ETER
EUROPEAN TERTIARY EDUCATION REGISTER

Implementation and further Development of a

European Tertiary Education Register (ETER)

[Contract No. 934533-2017-AO8-CH]

Guidelines:

Search, export and visualize ETER data

Contents

Access the ETER web interface

The ETER web interface is accessible at www.eter-project.com. On the website, you have access to all public data and you can get additional access also to restricted data by signing up. After signing up and accepting the terms of use, the ETER team will receive information of your request. Your account will be activated and you will receive an email immediately after this happened.

Choose your HEI data

Selecting the menu `Search / Search HEI Data` will lead you to the core functions of the ETER web interface. These core functions allow you to:

- select your data and variables of interest.
- choose your preferred display and export settings.
- visualize your data online, using a pivot grid and visualization tool.
- export your selected data including metadata information.

Select your variables of interest

The first step in selecting your data is to choose the variables of interest. This step has been implemented in order to enable the usage of predefined groups of variables as well as a way to improve performance and loading times. You have the following options:

- **Choose a predefined group of variables**

On the left side of the window, you see a blue box with predefined groups of variables. We recommend using option `Identifying Variables` in the case you want to arrange your individual dataset from scratch. These variables include all the variables necessary to identify single HEIs and also HEIs by country and/or year. You can also choose e.g. the core set of data - which is basically a collection of totals and characterizing variables - and adapt it to your needs by adding and removing single variables in the table grid. If you choose one of the groups of variables, you'll recognize the associated variables by the colour of the tag in front of the variable name.

- **Individually arrange your dataset**

If you want to compile your individual dataset, we recommend starting with the `Identifying Variables` as described in the section above. Then, you could either add single variables or whole groups of variables, e.g. all expenditure variables by selecting `Select All` in the appropriate column.

- **Export the whole dataset**

If you want to export the data for all years and countries at once, use option `Export Entire Dataset`. Choosing this option, you could decide between exporting the whole ETER dataset (all variables for all years and countries) and exporting your variable selection for all years and countries.

- **Select all variables at once**

If you want to export the whole variety of the ETER dataset for certain years and/or countries, use option `Select all variables`, before you go on to the `Search HEI Data` menu.

- **Filter variables by name**

A new additional feature is the possibility of adding variables by name to your dataset without screening the whole list of variables. Type the required name in the box `Filter variables` (e.g. 'total') and you get a list

of all variables including the term 'total'. Clicking the button `Select All Visible` will add all the filtered variables at once to your dataset.

If you have finalized your selections, click button `Select and continue`. In this menu you can choose your preferred countries and years as well as export settings. Also, you can adapt your dataset there if needed.

Figure 1: Select your variables of interest
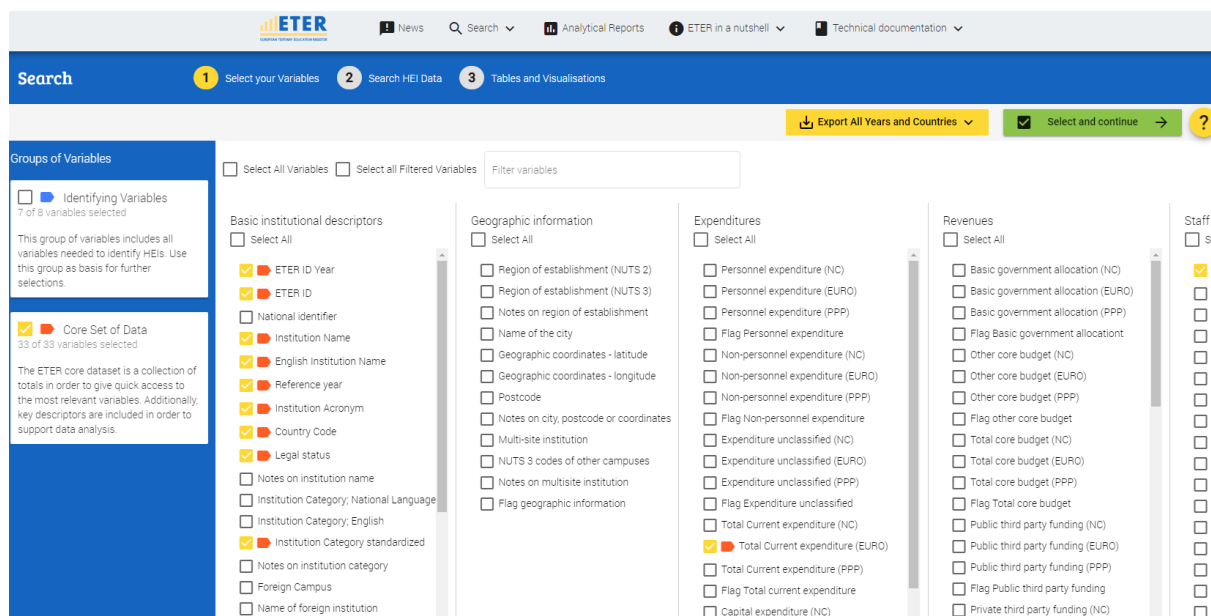
Select years, countries and institutions of interest

