# ABCDE

## Socio-economic classification

## Specification for year 2021

**December 2020**

Měření
sledovanosti médií

Marketingový výzkum
a analýza dat

Monitoring reklamy
a mediální analýzy

Vývoj software pro práci
s mediálními daty

# CONTENT

# 1. Introduction

This material describes the construction of variables **„Household socio-economic score"** and **„ABCDE socio-economic classification"** developed and proposed by Nielsen Admosphere, a.s. Since 1. 1. 2013 these variables are part of the daily reported data of TV audience measurement project 2013-2017 (and further 2018-2022) in Czech Republic provided by Nielsen Admosphere, a.s. to the Association of Television Organisations (ATO).

At the same time, the definition of the variables is public and every subject in Czech Republic is allowed and encouraged to use them in their own surveys. Later it appeared in the other big media surveys: NetMonitor (internet), Radioprojekt (radio) and MEDIA PROJEKT (print) and thus have become a new **standard in socio-economic classification in media surveys in Czech Republic**.

The purpose of this material is to **describe the variables construction**, starting with questionnaire template for collection of the necessary information on household, continuing with exact formulas and parameters for the variable calculation and ending with users' interpretation of such variables and a brief manual for their use.

The definitions of both variables undergo regular annual calibrations according to the latest results from the Czech Statistical Office and the Czech TAM project. The variables definition contained herein is **valid for calendar year 2021** and it replaces the definition valid for calendar year 2020. For the year 2022 the variables definition will be calibrated again and will be published in upgraded edition of this document at the end of 2021.

In case of any questions on the described variables, please consult our company (see the contact at the end of the document).

# 2. Basic starting points

Before we describe the specific method of deriving the definition of ABCDE socio-economic classification by Nielsen Admosphere and its definition itself (computation formula), we will list the basic starting points (or assumptions) with which we approach the classification construction:

- The aim is to construct an **ordinal classification** (totally ordered system of categories).

- Socio-economic classification should **strongly correlate** with education, economic activity, professional status, equipment and income.

- We construct a **classification at household level** (which can be transferred onto individuals).

- We use an **objective approach**, i.e. a calculation based on objective household facts.

- It is important to use only a **limited number of input variables** that can be properly queried even over the phone or kept regularly updated on the panel of respondents.

- More suitable than a **particular occupation** of the respondent is her/his **education and professional status**.

- **Household income** is difficult to use (people refuse to answer etc.). Household property is better inferred by asking for ownership of certain durables (car, 2$^{nd}$ home/cottage etc.).

- The questionnaire and calculation formulae must be **transparent and public**.

- The classification must be **sustainable in long term** (using possible updates).

There are several principle questions regarding the classification scale (and our answers to them):

- There are **no „social classes" in the society** meaning homogeneous and separated from each strata of society. Social classes are only the result of a segmentation made by someone.

- According to our knowledge, concepts such as „upper class", „middle class" etc. do not have **any commonly accepted meaningful precise definition**.

- The question of **number and size of ABCDE categories** is purely a matter of practical use of such a classification. No category should be extremely small or large.

- We do not attempt explicit **comparability** of the constructed socio-economic classification with similar classifications in any other country.

- We do not attempt to monitor the **development of the society** over time in terms of its socio-economic structure using the ABCDE classification.

- In our concept, the socio-economic status is **relative to a given time and place** (country).

- In our opinion, the meaning of e.g. „category A" is in the long run best represented by a constant percentage of households belonging to it (thus by its **relative meaning**).

# 3. Variables construction

The basis of the ABCDE classification by Nielsen Admosphere is the so called **Socio-economic score of the household**. This is an aggregation of household entry information into a continuous score (index) which expresses the expected (based on the already mentioned entry information) household income level in relation to the household size.

