

Exercises for Practical Training Sessions for working with the Adult Education Survey (AES) (2011) – DwB-Training Course: Working with data from official statistics in Europe particularly the Adult Education Survey (2011) in Athens (Greece), February 18th - 20th, 2015, Hosted by National Centre for Social Research (EKKE)

1. Exercise 1: Identifiers Countries & Respondents

(Syntax I_Exercise_1_Country_Rec_UniqueRespID) (given, no task)

- a. Countries are identified by string-variables (AT, BG, ...).
Recode country-codes in values for split-File-command by country
- b. RespIDs are identical between countries.
Compute a unique RespID by linking it to country code
- c. Save the data set.

Required variables:

- *COUNTRY [Recode CONVERT) INTO Country_REC]*
- *RespID and Country_REC [COMPUTE UniqueRespID]*

After results are compared save the data set:

```
SAVE OUTFILE='\\...\\1_Training_AES2011_training.sav'  
/COMPRESSED.
```

2. Exercise 2: Descriptive analyses on participation in FED and NFE

(Syntax II_Exercise_2_Descriptives_Participation_FED_NFE)

Comparing participation rates in Adult Education and Training is one of the most common and basic analytical steps in international comparison.

The following exercise consists of five parts with descriptive analyses only, aiming on exploring the structure of the AES dataset and the information that is collected for adult education and training participation.

After the first step of defining the sample it is necessary, to save a sub dataset. The then following exercises build upon each other, but it is not necessary to save sub datasets, so that you can continue to work with one data file and just save it after completing the exercises.

Before you start:

- Define and select sample by age of target groups (age = 25-64). Save the data in new file [INTO ... \\2_Training_AES2011_training_25_64.sav]
- *Reason:* Countries are obliged to collect data on adults aged 25-64. However, on an optional basis, countries are allowed to include the age groups 18-24 and 65-69. (Article 2, COMMISSION REGULATION (EU) No 823/2010 of 17 September 2010; available in A2 AES-Manual Annexes Part A_Annexes 1 to 14).

Exercise 2

- a. How is the distribution of FED and NFE during the last 12 months for Finland (FI), Spain (ES) and UK (or any other countries you are interested in)?
Task: Describe participation rates; for descriptive comparison: weight the data by using the weighting factor for individuals [RESPWEIGHT].
Compare the results with the tables provided by EUROSTAT (<http://ec.europa.eu/eurostat/web/education-and-training/data/database>) [are provided in an Excel-file].
- b. How is the distribution of participation in the selected countries, if FED and NFE are combined?
Task: Again: describe participation rates and weight the data by using the weighting factor for individuals and compare the results with the tables provided by EUROSTAT (<http://ec.europa.eu/eurostat/web/education-and-training/data/database>) [are provided in an Excel-file].
- c. How is the distribution of participation in FED, NFE and FED-NFE-combined in each country differentiated by labour status?
Task: Display participation rates for FED, NFE and FED-NFE-combined differentiated by labour status. For this, categorize the variable labour status in 3 categories :
1 'Employed persons', 2 'Unemployed persons', 3 'Inactive persons' (name variable Mainstat3). Display participation rates of employed, unemployed and inactive persons in FED, NFE and FED-NFE-combined over the whole sample and then analyse the distribution of employed, unemployed and inactive persons within the different forms of adult education (FED, NFE and FED-NFE combined).
- d. How is the share of job-related learning activities among NFE?
Usually, in the AES detailed information is collected for two NFE-activities. However, some information on NFE activities is collected for up to 10 activities. This holds true for the question, whether the NFE-activity was job related. This information is aggregated by Eurostat and variable is provided that indicates, whether at least one up to 10 of the reported NFE-activities was job related: NFEPURP10.
Task: Display the share of job-related learning activities among NFE.

Required variables:

- *NFENUM* and *FED* to identify participation rates [RECODE NFENUM INTO NFE]
- *FED* and *NFE* to combine FED and NFE [COMPUTE FEDNFE]
- *MAINSTAT* [RECODE MAINSTAT INTO Mainstat3]
- *NFEPURP10*

After results are compared save the data set:

```
SAVE OUTFILE='...\2_Training_AES2011_training_25_64.sav'  
/COMPRESSED.
```

3. Exercise 3: Descriptive analyses on volume in FED and NFE

(Syntax III_Exercise_3_Descriptives_Volume_FED_NFE)

Analysing the volume of participation in Adult Education and Training can complement information on participation rates and is also quite common in an international comparative perspective. The following exercises focus on calculating and comparing the number of hours of instruction for FED and NFE. The following exercise consists of three parts with descriptive analyses only, aiming on exploring the structure of the AES dataset and the information that is collected for adult education and training participation. The exercises build upon each other, but it is not necessary to save sub datasets, so that you can continue to work with one data file and just save it after completing the exercises.