After defining your variables, you can select the institutions, years and countries you want to export. The following options are available:

- **Choose years, countries and/or institutions by name**

You can select your preferred years and/or countries by choosing them from the respective lists (leave fields empty for all years and/or all countries) or writing years or names in the fields. As an additional option, you can search institutions by name in the `Text Search`. Click `Search HEIs` for loading the data into the grid.

- **Add/remove variables**

After loading the data, you can either add or remove variables to your selection by selecting menu `Variables`. Choose the variables and click on `Select and Close`.

- **Choose display and export settings**

ETER offers a wide range of display and export settings in order to satisfy different user needs. In detail, you can choose between the following options:

- replace variable codes (for nominal variables), special codes (for missing variables) and flags with their full labels in order to support statistical analyses and graphical illustrations.

Table 1: Variable codes and their labels

Variable	Code	Labels
Legal status	0	public
	1	private
	2	private government dependent
Institution Category standardized	0	other
	1	university
	2	university of applied sciences
Foreign Campus	0	HEI is not a foreign campus
	1	HEI is a foreign campus
University hospital	0	HEI has not a university hospital
	1	HEI has a university hospital
Multi-site institution	0	not multi-sited
	1	multi-sited
Accounting system of capital expenditure	0	not included in university account
	1	cash accounting
	2	capitalized expenditure
Tuition fees	0	no fees
	1	partial fee
	2	fees for all students
Inclusion of PhD students	0	most PhD students are not included in staff data
	1	most PhD students are included in staff data
Lowest/Highest degree delivered	0	ISCED 5
	1	ISCED 6
	2	ISCED 7
	3	ISCED 8
Distance education institution	0	no
	1	yes
Research active institution	0	no
	1	yes
Demographic events	0	no demographic event
	1	entry
	2	exit
	3	birth
	4	death
	5	merger
	6	split
	7	take-over
	8	spin-out (spin-off)
Affected institutions	0	no other institutions affected by demographic event

Table 2: Special codes for missing variables and their labels

Special codes	Labels
a	not applicable
m	information missing
x	breakdown not available, but included in total
xc	included in another subcolumn
xr	included in another row
c	confidential
s	value larger than 0 and below or equal to 3 recoded for confidentiality reasons
nc	Data not collected (refers to variables introduced at later stage)

Table 3: Flags and their labels

Data flags	Labels
b	break in time series
d	definition differs
de	break in time series due to a demographic event
i	see metadata
ic	inconsistent
rd	rounded
c	confidential
ms	missing subcategory
p	provisional, data might be revised at later stage

- choose your preferred export header in order to use either variable labels (full name) or variable names (systematic variable naming). Also, it is possible to export the data with both header options.
- choose your preferred export format, where the following possibilities are available:
  - .csv (; separated),
  - Microsoft Excel (.xlsx), and
  - 'Machine Ready', where special codes are replaced with fixed values in order to allow the respective statistical software to recognize missing values and therefore save time before starting data analysis. Two different types of machine ready exports are provided, targeting especially the statistical programmes SPSS and STATA. The following replacements take place if you choose the export format 'Machine Ready':