First, we define so called **„reference income"** of the household as follows (in CZK):

$$\text{Reference income} = 9\,000 + 9\,000 \times \text{Adults} + 4\,500 \times \text{(Children 0-18 years)}$$

where „adults" is the number of persons aged 19 years and older in the household and „children 0-18 years" is the number of children aged from 0 up to 18 (including) in the household. The choice of concrete amounts (lump sum for the household, adult person and child) influences the properties of the obtained ABCDE classification and thus it is a question of our preferences about these properties. The amounts do not need to equal to typical income or costs for the respective person or household. It is just a „reference income" against which the actual household income is compared:

$$\text{Income index} = \text{Household income} / \text{Reference income}$$

By „household income" we understand household net monthly income from all types of income. Income index says how many times the respective household is richer than it corresponds to its reference income (according to its size and composition).

Socio-economic score of the household represents (after certain normalization, see later on) a value of its **income index predicted** on the basis of the variables entering the score calculation. This provides us an objective rule to determine the „weights" of individual variables entering the socio-economic score formula and it also guarantees a high level of correlation between the result (score) and the income index (simply put „income per capita"), even though income is not entering the score calculation explicitly.

A regression model was estimated on sample of Continual Survey of Czech TAM project, period from Q1 2013 to Q3 2014[1]. The sample consisted of households that stated their monthly income (sample size 9 024 households) and it was re-weighted using weighting universes set up for the year 2015.

After theoretical considerations and data analyses done, the regression equation to predict the income index (i.e. to calculate the socio-economic score) was chosen in the form

$$\text{Score} = \frac{\text{HH composition} + \text{Head professional status} + \text{Equipment}}{\text{Reference income}} \times \text{Head education} \times \text{Region}$$

„Head" is a person from the household procuring the biggest part of its financial income. Region enters the model through the average wage in the respective region where the household live (average gross monthly wage recalculated to a unit employee in CZK according to Czech Statistical Office, average over period from Q3 2013 to Q2 2014).

Numerical parameters inside the regression equation (see Appendix 2) were optimized with respect to minimal weighted sum of squared differences of income index from the socio-economic score. Thus

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[1] The model was not completely re-developed for 2021, we keep using the model developed for 2015.

to estimate the parameters the method of weighted least squares was used (the regression weight being the weight of the household in the sample). Since the regression formula has an "additive-multiplicative" form, it does not represent a linear regression model and so the parameters calculation cannot be performed easily as in a linear regression.

The values fitted by the regression were then multiplicatively normalized on the weighted sample of all households from Continual Survey from period 2019 to Q3 2020 (reweighted to universes for 2021, sample size 20 011 households) so that their average was exactly equal to 1.

**Exact calculation formula for the socio-economic score** with particular numerical parameters valid for calendar year 2021 can be found in Appendix 2 of this document.

The following chart shows a histogram of household socio-economic score. The score values range from appr. 0.3 to 2.8, the distribution has slightly positive skewness (heavier right tail).
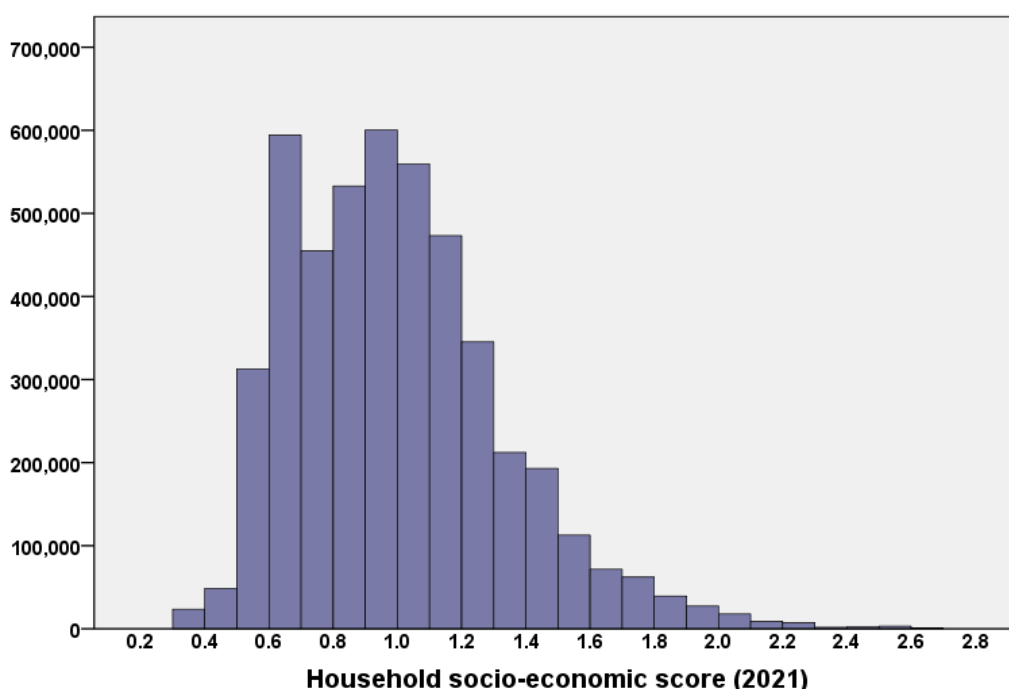


