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IMPLEMENTING NACE REV. 1.1 IN THE DANISH STATISTICAL BUSINESS REGISTER

Invited paper submitted by Statistics Denmark*

1. In 2002 the NACE Rev. 1.1 was adopted. The changes involved were not of a fundamental character, but even minor changes to classifications often meant a lot of work.

2. The revision of NACE in 2002 involved a revision of the Danish activity classification as well. This report describes the work in implementing NACE Rev. 1.1 at Statistics Denmark. Furthermore, the growing importance of activity codes in respect to administrative use in Denmark is described in the last part of the report.

3. The implementation work can be divided into two parts:

- Updating the classification itself;
- Adaptation of the Statistical Business Register to the updated activity classification.

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4. The first part is described below in section 1, and the second part is dealt with in sections 2 and 3.

I. Updating the Danish activity classification as from 2003

5. The Danish activity code is a 6-digit code. The first 4 digits is the NACE-code, and the last two digits reflect the Danish break down of NACE. The Danish activity classification "Dansk Branchekode" (DB) consists of about 800 6-digits activity codes.

6. The changes in NACE had a direct effect on the corresponding Danish activity codes. Furthermore, when there should be changes anyway, it was decided to make a complete examination of the DB. The experiences from the daily use of the classification had revealed a need for an updating of some of the 6-digit codes and the explanatory notes, etc.

7. The activity code is one of the key variables in the Statistical Business Register. To ensure coordination between the different business statistics areas regarding activity codes, Statistics Denmark has set up a committee on activity codes. This Committee has overall responsibility for Danish activity classification and has the deciding word on questions of interpretation of the classification. This Committee made the final decisions on changes to the Danish activity classification in 2003.

8. Before the decisions were taken, the complete proposal of changes was circulated among some relevant interested parties for consideration. These parties were some relevant organisations of interests, some of the Danish ministries, the Danish National Bank, interested parties in Statistics Denmark etc.

9. Changes in classifications always cause breaks in time series, and in the light of the coming fundamental change in ISIC and NACE in 2007, the main principle for changing the classification in 2003 was to make a minimal number of changes.

10. Changes in NACE should of course be worked on, and the obvious user needs for more details regarding the ICT-sector should be dealt with. In addition to that a few other changes were decided. The principle was to join two or more Danish 6-digit codes in cases where it in practice has appeared difficult to tell them from each other. In such cases the division makes no sense, and in fact the division signals a data content which we in practice fail to live up to.

11. Because of the relatively detailed Danish activity classification, Statistics Denmark years ago organized the total number of registered industries (some 800 individual industries) into 4 standard groupings. The 4 standard groupings comprise 9, 27, 53 and 111 groups, respectively. These groups form the basis of using "Dansk Branchekode" in statistics published by Statistics Denmark. The four standard groupings reflect an increasing aggregation of detail in the classification.

12. When decisions on changes to the classification in 2003 were taken, it was considered absolutely necessary not to change the content in the standard industrial groupings.

13. Table 1 below shows the number of changes to the Danish activity classification in the 2003 revision. The changes to the classification are divided into three types:

- "Split-ups" are activity codes which are divided into two or more classes as from 2003;
- "Joinings" are activity codes which are joined with one or more other activity classes as from 2003;
- "Only re-numbering" are activity codes which have changed the number but not the content as from 2003.

Table 1: Changes to the Danish activity classification, 2003

Type of change	Caused by changes in NACE	Only "national level" – last two digits	Total
Split-ups	8	10	18
Joinings	1	3	4
Only re-numbering	19	5	24
Total	28	18	46

14. As the table shows, the extents of changes to the Danish activity classification in 2003 are rather limited.

15. The Danish activity classification ("Dansk Branchekode") is, traditionally, edited in a printed version. It was furthermore decided to make the 2003 edition available in an electronic version via Statistics Denmark's homepage on the Internet (www.dst.dk). Via this site some files containing data sets with the activity classification can be downloaded as well.