Table 4: Replacing special codes for missing variables in export format 'Machine Ready'

Special codes	Recode for SPSS	Recode for STATA
a	-1000	.a
m	-1001	.m
x	-1002	.x
xc	-1003	.y
xr	-1004	.w
c	-1005	.c
s	-1006	.s
nc	-1007	.nc

The following figure shows you where to find the options available in the menu for display and export settings:

Figure 2: Choose your preferred display and export settings

Export your selected data and metadata

Besides exporting the data for all countries and years (as described above) the user can export the chosen data by selecting `Export`. The export function is dedicated to usability in order to support data analysis, which means that the user has several possibilities to customize the data before exporting (see above).

While the export settings have been defined already before, the export function itself provides some options for your choice of export:

- `Export Grid`. This means that all variables in the grid are exported for the year(s) and country(ies), selected.

- `Export Metadata`. This option will provide you a Microsoft Excel sheet with all metadata information at the country level for the year(s) and country(ies) of your search. It is highly recommended to include metadata information in your analysis of higher education data.

Figure 3: Choose your preferred export option

Calculate, count and visualize your data online

After selecting your preferred data and display settings, you can start to visualize ETER microdata directly on the web interface by selecting the button `Visualisations`.

The following mask shows a Pivot grid, which includes several visualization and calculation possibilities. The default display option is 'Table', which allows you to arrange your data by dragging and dropping them from the list on the left side into the column or row areas and see the result in a table. Additionally, you can filter your variables by selecting the small triangle besides each variable label. If any filters are active, the variable font colour is shown in blue. It may occur that you recognize that you have missed to select some variables or that you have to change your display settings. In this case, the yellow back-button can be used to get back to your last search.

Figure 4: Overview on the Pivot grid
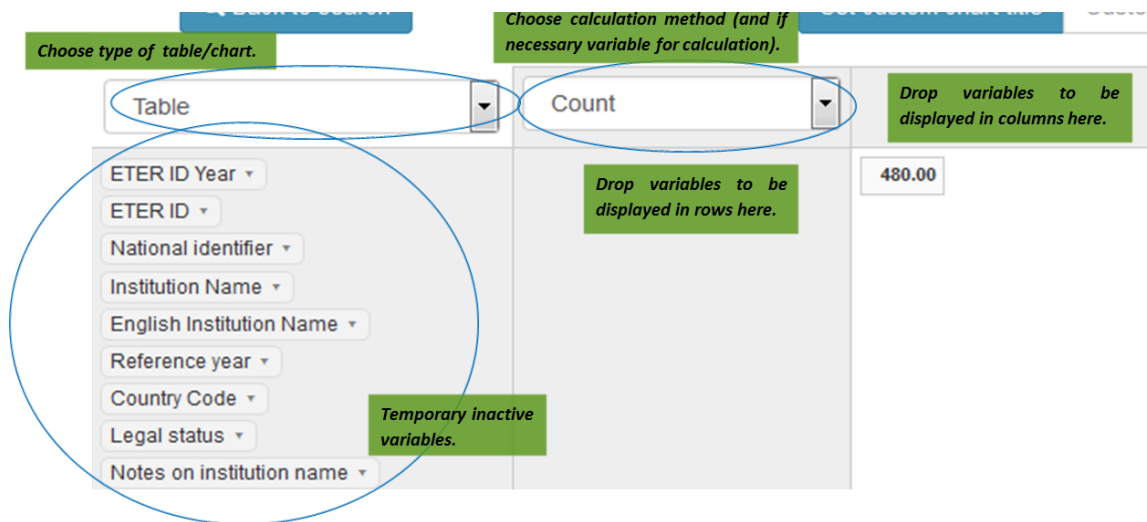
Calculation and counting options

Since the ETER data enable different types of analyses, several calculation respectively counting methods have been included in the visualization tool. The following section describes them in more detail.

Count

This function counts the number of institutions by selected characteristics. By dropping one or several characteristics in the designated space (see Figure 4), you can arrange your table in any order you want. The following example shows the number of institutions by country and legal status, using also a filter for the reference year.