**ABCDE classification by Nielsen Admosphere** is defined as a categorisation of household socio-economic score. It consists of 8 categories **A, B, C1, C2, C3, D1, D2 and E** which are defined as **socio-economic score octiles** of all household population in Czech Republic (i.e. each one with exactly 12.5 % of the households). Setting of the octiles' thresholds was carried out on a representative sample of Czech household interviewed within Continual Survey (the same sample as was used for the multiplicative normalization, see above).

The following two charts present the individual ABCDE categories representation (in detailed division and in aggregation to 5 super-groups A, B, C, D and E) in Czech Republic household population. Thanks to very low granularity of the score values, the actual percentages achieved are pretty close to the ideal 12.5 % (the differences are in hundredths of %).
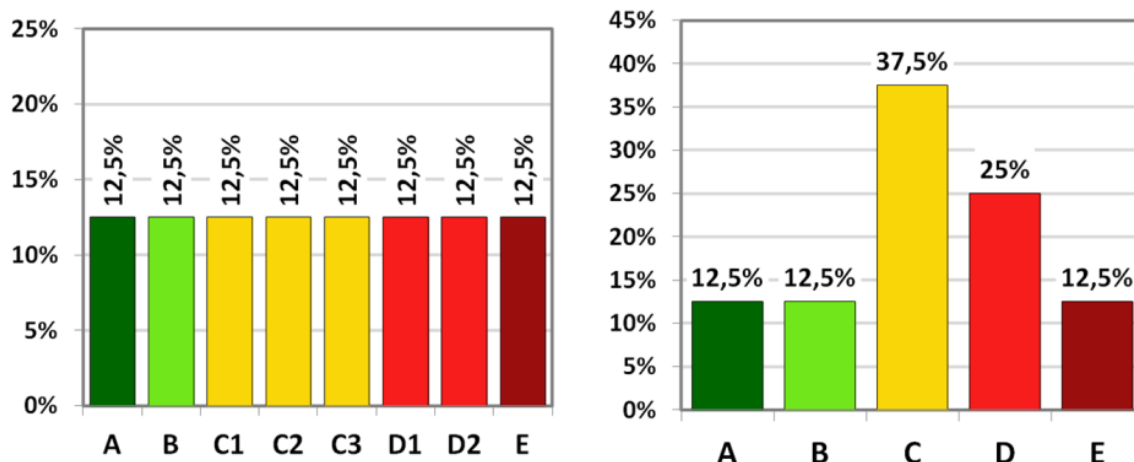
**Particular numeric thresholds** for the socio-economic score defining 8 categories ABCDE are can be found in Appendix 2 of this document.

**Constant size of ABCDE categories** over time will be achieved through regular annual re-calibration of the thresholds for socio-economic score, reflecting annual shifts in Czech population structure (according to Czech Statistical Office and Continual Survey of TAM project). Thus for each calendar year a new set of thresholds will be released. The thresholds contained in the Appendix 2 of this document are valid for calendar year 2021.