Exercise 3

- a. How is the mean of instruction hours for FED in Finland (FI), Czech Republic (CZ) and Poland (PL)? Check beforehand for all countries, whether the number of instruction hours reported is plausible. Use the following assumptions: FED-participation could have been max.12 hours/day; max. 5 days a week (=20 days a month); max. 12 months → so overall max. 2880 hours. Declare implausible values (GT 2880) as missings. Differ the mean of instruction hours for FED significantly between countries (CH, CZ, LU)? Weight the data by using the weighting factor for individuals.

- b. How is the mean of instruction hours for NFE in Finland (FI), Czech Republic (CZ) and Poland (PL)?
Usually, in the AES this information is collected for two NFE-activities. However, the dataset provides the number of instruction hours for NFE for up to three activities (quite a few countries collected detailed information for up to three NFE-activities). So use the variables NFENBHOURS1, NFENBHOURS2 and NFENBHOURS3 for calculating the number of instruction hours for NFE-activities. After you have done that, check whether the number of instruction hours for NFE activities reported are plausible (all three activities together). Use the following assumptions: all NFE-participation combined could have been max.12 hours/day; max. 5 days a week (=20 days a month); max. 12 months → so overall max. 2880 hours. Declare implausible values (GT 2880) as missings.

Remark: Of course it can be argued, that these assumptions are implausible, e.g. for single countries depending on the (further) education system. So depending on your research question and on the countries you will compare you have to check whether this assumption holds true for you, too.

- c. How is the mean of instruction hours for FEDNFE-combined in Finland (FI), Czech Republic (CZ) and Poland (PL)? Again: check, whether the number of instruction hours for FEDNFE activities reported are plausible. Use the same assumptions and declare implausible values (GT 2880) as missings.

Required variables:

- FEDNBHOURS

Exercises for Practical Training Sessions for working with the Adult Education Survey (AES) (2011) –
Prepared by Katrin Kaufmann, Freie Universität Berlin,
Department of Education and Psychology, Educational Research on Further Education
[http://www.ewi-psy.fu-berlin.de/empirische_ weiterbildungsforschung](http://www.ewi-psy.fu-berlin.de/empirische_weiterbildungsforschung); katrin.kaufmann@fu-berlin.de

- *NFENBHOURS1, NFENBHOURS2 and NFENBHOURS3 [COMPUTE nfenbhours_ges]*
- *FEDNBHOURS nfenbhours_ges [COMPUTE combhours_ges]*

After results are compared save the data set:

```
SAVE OUTFILE='\\...\3_Training_AES2011_training.sav'  
/COMPRESSED.
```

4. Exercise 4: Focus on 1.NFE-activity: participation in employer-sponsored-NFE (1. activity)

(Syntax VI_Exercise_4_create_employer-sponsored_NFE)

Differentiating employer-financed vs. non-employer-financed NFE plays a central role in international comparative research on adult education and training participation. There are different concepts and possibilities to define employer-sponsored NFE. We will refer to the classification suggested by Eurostat (European Commission / Eurostat 2012b. p. 1-5).

The following exercise aims on understanding the Eurostat definition of “employer-sponsored NFE” and to apply this definition to the data. For this, we will focus on the first NFE-activity only (which is often done in the literature). However, we will check, whether there are huge variations between the first and second NFE activity regarding employer-support. The exercise consists of three parts, consisting mainly on recoding and creating variables, in order to create a variable indicating if the first NFE-activity is employer-sponsored. After the sample has been restricted to the working population and been saved in a new file, it is not necessary to save sub datasets, so that you can continue to work with one data file and just save it after completing the exercises.