Figure 5: Number of HEIs by country and legal status 2013
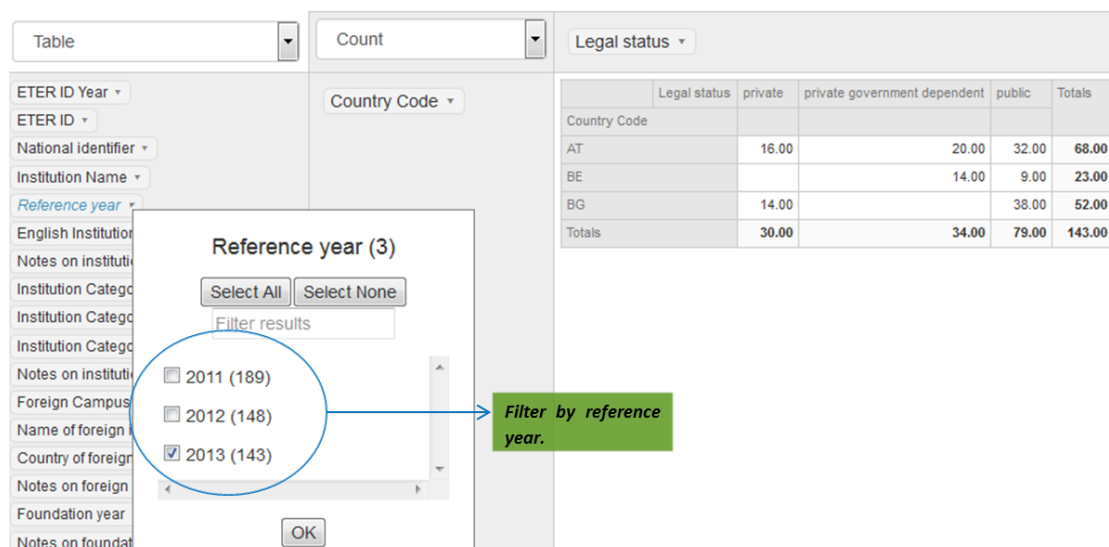
Count Unique Values

This option counts unique values by selected characteristics and additionally requires selecting the variable which should be counted (see the following figure). It is useful if you e.g. want to know how many unique institutions have been included in the data over the years. As above, you can add any characteristics to display more details in your tables or figures.

Figure 6: Number of unique ETER IDs between 2011 and 2013 by country and legal status
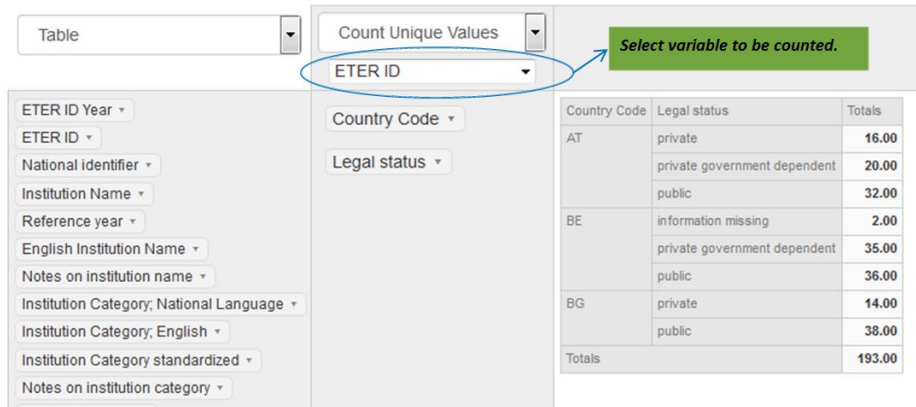
List Unique Values