Spearman correlation coefficients of ABCDE classification by Nielsen Admosphere with several measures of socio-economic status on the sample of all Czech households (Continual Survey data from 2019 to Q3 2020, re-weighted to 2021 population universes) are as follows:

Household head education ................................................................ 0.583

Income index ..................................................................................... 0.757

Percentage of economically active HH members .............................. 0.773

Equipment level (# of items out of 5 used in the definition) .............. 0.600

We can see that the classification correlates strongly with the level of economic activity, household income and equipment and with the household head education as well. Thus we can really call the classification being „socio-economic" with the fact that little bit more emphasis is put on the „economic" aspect than the socio-cultural one (represented here by the education). However, this reflects the typical preferences of the classification users (mostly media agencies) both in the Czech Republic and abroad.

# 4.  Description of ABCDE categories

Let us try to characterise **typical members of individual ABCDE of super-groups A, B, C, D and E**. In the following descriptions, we will use phrase „income per capita" as simplification of „income index" (see Section 3).

| ABCDE | Socio-economic score | | | Households % in population | Household head: | | | |
|---|---|---|---|---|---|---|---|---|
| | Mean | From | To | | Economically active | Enterpreneur, manager | ≥ secondary education | ≥ bachelor degree |
| A | 1.62 | 1.38 | | 12.5% | 100% | 82% | 94% | 74% |
| B | 1.27 | 1.18 | 1.38 | 12.5% | 97% | 49% | 84% | 42% |
| C | 1.02 | 0.87 | 1.18 | 37.5% | 87% | 17% | 57% | 17% |
| D | 0.75 | 0.63 | 0.87 | 25.0% | 33% | 1% | 40% | 7% |
| E | 0.57 | | 0.63 | 12.5% | 2% | 0% | 13% | 1% |

**Group A** – people with the highest socio-economic status. 1/8 of the **richest Czech households** (and all their members) as per estimated income per capita:  the minimum is 1.38 times higher than Czech population average, the average even 1.62 times higher. Absolute majority of heads are economically active, 82 % of them managers or entrepreneurs, at least with secondary school. The rest are professionals with university education. These households very well equipped.

**Group B** – 1/8 of households with the second highest social-economic status (score from 1.18 to 1.38 times the average). **Life standard above average** as per income per capita: 1.27 times higher than the Czech average household. Household heads are mostly employees without subordinates with university education or managers and entrepreneurs with secondary school education.

**Group C** – 3/8 of households with **average estimated income per capita** - in range 0.87 – 1.18 times the average. According to the score C category is divided into 3 subcategories**:** C1 (slightly above average), C2 (average) and C3 (slightly under average). Typical profession of the head are **clerical professions, technical professions and jobs in sales and services**. Mostly they are employees without subordinates with (lower) secondary education. Households with an **economically active head** still prevail, about 1/8 is formed by well-educated and equipped households of pensioners.

**Group D** – 1/4 as per estimated income per capita **under average households** (income per capita is around **0.75 times the average**). Here households with economically inactive head – retired ones already prevail (about 67 % of households). The economically active households' heads are typically less qualified or unqualified workers with lower education. The group is further divided into two subcategories D1 and D2 according to the socio-economic level (each 1/8 households).

**Group E** – in this category there is 1/8 of the **poorest households** regarding the estimated income per capita; their income index is approximately 0.57 times lower than average. This category consists exclusively of **households with economically inactive head.** They are the poorest and less equipped pensioners or households of **unemployed heads**, housewives, persons on maternity leave or non-working students.

# 5. Future updates of the variables definition

No one definition of socio-economic classification can be left without amendment for endless period of time. **Necessary update of ABCDE classification by Nielsen Admosphere** will be done continuously respecting the basic principles of its definition. From ABCDE end user's perspective there will be no noticeable change.

**TAM service provider Nielsen Admosphere, a.s. will be a guarantor and administrator of the next ABCDE classification updates**. Typically in December we will publish (and deliver to interested parties) updated ABCDE classification definition for the next calendar year.