Before you start:

- Restrict sample on working population because we want to analyze whether there are differences between countries regarding employer-sponsored NFE. For restricting the sample use mainstat3. Save the data in new file [INTO ... \4_Training_AES2011_training_employed.sav']

Exercise 4

- a. Check definition of employer-sponsored NFE according to European Commission / Eurostat (2012b. p. 4-5 -pdf document AES_EmployerSponsored) and prepare relevant variables first.
Create nfe1_type: combine courses, workshops, seminars and private lessons; leave guided on the job training separately [NFERAND1_TYPE INTO nfe1_type]. This is important as some information collected in detail are not collected, if the activity is classified as "guided on the job training" (e.g. the information whether the activity took place during paid working hours is not included, if NFE is classified as guided-on-the-job - training).
- b. Create employer-sponsored NFE (for 1st activity) [COMPUTE NFE1_Employersponsored]
- c. Create employer-sponsored NFE (for 2nd-activity) [COMPUTE NFE2_Employersponsored] in order to check, whether there are differences between 1st and 2nd NFE-activity.

Required variables:

- Mainstat3
- NFERAND1_TYPE, NFERAND2_TYPE [RECODE or COMPUTE nfe1_type, nfe2_type]
- NFEPaidBY1_1, NFEPaidBY2_1

- *NFEWORKTIME1, NFEWORKTIME2*

After results are compared save the data set:

```
SAVE OUTFILE='\\...\ 5_Training_AES2011_NFE_employersponsored.sav'  
/COMPRESSED.
```

INTERIM Summary

For our further analyses, we will focus on the 1st NFE-activity. We will analyse whether there are differences between countries regarding...

- the distribution of employer-supported NFE (1st activity) overall and for selected socio-demographic characteristics
- determinants of participation in employer-supported NFE (1st activity)
- difficulties/ barriers in access to NFE overall and for employer-supported NFE (1st activity)

5. Exercise 5 Descriptive analyses for employer-Sponsored-NFE (1st activity)

(Syntax V_Exercise_5_Descriptives_employer-sponsored_NFE)

For our further analyses, we will focus on the 1st NFE-activity. We will descriptively analyse whether there are differences between countries regarding...

- the distribution of employer-supported NFE (1st activity) overall and for selected socio-demographic characteristics
- volume in employer-supported NFE (1st activity) - overall and for selected socio-demographic characteristics

Before you start:

- Focus on Hungary, (HU), Poland (PL) and Portugal (PT) (or any other countries you are interested in)

Exercise 5

- a) How is the distribution of participation in employer-supported NFE (1st activity) in the different countries?
Describe participation rates; for descriptive comparison: weight the data by using the weighting factor for individuals [RESPWEIGHT]. Differ distributions significantly between countries?
- b) How is the distribution of participation in employer-supported NFE (1st activity) in each country differentiated by gender?
- c) Calculate the volume of employer-sponsored NFE (1st activity) and examine whether differences in the mean of instruction hours for employer-supported NFE (1st activity) exist between countries and between male and female within each country. Create a help-

variable, indicating, if NFE1 was employer-sponsored. [recode NFE1_Employersponsored into NFE1_EmployersponsoredYesNo first].

Based on this, create a volume-variable for employer-sponsored NFE1 [COMPUTE NFE1_VolEmployersponsored].

(We are only interested in the volume of employer-sponsored NFE 1 and will neglect for this exercise differences between the volume of employer-supported vs. non- employer-supported NFE – which would be an interesting question, too. Furthermore, we do not include the information of both, 1st and 2nd activity for calculating the volume for employer-sponsored NFE. But in the syntax this is provided as an alternative option).

Required variables:

- *NFE1_Employersponsored*
- *SEX*
- *NFENBHOURS1*

After results are compared save the data set:

```
SAVE OUTFILE='\\...\ 5_Training_AES2011_NFE_employersponsored.sav'  
/COMPRESSED.
```

6. Exercise 6: Examine determinants of participation in employer-supported NFE (1st activity)

(Syntax VI_Exercise_6_Determinants_of_employer-sponsored_NFE)

Determinants of participation in Adult Education and Training are very often analysed. Thereby, the influence of individual related characteristics, such as age and gender but also the level of educational attainment is examined under control of structurally determined characteristics related to employment, e.g. firm size. As we have seen, participation in NFE is mostly employer-sponsored across European countries; therefore, we continue to focus on this category.

Before you start:

- Recode central variables first [given in syntax VI_a_Recodings_for_Exercise_6]. Save the new data set [INTO ... \6_a_Training_AES2011_training_recode_multivariate.sav']
- Exclude cases with firm size reported 'do not know, but more than 10 persons' and save data in new file [INTO '...\6_Training_AES2011_training_select_multivariate.sav'].
- Suggestion: focus on two countries only, e.g. Slovak Republic (SK) and UK.
If you run the analyses for all countries, exclude Ireland (IE) from the analyses, because in the training data set there are only 84 cases being labeled as "employed person"

Exercise 6

Examine the determinants of participation in employer-sponsored NFE (1st activity) using a logistic regression. The aim is to find out whether the same independent variables influence participation in employer-sponsored NFE (1st activity) in the different countries or not. Therefore, the logistic

regression models have to be estimated for each country separately, using the same dependent and independent variables.