II. Adaptation of the Statistical Business Register to the changes in classification

16. The Danish Statistical Business Register contains Enterprise Units, Legal Units and Local Kind of Activity Units. Only a very few Enterprise Units consist of more than one Legal Unit, which means that the Enterprise Unit level by and large equals the Legal Unit level in practice.

17. The cases of joinings and re-numbering described above were fairly simple to deal with in the Business Register - the re-coding of the units involved could be done in an automatic way because it was obvious which new activity code the units concerned should have assigned as from 2003.

18. The cases of split-ups on the other hand involved a lot of work. In the vast majority of the occurrences, it is not obvious which of the new classes the company belongs to. On that background Statistics Denmark decided to send a questionnaire to the enterprises in these classes. In the questionnaire each of the relevant new classes was described, and the companies were asked to choose the most suitable class. The questionnaires leave an option

for the companies to describe their activities in more details, if the activities do not fit into the proposed classes.

19. Table 2 below shows the number of units in the affected activity classes distributed by type of change of their original activity class

Table 2: Legal units and LKAU's distributed by type of change

Type of change	Legal Units	LKAU's
Split-ups	19,727	22,038
Joinings	1,977	2,051
Only re-numbering	15,744	16,508
Total	37,448	40,597

20. From table 2 it appears that about 20,000 Legal Units were classified in classes, which were split up in 2003.

21. The vast majority of the Legal Units in the Danish Business Register have one and only one LKAU belonging to it. In these situations, the Legal Unit and the LKAU are classified with the same activity code. Hence, the greater part of the 22,038 LKAU's in "Split-ups" activity codes belongs to Legal Units which have one and only one LKAU belonging to it.

22. Because sending questionnaires is connected with appreciable costs, it was decided to reduce the number of questionnaires as much as possible. For that reason, every split-up case was thoroughly examined with a view to finding out whether it made sense to omit questionnaires to some of the enterprises concerned.

23. Enterprises without employees or turnover are less important in statistical contexts. But for some administrative purposes the activity code plays a part for such enterprises too. Statistics Denmark has the overall responsibility for activity codes in the Administrative Business Register as well. As a result, it was not so simple to just ignore these enterprises in the inquiry. Instead it was analysed if there could be some reasonable criteria formulated for each of the relevant activity classes regarding the classification of enterprises without employees or turnover.

24. As an example, NACE class 40.10 "Production and distribution of electricity" was divided into 40.11 "Production of electricity", 40.12 "Transmission of electricity" and 40.13 "Distribution and trade of electricity". Enterprises in NACE class 40.10 without employees were assumed to be farmers and the like, which also own a windmill. With that argument these enterprises were classified in the new class 40.11 as from 2003.

25. Some of the large enterprises in Denmark are well known, and in cases where it was quite obvious where an enterprise should be placed, this decision was made without asking the company.

26. With regard to the Manufacturing sector, it turned out possible to classify the enterprises which form part of the Danish Industrial Commodity Statistics (PRODCOM), without asking them directly. These enterprises report sales on commodity numbers based on the "Combined Nomenclature" (CN) and the "Harmonized Commodity description and coding system" (HS). The activity codes can be derived directly from these reports.

27. After this screening out procedure, we ended up with 10,240 enterprises, which should have a questionnaire. The major part of these was Legal Units with one and only one LKAU belonging to it. Only 200 enterprises in the enquête consisted of more than one LKAU.

28. It was decided to send a reminder to the enterprises, which did not answer our first questionnaire. The total number of reminders amounted to 5,200. The letters of reminder specified the activity code which we would give the enterprise in case of no answer. Against this background of reminder letters, we received another 1,700 answers. That gave an overall answering rate amounting to 66 per cent.

29. The remaining 3,500 enterprises were given an activity code in accordance with the one mentioned in the reminding letters. That means their lack of answer was treated like an acceptance on the proposed activity code.

