returned packing must be deducted, but not cash discounts. Turnover does not include sales of fixed assets. Operating subsidies received from public authorities or the EEC are also excluded. (Adapted from Industry Handbook, VI, 18 c).</i>	
<b>Subsector:</b>  Computer and computer related services NACE Rev.1: 72.10-72.60	<b>Comments by:</b>  Definition and delimitation:          Data sources:	
Professional services NACE Rev.1: 74.11, 74.12, 74.14	Definition and delimitation:          Data sources:	
Marketing services NACE Rev.1: 74.13, 74.40	Definition and delimitation:          Data sources:	

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<b>Subsector:</b>  Motion picture and video production NACE Rev.1: 92.11	<b>Comments by</b>  Definition and delimitation:  The enterprises belonging to this subsector are often specialized in the production of either televisual works, motion pictures, or advertising and institutional films, every subsector with the corresponding turnover. In the last years especially the production of televisual works is of increasing importance. The subsector consists of some medium, a few large and many micro enterprises, whereby the micro enterprises often do not produce any film a year.
Motion picture and video distribution NACE Rev.1: 92.12	Definition and delimitation:  Three subgroups can be distinguished; motion picture distribution mainly dominated by affiliates of American enterprises (mayors), video tape distribution services, often also affiliates of American mayors, and purchasing of rights enterprises. The first two groups of enterprises are specialized, their turnover is mainly characterized by their main activity. Enterprises of the third group have their main activity in the wider range of buying and selling TV, video and other rights of audiovisual works.
Motion picture projection NACE Rev.1: 92.13	Definition and delimitation:  Turnover in this subsector is characterized by "box office" receipts, advertising receipts and sales of sweets, drinks, icecream, etc. Goods which are not directly related to the activity of the subgroup. Also sales of merchandising products in so-called cinema-shops (CD's, videos, posters, etc.) are of increasing importance, especially in so-called multiplex-cinemas which have a tendency to develop from a "traditional cinema" an entertainment center (cinemas, bar, shops, video games, etc.).
Motion picture projection NACE Rev.1: 92.13	Definition and delimitation:  The turnover of radio and television activities mainly consists of public licence fees and advertising receipts. For pay-TV-channels the main part of turnover comes from subscribers. New forms of television activities like video-on-demand and pay-per-view have to be borne in mind.

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<p><b>Variable No.22:</b> <b>Number of persons employed</b></p>	<p><b>Definition:</b> <i>The number of persons employed is defined as the total number of persons who work in the enquiry unit (inclusive of working proprietors, partners working regularly in the enterprise and unpaid family workers), as well as persons who work outside the unit but who belong to it and are paid by it (e.g. commercial representatives, delivery men, repair and maintenance groups). Included are persons absent for a short period (e.g. sickness absence, paid leave or special leave), and also those on strike, but not those absent for an indefinite period. Also included are part-time workers who are regarded as such under the laws of the country concerned and who are on the pay-roll, as well as seasonal workers, apprentices and home workers on the pay-roll.</i></p> <p><i>Excluded are labour forces made available to the unit by other enterprises and charged for persons carrying out repair and maintenance work in the enquiry unit on behalf of other enterprises, as well as those during their compulsory military services.</i></p>	
<p><b>Subsector:</b></p> <p>Computer and computer related services NACE Rev.1: 72.10-72.60</p>	<p><b>Comments by:</b></p> <p>Definition and delimitation:</p> <p>Data sources:</p>	<p>The persons employed in this subsector are mainly employees dominated by the concentration of employees in a few large often internationally based enterprises. On the other hand the subsector also include a considerable number of experts working as self employed.</p> <p>The variable persons employed can basically be split into two groups: selfemployed and non paid family workers and employees. Information about the latter group can in most Member States be collected from administrative data, i.e. social security contributions data. The variable can in these countries be collected without extra burden for the enterprises, except for the smallest enterprises where the selfemployed and the non-paid family workers constitute a relatively large part of the total number of persons employed.</p>