The independent variables of interest are individual characteristics (age, highest level of education attained, gender, highest level of education of the father) and characteristics related to employment (firm size, full-time vs. part-time employment, vs. self-employed, permanent vs. limited contract).

Use as dependent variable:

- Participation in employer-sponsored NFE1 [NFE1_EmployersponsoredYesNo]

Use as independent variables:

- level of education; use 'higher education' as reference category
- age(in four categories); use '25-34' as reference category
- level of education of father; use 'At most lower secondary' as reference category
- labour status; use 'Full-time-employed' as reference category
- professional status; use 'permanent contract' as reference category
- firm size; use '50 or more persons' as reference category

Calculate a logistic regression model (LOGREG in SPSS).

Required variables:

- hatlevel_3, [given in syntax VI_a_Recodings_for_Exercise_6]
- age_cat4, [given in syntax VI_a_Recodings_for_Exercise_6]
- HATFATHER
- jobstat2 [given in syntax VI_a_Recodings_for_Exercise_6]
- jobstat3 [given in syntax VI_a_Recodings_for_Exercise_6]
- locsizefirm_5c [given in syntax VI_a_Recodings_for_Exercise_6]

7. Exercise 7: Difficulties related to participation or more participation in education and training

(Syntax VII_Exercise_7_Difficulties_access_employer-sponsored_NFE)

Why do people (not) participate in adult education and training? Not only individual characteristics such as age or educational level or employment related characteristics are expected to influence participation in adult education and training (on which we focused on in exercise 6). Also issues like cost, lack of employer-support or far distances might hinder participation in adult education and training. The AES collects quite a variety of possible difficulties or barriers for not participating (more) in AET.

Exercise 7

- a) Investigate, which of the difficulties collected in the AES are reported to be most important. For this, include all countries of the training data set.
- b) Analyse for the 4 difficulties being reported as most important and for the difficulty “lack of employer/public service support”, whether there are differences in relative frequencies between countries in reporting difficulties. For this, focus on CZ, FI, and LU.
- c) Focus again on CZ, FI, and LU. Investigate, whether there are differences regarding the 4 difficulties being reported as most important (for the whole sample of the training data set → result of 7 b) and for the difficulty “lack of employer/public service support” between those who participated in FED or NFE in the last 12 months compared to those who did not.
- d) Focus again on CZ, FI, and LU. Analyse if there are differences between participants in employer-sponsored vs. non-employer-sponsored NFE (1st activity) in terms of reporting the difficulty “cost” and “lack of employer/public service support”.

Required variables:

- *DIFFICULTY*
- *DIFFMAIN*
- *DIFFTYPE_03*
- *DIFFTYPE_04*
- *DIFFTYPE_07*
- *DIFFTYPE_09*
- *FEDNFE*
- *NFE1_Employersponsored*

After results are compared save the data set:

```
SAVE OUTFILE='\\...\' 7_Training_AES2011_training_diffytype.sav'  
/COMPRESSED.
```

8. Create activity based data set

(Syntax 1_NFEActivities_Create_Activitydataset_NFE_Varstocases and
Syntax 2_NFEActivities_Recode_Create_NFE_Activitydataset)

The AES collects detailed information on at least two NFE-activities. However, there are several countries collecting detailed information for even more than two NFE-activities [e.g. AT (3), DE (4), EE (3), FR (3), LT (3), SE (3), NO (3), BE (3), BG (3), CZ (3), DK (3), HU (3), MT (3), NL (3), PL (3) RO (3)]. In international comparison it might be interesting to analyse, whether patterns of activities differ between countries. Such analyses could give some hints on different structures of further education and training systems between countries. For example it might be interesting to analyse, whether differences regarding the reasons for participation in NFE exist, if all available (randomly selected) NFE-activities are considered or whether providers for NFE differ between countries. In the German monitoring report on the AES, there are usually some descriptive analyses based on an activity data set, focusing e.g. on the subjects, motives or (subjective) outcomes of NFE activities (Bilger et al. 2013, pp. 125-131; 181-183).