30. In the Statistical Business Register it is possible to register up to 3 secondary activity codes on each unit in the Register. The updating procedures described above only concerns the companies' primary activity codes. Beyond that, 3,000 Legal Units and 2,900 LKAU's were registered with at least one secondary activity in one of the changed activity classes. These secondary activity codes were updated in an automatically way, which means we did not send questionnaires regarding secondary activities.

III. Quality in accordance to activity codes

31. Sending out questionnaires on activity codes serves at least two purposes:

- Evaluation of the quality of the activity codes in the Statistical Business Register within relevant areas;
- Improvement of the quality of the activity codes in the Statistical Business Register within relevant areas.

32. Updating activity codes in the Statistical Business Register automatically causes updating of the central administrative register, CVR. In cases of changed activity codes in CVR, The Danish Tax and Customs Authority send a new registration certificate to the Legal Unit concerned.

33. This means that all the amendments to activity codes made by Statistics Denmark in connection with the changes in the activity classification from 2003 are communicated to the enterprises involved.

34. Because of that we have received a number of applications on activity changes from enterprises which before 2003 were classified in classes we have joined with other activity classes or in classes which only have changed the number. Said in another way, the automatically changing of activity codes can give a hint concerning quality even though the enterprises concerned were not directly asked.

35. But the results concerning quality in respect to these classes must be taken with a grain of salt, just because the enterprises in these classes were not directly asked to tell us whether they was correctly classified.

36. In the tables below the quality of activity codes in the Statistical Business Register is evaluated, as far as regards activity classes affected by the revision of the Danish activity classification.

37. The criteria for a unit being regarded as correctly classified is that the unit concerned by the end of February 2003 in the Register is classified in a class which is directly derived from the class, the unit was in by the 1st of October 2002. The 1st of October is chosen because we started the updating process around that date, and the end of February is chosen because we wanted as many corrections from the companies on basis of their new registration certificates as possible to form part of the analysis.

Table 3: Legal units correctly classified

Type of change	Number of Legal Units	Number of Legal Units correctly classified	Correctly classified, per cent
Split-ups	19,727	18,046	91,5 pct.
Joinings	1,977	1,885	95,3 pct.
Only re-numbering	15,744	15,194	98,0 pct.

38. Table 3 shows that more than 90 pct. of the Legal Units in the population must be seen as correctly classified. Not surprisingly, the part of supposed correctly classified Legal Units is highest for the part of the population, which were not asked directly.

39. In table 4 the quality on activity codes is measured by turnover. The Split-up cases show a significant difference to table 3 above as a smaller proportion of turnover than of the number of units can be seen as correctly classified. This difference indicates that a relatively larger part of the more important enterprises can be seen as incorrectly classified. As far as it goes to the part of the population, which were not asked directly the pattern is similar to the one from table 3.

Table 4: Turnover for Legal Units correctly classified

Type of change	Total Turnover, mill. d.kr.	Turnover for Legal Units correctly classified	Turnover, correctly classified, per cent
Split-ups	80,755	69,646	86,2 pct.
Joinings	2,502	2,419	96,7 pct.
Only re-numbering	25,648	24,941	97,2 pct.

40. In table 5 the quality on activity codes is measured by amount of employees. The result from table 5 fully supports the results from table 4.

Table 5: Employees, Legal Units correctly classified

Type of change	Employees, total	Employees, Legal Units correctly classified	Employees, correctly classified, per cent
Split-ups	109,135	96,444	88,4 pct.
Joinings	11,128	11,006	98,9 pct.
Only re-numbering	62,581	61,184	97,8 pct.

41. The last table – table 6 – shows fairly the same pattern as table 3 even though the part of LKAU's correctly classified is a little bit higher than applies for the Legal Units. This result is not very surprising because the major part of the units is belonging to each other in the proportion 1:1.