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<b>Subsector:</b>  Motion picture and video production NACE.Rev.1: 92.11	<b>Comments by</b>  Definition and delimitation:	In the motion picture and video production sector the variable "persons employed" includes both "permanent" staff of the enterprise, i.e. persons which are employed permanently under a "normal" employment contract, and "temporary" staff, i.e. wage and salary earners employed only for the duration of the production of the work (actors, technicians). Moreover, it seems that in some countries free-lancers often take part in a film production as an actor or technician. This influences the total labour costs because payments for free-lancers are part of the purchases of services and not wages and salaries.
Motion picture and video distribution NACE.Rev.1: 92.12	Definition and delimitation:	No special comments
Motion picture projection NACE.Rev.1: 92.13	Definition and delimitation:	Motion picture projection is characterized by the high share of part-time employees like projectionists, cashiers, icecream-sellers, etc., often working less than 20 hours a week. This also influences the total level of labour costs per employee.
Radio and television activities NACE.Rev.1: 92.20	Definition and delimitation:	In this subsector the distinction between permanent and temporary staff seems to be of minor importance as in the motion picture and video production sector, but not negligible in the case of own productions of the television enterprises. The number of free-lancers and also of unpaid people like volunteers, who take part in the production of televisual works, seems to be remarkable. Free-lancers are not part of the employees, but for the measurement of productivity they could not be neglected.
Travel agencies and tour operators NACE.Rev.1: 63.30	Definition and delimitation:	No special comment

<b>Variable No. 11:</b> <b>Gross wages and salaries)</b>	<b>Definition:</b> "Gross wages and salaries include all money payments and payments in kind-before deduction of direct taxes and the employees' social security and pension fund contributions- depensed by the unit to all persons counted on the payroll, including homeworkers, by way of communication for work done by them". <i>(Adapted from the Industry Handbook, VI, 9).</i>	
<b>Subsector:</b>  Computer and computer related services NACE Rev.1: 72.10-72.60	<b>Comments by:</b>  Definition and delimitation:	91% current payments 9% bonuses and premiums  Problems for comparisons: - irregular, profit dependent payments - pay for contractual work (purchase services) - not included pay for 10% active owners
Professional services NACE Rev.1: 74.11, 74.12, 74.14	Definition and delimitation:	89% current payments 11% bonuses and premiums  Problems for comparisons: - irregular, profit dependent payments - pay for contractual work (purchase services) - not included pay for 18% active owners
Marketing services NACE Rev.1: 74.13, 74.40	Definition and delimitation:	92% current payments 8% bonuses and premiums  Problems for comparisons: - irregular, profit dependent payments - pay for contractual work (purchase services) - not included pay for 18% active owners
Technical services NACE Rev.1: 74.20, 74.30	Definition and delimitation:	90% current payments 10% bonuses and premiums  Problems for comparisons: - irregular, fixed payments - pay for contractual work (purchase services) - not included pay for 23% active owners
Renting and leasing services NACE Rev.1: 71.10, 71.30	Definition and delimitation:	Problems for comparisons: - irregular profit dependent payments - not included pay for 17% active owners



<b>Variable No. 11:</b> <b>Gross wages and salaries</b>		
<b>Subsector:</b>  Labour recruitment and provision of personnel NACE Rev.1: 74.50	<b>Comments by</b>  Definition and delimitation:	96% current payments 4% bonuses and premiums  Problems for comparisons: - pay and working conditions extrem different - not included pay for 17% active owners
Operational services NACE Rev.1: 74.60, 74.70	Definition and delimitation	95% current payments 5% bonuses and premiums  Problems for comparisons: - regulated pay for part time workers with <15 hours/week - voluntary social expenses minimal
Other business services NACE Rev.1: 74.81, 74.84	Definition and delimitation	86% current payments 14% bonuses and premiums  Problems for comparisons: - very inhomogenous position - irregular, activity and profit dependent payments

### 3. PROBLEMS OF COMPARISONS RELATED TO NATIONAL REASONS

If one has to make inter-country comparisons the influence of the national legislation has to be taken into consideration. We have identified the below mentioned variables as the perhaps most vulnerable towards legislative differences;