This option lists unique values by selected characteristics. Similar to *Count Unique Values*, this function requires additional selection of the variable which should be listed. It is useful if you e.g. want to know, which type of institutions exist in which region.
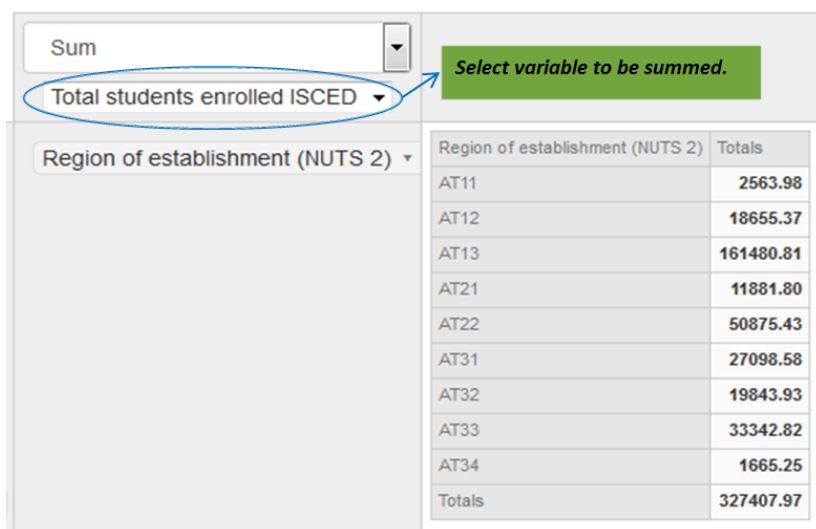
Figure 7: List of unique NUTS 2-regions by type of institution in Austria
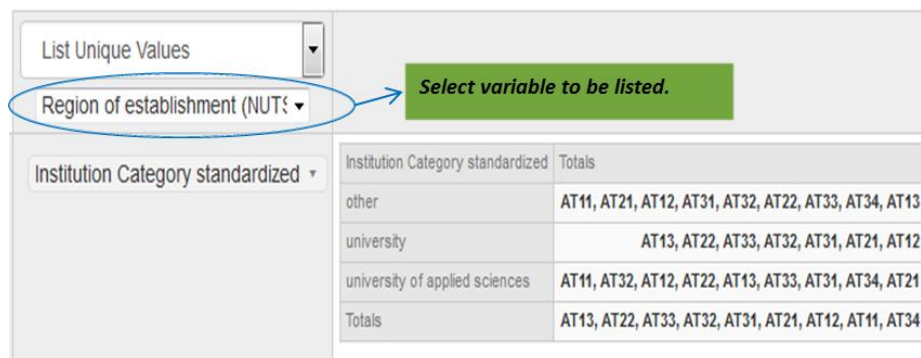
Sum, Average, Minimum, Maximum

Using this function, you can calculate the sum, average, minimum or maximum of a selected variable. As in the functions above, you can also include several characteristics. If you e.g. want to calculate the sum of a variable, you have to choose the variable directly below sum-option. You can sum up any numerical ETER data by any characteristics selected (which is also true for the calculation of average, minimum and maximum).

Figure 8: Number of students at ISCED level 5-7 in Austrian NUTS 2-regions 2013

Region of establishment (NUTS 2)	Totals
AT11	2563.98
AT12	18655.37
AT13	161480.81
AT21	11881.80
AT22	50875.43
AT31	27098.58
AT32	19843.93
AT33	33342.82
AT34	1665.25
Totals	327407.97

Select variable to be summed.

Sum

Total students enrolled ISCED

Region of establishment (NUTS 2)

Sum as Fraction of Total, Rows, Columns

With this function, you can calculate the share of selected characteristics of selected variables. The calculation possibilities include three different options:

- Sum as Fraction of Total: this option is sufficient if only one characteristic (e.g. country) is chosen.
- Sum as Fraction of Rows: please use this option, if you want to calculate the share of a characteristic you have placed in the rows (e.g. share of each type of institution in a country).
- Sum as Fraction of Columns: please use this option, if you want to calculate the share of a characteristic you have placed in the columns (as above, depending on how you arranged your data).