Table 6: LKAU's correctly classified

Type of change	Number of LKAU's	Number of LKAU's correctly classified	Correctly classified, per cent
Split-ups	22,038	20,614	93,5 pct.
Joinings	2,051	1,970	96,1 pct.
Only re-numbering	16,508	16,047	97,2 pct.

42. The overall conclusions from the tables above can be summed up to:

- Less than 10 pct. of the enterprises in the population was incorrectly classified;

- Among the incorrectly classified Legal Units was an overrepresentation of rather important enterprises in respect to turnover and employees.

IV. Administrative use of activity codes

43. When the activity codes in the Statistical Business Register are updated the activity codes in the central administrative register, CVR, are automatically updated as well. The activity codes in the CVR are used for an increasing number of administrative purposes among which is the calculation of the insurance premiums the enterprises have to pay to have the employees ensured.

44. This increased focus on activity codes is first of all positive, because it contributes to a better quality concerning activity codes in the register, but on the other hand it raises some problems, e.g. some enterprises will work hard to pay a lower insurance premium rather than to ensure a correct activity code.

45. The insurance premiums are based on risk which means it is much more expensive for a company to be classified in some of the manufacturing classes than being classified in the service sector. The premiums differ within the manufacturing sector as well. As an example, the yearly premium for one full-time employee for a company classified in NACE class 2710 "Manufacture of basic iron and steel and ferro-alloys" amounts 15,381 d.kr. (equal to 2,080 Euro). As a comparison, the yearly premium amounts 1,285 d.kr. (equal to 175 Euro) for companies classified in NACE class 3512 "Building and repairing of pleasure and sporting boats". In the greater part of the NACE classes within the service sector, the premiums are strikingly lower – the premium connected to NACE class 7230 "Data processing" amounts for instance 168 d.kr. (equal to 23 Euro).

46. This is of course an incentive for the enterprises to be interested in the activity code with which they are registered, and a substantial and increasing number of enterprises contact Statistics Denmark to have the activity codes changed.

47. This administrative use of activity codes might contribute to an unequal classification structure, because enterprises in the "cheap" classes do not in the same way have incentives to correct the mistake if they feel wrongly classified. We are, however, aware of the problem and we do not automatically change the activity codes at the request of the companies without checking it carefully. As an example will a change of the activity code from the manufacturing sector to the service sector nearly always cause a thorough study?

48. In some cases the statistical principles for activity coding result in activity codes which are not very suitable for administrative purposes. The principles for classifying ancillary units for instance, gives a lot of problems as to setting insurance premiums because the enterprises do not understand why they should pay a fairly high premium for the white-collar workers involved in administration or the like.

49. Dual coding concerning ancillary units could maybe solve this problem. Dual coding implies an ancillary unit to be classified both to its own industry and to the industry it serves.

50. The Danish Labour Market Occupational Diseases Fund (AES) is responsible for the insurance premiums the enterprises have to pay to have the employees ensured. AES, CVR and Statistics Denmark have in the autumn of 2002 formed collaboration on the problems connected to using activity codes as a basis for the insurance premiums. As a part of this work we will suggest the AES not to use the activity codes in a mechanically way but instead just using them as a basis for the work with insurance premiums. For instance maybe a special treatment of ancillary units in respect to insurance premiums could be a good idea. If these suggestions are followed, it is our wish that the one-sided pressure on the activity codes will diminish.

51. We hope this collaboration can solve the problems concerning the administrative use of activity codes. However, in the Statistical Business Register exists a technical possibility for cutting the connection to the administrative register as regards selected data elements. In practise this means that we in Statistics Denmark can choose to register our own activity codes in connection with the statistical units and accept another activity code connected to the administrative units.

52. Such a decision should not be taken before everything else has failed to work, because it will break with the fundamental principles for the way the whole system is intended to work. But if the pressure on the activity codes gets large enough it can appear to be a necessity because Statistics Denmark's primary aim is to preserve the activity codes of the Statistical Business Register suitable for statistical purposes.