The following exercise shows, how to create an activity based data set, by which the perspective of the analysis shifts from the (not) participating individuals to the NFE-activities. This means, that only NFE-participants are included in the dataset.

Exercise 8

- a) Open Syntax 1_NFEActivities_Create_Activitydataset_NFE_Varstocases and try to follow the explanations given for creating an activity based dataset (partly supported by visualizations in PowerPoint). Follow every step in the syntax. There are some steps where you will have to save a new file; make sure to adjust the store place, if necessary. Check the results in your data with those stated in the syntax/ PowerPoint slides .
- b) Open Syntax 2_NFEActivities_Recode_Create_NFE_Activitydataset and execute the commands for creating NFE_type, NFEPAIDBYempl and NFE_Employersponsored. Make sure, to adjust the store place, if necessary, for saving the new file
[...\Training_AES2011_NFEActivity2.sav']
They syntax ends with the command, t use only cases with valid information regarding employer-(non-)sponsoring [SELECT IF (NFE_Employersponsored GE 1)]. Make sure, to adjust the store place, if necessary, for saving the new file
[...\Training_AES2011_NFEActivity3.sav']

9. Exercise 9: Descriptive analyses based on activity data set: different formats of NFE-activities in international comparison

(Syntax 3_Descriptive analyses based on activity data set)

In the AES there are 4 different types of NFE-activities collected: courses; workshops & seminars; guided on the job training; private lessons. *To think about: how would you categorize this AES-training course?*

Are the different types of NFE activities distributed equally across countries or are there certain activities being more prominent in one than in another country? How would you interpret the results in terms of comparing participation patterns and determinants of participation, if the different activities are summarized as NFE-activities overall, like we have done throughout the workshop?

- a) Investigate the distribution of different types of NFE-activities across countries. Focus on Bulgaria (BG), Finland (FI) and the UK. Are there any differences between countries? Weight the data with the weighting factor provided by Eurostat (NFEACTWEIGHT).
- b) How are the different types of NFE-activities related to employer-sponsored vs. non-employer-sponsored training? Focus again on Bulgaria (BG), Finland (FI) and the UK.

Required variables:

- *NFERAND_TYPE*
- *NFE1_Employersponsored*

10. Exercise 10: selected reasons for participation in employer-supported NFE

(Syntax 3_Descriptive analyses based on activity data set)

What are reasons for participating in NFE? Differ reasons for employer-sponsored vs. non-employer-sponsored training?

- a) Differ reasons for participation in NFE between countries? Focus on Austria (AT), Bulgaria (BG), Switzerland (CH) and Portugal (PT) and on the following reasons for participating in NFE activity
 - a. to do my job better and/or improve carrier prospects
 - b. I was obliged to participate
 - c. to get knowledge/skills useful in my everyday life
 - d. obtain certificate
- b) Investigate reasons for employer-sponsored vs. non-employer-sponsored NFE. Use the same reasons as in exercise 11 a) and focus also on Austria (AT), Bulgaria (BG), Switzerland (CH) and Portugal (PT). Are there any differences between countries?

Required variables:

- *Reasonnfejobcareer*

- *Reasonnfeobligation*
- *Reasonnfeusefuleverydaylife*
- *Reasonnfecertificate*
- *NFE1_Employersponsored*

References

- Bilger, F., Gnahn, D., Hartmann, J., & Kuper, H. (Hrsg.) (2013, [2013]). Forschung: Weiterbildungsverhalten in Deutschland. Resultate des Adult Education Survey 2012. Bielefeld: Bertelsmann.
- European Commission / Eurostat (2014): Adult Education Survey 2011. EU Quality Report. (Version October 2014) (https://circabc.europa.eu/sd/a/6b33bc1c-3906-4311-ad3f-6c52dd1bfd53/2011%20AES%20EU%20quality%20report%20_%20final%20October%202014.pdf Download 141114)
- European Commission / Eurostat (2013). Eurostat (2013): Draft AES manual Version 9. (pdf-Document: A1 – AES MANUAL 2013 November)
- European Commission / Eurostat (2012a). Draft AES manual – Part A. Annexes 1 to 14 - FIELD WORK. Version 8. EUROSTAT, Directorate F: Social Statistics, Unit F-5: Education, health and social protection statistics, 13 August 2012. (pdf-Document: A2 - AES_MANUAL_ANNEXES_PartA_Annexes_1to14)
- European Commission / Eurostat (2012b). Employer sponsored education and training In the Adult Education Survey. (pdf-Document: AES EmployerSponsored)