- *number of enterprises/legal status* (proportion of limited companies of total stock)
- *variables related to the accounts* (especially the variables close to the "bottom line", i.e. "financial surplus" and "profit or loss")
- *wages*
- *employment* (full/part time, no. of official working hours)

The other way round, if we look at the legislative elements to identify the legislation influencing the enterprise;

- *company law* if capital requirements are high these can influence the ratio of limited companies
  - *fiscal law* differences in tax rates for persons and companies can influence the chose of legal form and also the surplus variables can be influenced by the taxation aspect
- This also goes for the composition of personnel costs , ie division into direct wages and indirect costs
- *social law* indirectly influences the composition of personnel costs as well
  - *social law and labour market legislation* strongly influence the employment variable

Below we shall illustrate the problems of intra-country comparisons with the results from a survey carried out amongst a limited number of countries, see annex 1. Deliberately we have chosen both EU Member States and countries not belonging to the EU.

**Table 3.1. Breakdown of stock of enterprises by legal status (%).**

Country	Sole proprietorship			Partnership			Company			Other		
	TI	Trans	BS	TI	Trans	BS	TI	Trans	BS	TI	Trans	BS
AUS	17	17	13	16	20	7	51	50	61	15	13	19
Can	27	na	na	na	na	na	61	na	na	12	na	na
DK	62	62	71	7	8	6	22	23	19	9	6	4
D	73	78	75	11	8	9	14	13	15	2	1	1
NL	78	41	55	15	22	11	31	32	28	6	5	6
S	27	45	22	17	9	18	50	44	46	6	2	14
SF	26	26	7	30	42	21	43	31	71	2	1	1

TI= Total industry (NACE Rev.1 15-74 or equivalent)

Trans= Transport (NACE Rev.1 60-63 or equivalent)

BS= Business Services (NACE Rev.1 72-74 or equivalent)

The breakdown of the legal structure of enterprises is shown in table 3.1. The table shows two trends, namely the dominance of sole proprietorships in the old EU Member States (Denmark, Germany and the Netherlands) and the opposite structure in Australia and Canada and the new EU Member States (Sweden and Finland). These countries are characterised by company/limited liability corporation as the most frequent legal ownership. This picture can also be refound across sectors.

Such differences in the legal structure of the enterprises is of importance if one has to compare especially variables as "financial surplus", "profit and loss" or "wages and salaries" for which the difference in ownership will influence the results, especially as many services branches are characterised by a high number of small enterprises.

**Table 3.2 Minimum legal provised capital (in ECU) for founding of companies/  
/limited liability companies**

AUS	CAN	DK	D	NL	S	SF
1	0	26500/66300	26000/52000	18500/46300	5500	2400

Without having the aim of going into a detailed explanation of the difference in the legal structure, table 3.2 shows the minimum legal provised capital for founding of companies/limited liabilities corporations. This table shows a coherence between high legal claims for the requisite capital and the dominance of sole proprietorships.

Other explanations have to be considered as well as for instance the influence of the data source - see also section 4. In this case the problem of the coverage of the business register used - if any business register. For instance the low VAT-threshold of an annual turnover of 2.500 ECU in Denmark causes that the business register contains also all the smallest enterprise units which again causes a high number of sole proprietorships in the national statistics.

**Table 3.3. No. of working hours per week according to agreements between  
employees' and employers' association.**

Sector/ country	AUS	CAN	DK	D	NL	S	SF
Manufacture	na	38.4	37	36	38	40	40
Retail trade	na	39.5	37	37.5	36-38	40	40
Business services	na	37.4	37	na	na	40	40

One of the key variables is "number of persons employed" and as shown in the previous paragraph this key variable is characterised by large subsectoral differences regarding for instance the constitution of full and part time employment. But this variable is also problematic related to national comparisons because the employment is not measured by the accurate no. of hours worked but by a kind of "normal work week". As shown in table 3.3 the "normal" work load differs quite substantially from country to country.