Figure 9: Share of students at ISCED level 5-7 by country and legal status 2013

Sum as Fraction of Ro

Total students enrolled

Legal status

Country Code

Country Code	Legal status private	private government dependent	public	Totals
AT	0.04	0.13	0.83	1.00
BE		0.59	0.41	1.00
BG	0.17		0.83	1.00
Totals	0.07	0.21	0.72	1.00

Count as Fraction of Total, Rows, Columns

This option is equivalent to *Sum as Fraction of Total, Rows, Columns*, but takes the number of institutions to calculate shares.

Visualization options

After selecting your calculation respectively counting options and arranging the data in a way useful for your analysis, you can either copy and paste the data and use them in another programme or visualize them directly on the web interface. Some basic information on how to visualize data on the website:

- In order to visualize your data, you simply have to choose one of the graphical options from the menu (see Figure 4).

- You can change the default chart label by inserting your own title into Custom chart title and confirming with Set custom chart title .

- Using the symbol ☰, which can be found on the upper right corner of each graph, you can either print or download (PNG, JPEG, PDF, SVG) your chart.

- By clicking on a variable characteristic in the legend of a chart, you can activate and deactivate certain characteristics.

As indicated above, several visualization possibilities are provided on the website and one, namely *Table*, has been showed so far in this guidelines. The following sections provide some detailed information and examples for the practical usage of the tool.

Heatmap

This option is equivalent to all the tables above with the only difference, that data are visualized in colours depending on their value. This is useful in order to quickly gather the differences with values.
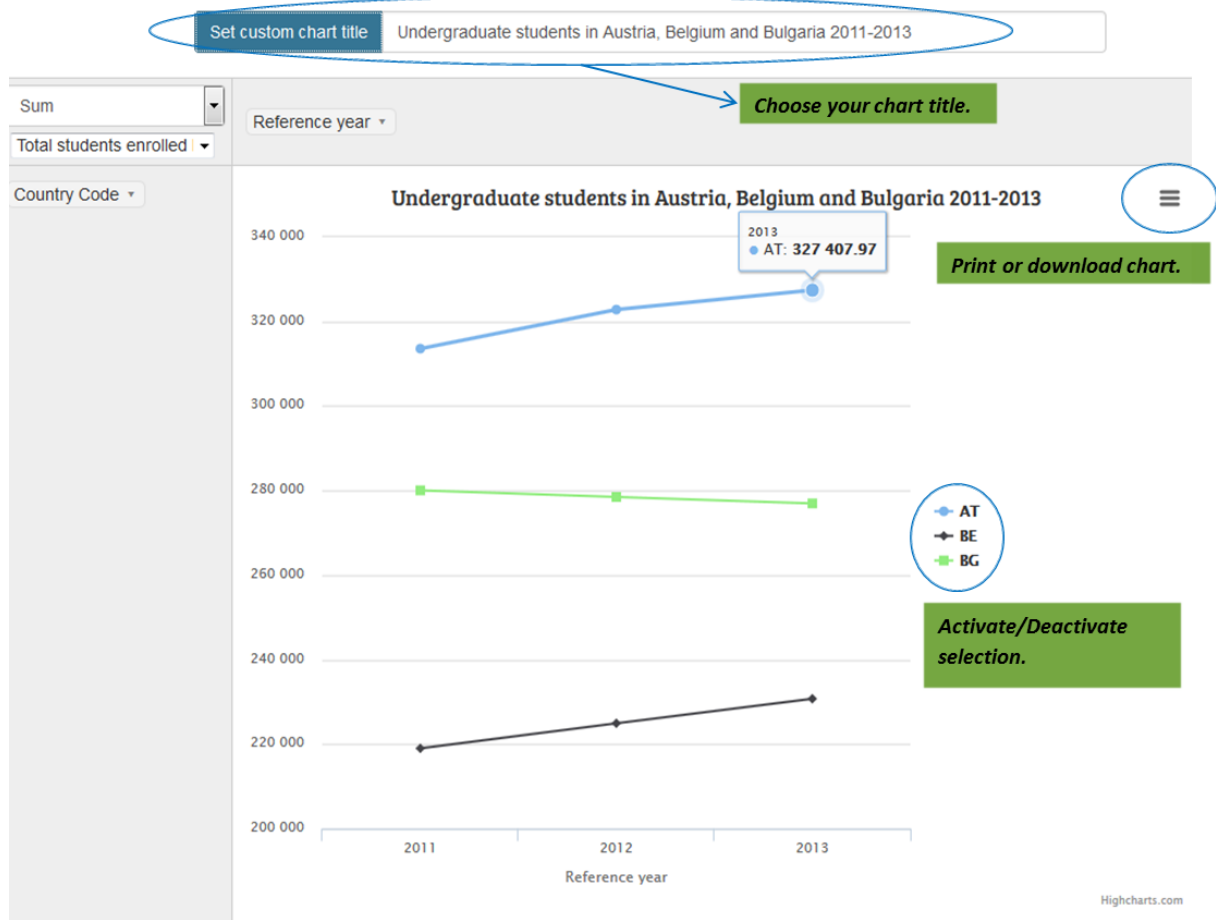
Figure 11: Heatmap equivalent to table in Figure 11