The need for update relates especially to the **equipment items** that are slowly turning older and there are appearing new ones more relevant. At least **once in 5 years**, the list of equipment items will be reassessed and in case of a basic consensus of relevant subjects from media research field (and their clients), such list would be updated. In near future adding e.g. a **dishwasher** can be considered.

Socio-economic score normalization and its thresholds **will be calibrated every year** to maintain 8 individual ABCDE categories uniform in their distribution in Czech Republic household population. Updated thresholds will be always valid for a calendar year and will be published in December of the previous year.

Finally a **redevelopment of the complete regression model of the socio-economic score** on which the ABCDE classification is based can be considered (this last happened between 2014 and 2015). Such redevelopment (updating of numerical parameters within the score definition) will be done again using TAM Continual Survey data at least **once in 5 years** or anytime in case of a change of equipment list or obvious Czech population structure change.

Even the definition of the **household reference income** can be slightly updated over time. However, the inflation adjustment of this definition is not necessary as the values used in it matter only in relative (not absolute) sense.

# 6. Usage instructions

Hereinafter we would like to summarise some **important information and advises** for work with ABCDE classification by Nielsen Admosphere and related household socio-economic score.

- **Socio-economic score average** on the population of all Czech households is equal to 1. Higher the score value is, higher is the socio-economic status of the household.
- Socio-economic score can be used for **target group creation** – socio-economic classes (layers). It is always necessary to set score thresholds and to check the size of the created TG and in case of need to adjust these thresholds to assure the required size of the TG.
- It is possible to work **even in quantitative** way with the socio-economic score, i.e. calculate its averages in specific groups etc. (similarly as with variables „household size" or „monthly income").
- It is also possible to transfer the score value and ABCDE classification **from the household level to the individual level.** It is necessary to note that e.g. uniform distribution of household population over 8 ABCDE categories does not imply uniform distribution of individual population over these 8 categories; the same is valid for the average score value etc.
- ABCDE classification does not bring information on the size of "social classes" in the society but it defines owns categories as **socio-economic layers of the prescribed size.** Neither it brings information on society development over time but it grants only cross-section society diversification.
- The fact that 8 ABCDE categories of all Czech households are uniformly sized does not mean that these ABCDE categories calculated on any survey data will be uniformly sized as well. The most frequent reasons are:
  - The survey is conducted on **different target group** than all Czech households (e.g. individuals 12-79 years, internet households' population etc.).
  - The survey is not **representative enough** on actual Czech household population. The reason can be insufficient usage of quota or weighting or weighting universes which do not correspond to the actual Czech population structure. Representativeness with respect to age and education of household members and household size is crucial.
  - **Interviewing situation or any question formulation** that are source for ABCDE classification entry are not in conformity with the recommended questionnaire (see Appendix 1) or the answers are otherwise affected.
  - On the finite sample, in spite of its representativeness with respect to the usual socio-demographic variables, due to **statistical error**, differences occur in the other variables entering the ABCDE classification. Thus little differences from the ideal uniform distribution of households over ABCDE categories can occur. A smaller sample means bigger differences. For example if the sample size is 1 000 households, it is necessary to count with differences in tenth of %, exceptionally up to units of %.

Following instructions concern results presentation of ABCDE classification:

- There should be always stated that the **ABCDE socio-economic classification by Nielsen Admosphere is used** and that the calibration is set for respective calendar year. It can prevent confusion with another ABCDE classification.
- It is also recommended to **refer to this material** or its new future editions. Reference to this document: **Nielsen Admosphere (2020):** *ABCDE Socio-economic classification – Specification for year 2021*. **Prague: Nielsen Admosphere, a.s.**
- In case of need it is possible to use the following wording equivalents of ABCDE super-groups marked in letters: **A = upper class, B = upper middle class, C = middle class, D = lower middle class, E = lower class**.
- Names of outer ABCDE categories A and E can be extended by words „highest" and „lowest", i.e. to use instead of „A" and „E" the extended labels **„A – highest"** and **„E – lowest"**, if there is a risk of scale orientation misunderstanding.
- It is also possible to use **short names of „one-sided" socio-economic layers** of the society. Similarly it is also possible to name classes limited from both sides e.g. BCD or C23D1.