If we accept the national definitions of full/part time employment we shall see substantial differences in the structure of the employment as parttime employment is of relatively small importance in countries as Finland and Germany but of comparably importance in Denmark and Australia. Again our objective in this paper is only to illustrate the problems encountered by comparisons not to find the explanations at this first step. But probably the relatively high amount of female persons employed in Denmark is one explanation for the importance of the part time employment.

**Table 3.4. Breakdown of the employment by full/parttime employment (%)**

Country	Total industri		Trade		Transport		Business services	
	Full time	Part time	Full time	Part time	Full time	Part time	Full time	Part time
AUS <sup>2</sup>	77	23	61	39	86	14	76	24
CAN <sup>1</sup>	85	15	79	21	93	7	91	9
DK <sup>1</sup>	72	28	62	38	79	21	71	29
D <sup>2</sup>	90	10	82	18	89	11	89	11
NL <sup>2</sup>	80	20	70	30	85	15	80	20
S <sup>1</sup>	87	13	75	25	90	10	79	21
SF <sup>1</sup>	91	9	91	9	94	6	87	13

<sup>1</sup> Persons employed

<sup>2</sup> Employees

If carrying out inter-country analysis of for instance the expenditure level of the enterprises, the national legislative differences can have a substantial influence on the statistics. Table 3.5 shows the importance of having information about the total labour costs and not only gross wages and salaries. The table shows that the financing of the social security system differs between countries. In Denmark the social security contributions are mainly paid by the employees through their personal taxes implying an expenditure mix of a large amount of direct costs/wages and salaries (96%/94%) and a very small amount of social security contributions paid by the employer. In France we see a very different picture with a relatively greater part of in direct costs (30%)

**Table 3.5. Structure of labour costs (%). Wholesale and retail trade, 1988**

	DK	D	F	NL	UK
Direct costs	96.1	79.0	70.4	80.2	87.0
Direct earnings	94.2	60.3	54.2	73.6	86.8
Indirect costs	3.9	21.0	29.6	19.8	13.0
Social security	2.8	18.5	27.1	17.0	10.9

Source: Eurostat. Labour Costs.

#### **4. PROBLEMS OF COMPARISONS RELATED TO DATA SOURCES**

In the previous sections we have illustrated problems related to reasons external to the statistical world itself. In this section problems related to differences in the statistical production process shall be by two examples; the statistical unit and the business register. As these examples are of a general character and not specific to the services sector, it is not the aim of this paper to go into a detailed description of the problems of inter-country or sectoral comparisons related to these issues.

Of course the definition of the statistical unit is a basic issue in any kind of comparison. Till recently there has been considerable differences in the definitions, but the ongoing European integration process also implies harmonization in the statistical definitions used. One example is the regulation concerning statistical units which defines the statistical units to be used by the national statistical office, see also annex I for definition of the enterprise unit. Consequently the new Member States Finland and Sweden have already adopted the enterprise definition put forward in the regulation.

One of the most important differences in the statistical production process is the question of the existence of an updated business register with full coverage. The business register is an indispensable tool for identification of the enterprise universe - especially within the services sector characterised by the many micro enterprises and by many births and deaths of enterprises as well. The pilot survey on business services clearly showed the different results by having or not having access to such a business register.<sup>1</sup>

#### **5. SUMMARY**

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<sup>1</sup>Eurostat. Business Services in Europe (1995).

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#### **5. SUMMARY**

As stated in the introduction we see this paper as a first attempt to identify the problems and structure the discussion related to inter-sectoral/country comparisons. In the following the main issues are summarized;

- 1) The inter-sectoral/country comparisons should be seen as the last step in the statistical work process-one might call it the finishing touch.

<sup>1</sup>Eurostat, Business Services in Europe (1995).

- 2) For analytical reasons we have divided the problems encountered into 3 groups, sectoral differences, national differences and data source differences.
- 3) By using the variables "turnover", "no. of persons employed" and "gross wages and salaries" the aim has been to illustrate the sectoral differences within the services sector. The differences presented rise the basic question which comparisons between (sub)sectors can reasonably be raised?
- 4) In order to illustrate the national differences we have used examples showing the possible influence of so different areas as business and social legislation. The influence of the national legislation is an important but complex factor to monitor.