| Label | A | B | C1 | C2 | C3 | D1 | D2 | E | Label |
|-------|---|---|----|----|----|----|----|---|-------|
| A | ← | → | → | → | → | → | → | → | BCDE |
| AB | ← | ← | → | → | → | → | → | → | CDE |
| ABC1 | ← | ← | ← | → | → | → | → | → | C23DE |
| ABC12 | ← | ← | ← | ← | → | → | → | → | C3DE |
| ABC | ← | ← | ← | ← | ← | → | → | → | DE |
| ABCD1 | ← | ← | ← | ← | ← | ← | → | → | D2E |
| ABCD | ← | ← | ← | ← | ← | ← | ← | → | E |

- If it is stated how many percent of regular viewers, readers or visitors of any media title belongs to e.g. class ABC, then it should be also stated the same percentage within the basic population (depending on particular survey). Only from that it can be deduced to which extent is such medium **affinitive to higher socio-economic classes**.

In case of any doubts regarding the calculation of socio-economic score or ABCDE classification or interpretation of the result (even after careful reading of this material) **please refer to Nielsen Admosphere, a.s.** We will appreciate any comments or suggestions to these variables as well.

# Appendix 1 - Questionnaire template

**A household** is formed by persons that actually and permanently live in one apartment or family house. Household members are even persons temporarily absent as students in collage or boarding school, persons commuting to the work etc., that are regularly coming back. Vice versa household does not include persons with registered permanent residence however living elsewhere.

**Household head** is a person procuring the biggest part of household's financial income.

| Q1 | How many members has your household (including you)? | | | |
|---|---|---|---|---|
| **Q2** | How many members aged 0-18 years (incl.) has your household? | | | |
| **Q3** | In which region your household lives? | Prague capital | **1** | |
| | | Central Bohemian region | **2** | |
| | | Southern Bohemian region | **3** | |
| | | Plzeň region | **4** | |
| | | Karlovy Vary region | **5** | |
| | | Ústí nad Labem region | **6** | |
| | | Liberec region | **7** | |
| | | Hradec Králové region | **8** | |
| | | Pardubice region | **9** | |
| | | Vysočina region | **10** | |
| | | Southern Moravian region | **11** | |
| | | Olomouc region | **12** | |
| | | Zlín region | **13** | |
| | | Moravian-Silesian region | **14** | |
| **Q4** | What is the highest completed education of the head of your household? | Primary (completed or not), no education | **1** | |
| | | Vocational secondary education | **2** | |
| | | Full secondary education | **3** | |
| | | Higher vocational, bachelor's degree | **4** | |
| | | University master's degree and higher | **5** | |
| **Q5** | What is the current professional status of the head of your household? | Economically inactive | Unemployed | **1** | |
| | | | Student, housewife, maternity leave etc. | **2** | |
| | | | Non-working pensioner | **3** | |
| | | Economically active | Employee without subordinates | **4** | |
| | | | Employee – lower manager (1-5 subordinates) | **5** | |
| | | | Employee – higher manager (6 and more subordinates) | **6** | |
| | | | Employee – top manager, director | **7** | |
| | | | Entrepreneur without employees (self-employed) | **8** | |
| | | | Entrepreneur with 1-5 employees | **9** | |
| | | | Entrepreneur with 6 and more employees | **10** | |
| **Q6** | How many economically active members are there in your household? | | | |
| **Q7** | What of the following items are owned by your household? | a | Car under 10 years (including company car for personal use) | 0 | 1 |
| | | b | Cottage, country house | 0 | 1 |
| | | c | Internet connection at home | 0 | 1 |
| | | d | Electric drill | 0 | 1 |
| | | e | Microwave oven | 0 | 1 |

**Note:** Whom to count among „economically active" household members in question **Q6** is indicated in **Q5**.

# Appendix 2 - Calculation for year 2021

Exact definition of **household socio-economic score** valid for the year 2021 in a form of SPSS syntax:

```
if (work_status = 1)   score = -4078.
if (work_status = 2)   score = -2384.
if (work_status = 3)   score =   499.
if (work_status = 4)   score =     0.
if (work_status = 5)   score =  3598.
if (work_status = 6)   score =  8101.
if (work_status = 7)   score = 16224.
if (work_status = 8)   score =  6021.
if (work_status = 9)   score =  8925.
if (work_status = 10)  score = 16224.

compute score = score + 5159+5713*(cnt_all-cnt0_18)+1394*cnt0_18+5465*cnt_econ.
compute score = score + 2851*car10+1712*cottage+1425*internet+968*drill+230*micro.
compute score = score / (9000 + 9000*(cnt_all-cnt0_18) + 4500*cnt0_18) * 1.0098.

if (education = 1) score = score * 0.8965.
if (education = 2) score = score * 0.9521.
if (education = 3) score = score * 1.0000.
if (education = 4) score = score * 1.0893.
if (education = 5) score = score * 1.2336.

if (region = 1)  score = score * 1.1050.
if (region = 2)  score = score * 0.9977.
if (region = 3)  score = score * 0.9598.
if (region = 4)  score = score * 0.9819.
if (region = 5)  score = score * 0.9430.
if (region = 6)  score = score * 0.9621.
if (region = 7)  score = score * 0.9686.
if (region = 8)  score = score * 0.9627.
if (region = 9)  score = score * 0.9534.
if (region = 10) score = score * 0.9616.
if (region = 11) score = score * 0.9875.
if (region = 12) score = score * 0.9561.
if (region = 13) score = score * 0.9528.
if (region = 14) score = score * 0.9689.
execute.

variable label score "Household socio-economic score (calibration 2021)".
```

Entry variables are highlighted by **green** in the syntax, the calculated **score in red**. Parametrical change from the year 2020 definition is highlighted in yellow. Exact meaning of entry variables used in SPSS syntax above is explained by the following table mapping these variables to those in the questionnaire (see Appendix 1):

| Q1 | cnt_all |
|----|---------|
| Q2 | cnt0_18 |
| Q3 | region |
| Q4 | education |
| Q5 | work_status |
| Q6 | cnt_econ |

| | | |
|----|---|---------|
| | a | car10 |
| | b | cottage |
| Q7 | c | internet |
| | d | drill |
| | e | micro |

The following table shows thresholds for socio-economic score defining the 8 individual ABCDE categories (thresholds are valid for calendar year 2021):

| ABCDE category | Household socio-economic score | |
| --- | --- | --- |
| | from | to |
| A | 1.379472 | |
| B | 1.182916 | 1.379472 |
| C1 | 1.063709 | 1.182916 |
| C2 | 0.965513 | 1.063709 |
| C3 | 0.866113 | 0.965513 |
| D1 | 0.739403 | 0.866113 |
| D2 | 0.630852 | 0.739403 |
| E | | 0.630852 |

From the table we can see e.g. that the **category C2**, which bounds are appr. from 0.9655 to 1.0637, consists of average households as per socio-economic status. **Category A** consists of households with at least 1.3795 times higher socio-economic status than the average household, etc.

Categorisation of the household socio-economic score for setting ABCDE categories in SPSS syntax, valid for a calendar year 2021 (thresholds changed from 2020 calibration are highlighted in yellow):

```
compute ABCDE = 8.
if (score > 0.630852) ABCDE = 7.
if (score > 0.739403) ABCDE = 6.
if (score > 0.866113) ABCDE = 5.
if (score > 0.965513) ABCDE = 4.
if (score > 1.063709) ABCDE = 3.
if (score > 1.182916) ABCDE = 2.
if (score > 1.379472) ABCDE = 1.
execute.

variable label ABCDE „ABCDE classification (calibration 2021)".
value label ABCDE
 1 „A"
 2 „B"
 3 „C1"
 4 „C2"
 5 „C3"
 6 „D1"
 7 „D2"
 8 „E".
```

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