Line Chart

This option enables you to show changes in the data over time. This will be especially interesting after the inclusion of longer time series.

Bar Chart, Column Chart

Bar charts and column charts are in principle the same except for their orientation. While bar charts have horizontal bars, column charts have vertical bars.

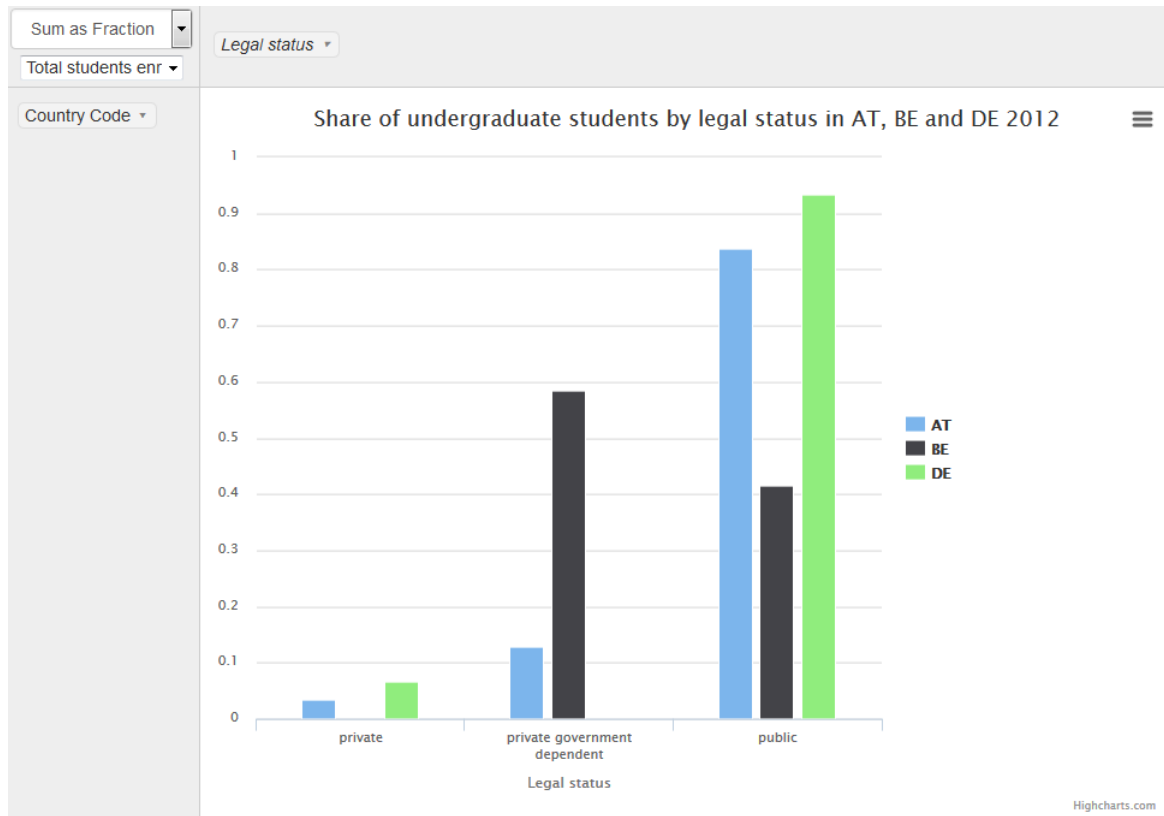**Figure 13: Column Chart of share of students at ISCED level 5-7 by legal status for Austria, Belgium, and Germany 2013**
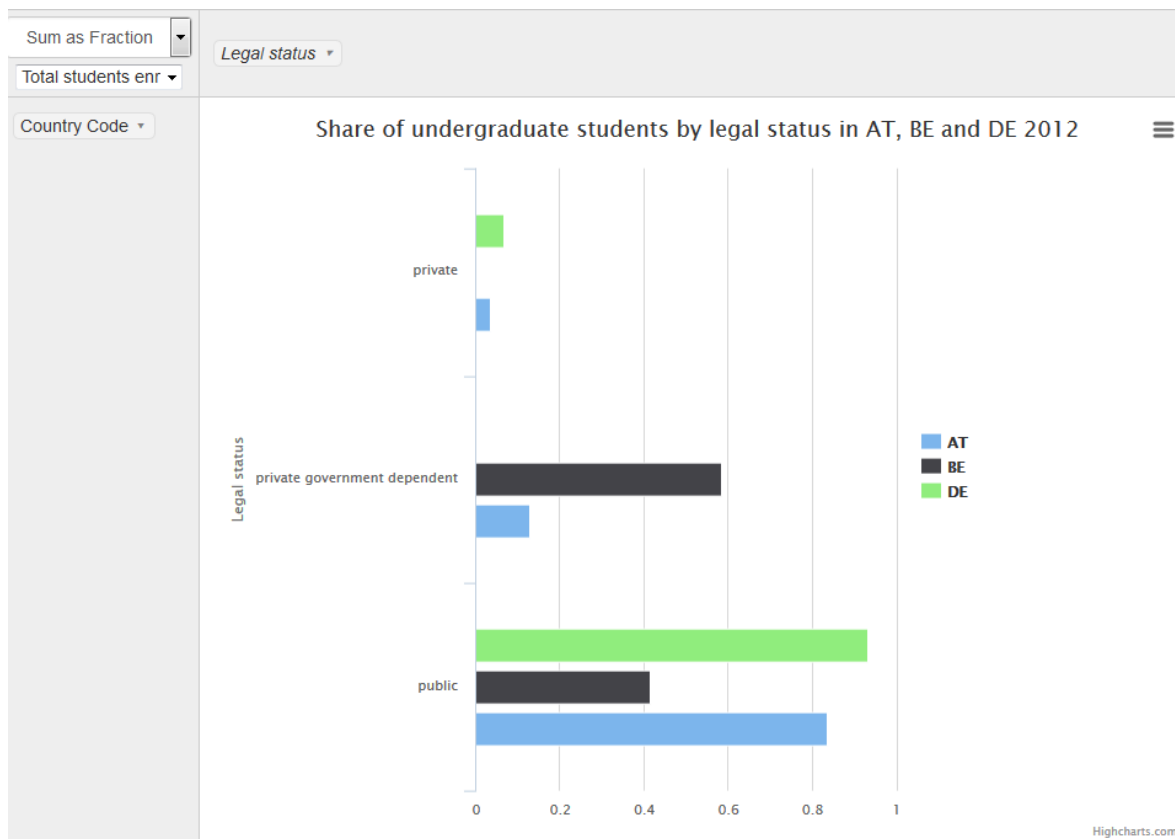

Figure 14: Bar Chart of share of students at ISCED level 5-7 by legal status for Austria, Belgium, and Germany 2013

Stacked Bar, Column Chart

Besides the possibility to arrange bars side by side, you could also stack them. As for bar and column charts, this can be done either horizontally or vertically. The example below shows a stacked column charts with the data from above. Please notice that the data have been rearranged and 'Sum as Fraction of columns' was selected in order to get the result below.

Figure 15: Stacked Column Chart of students at ISCED level 5-7 by legal status for Austria, Belgium, and Germany 2013
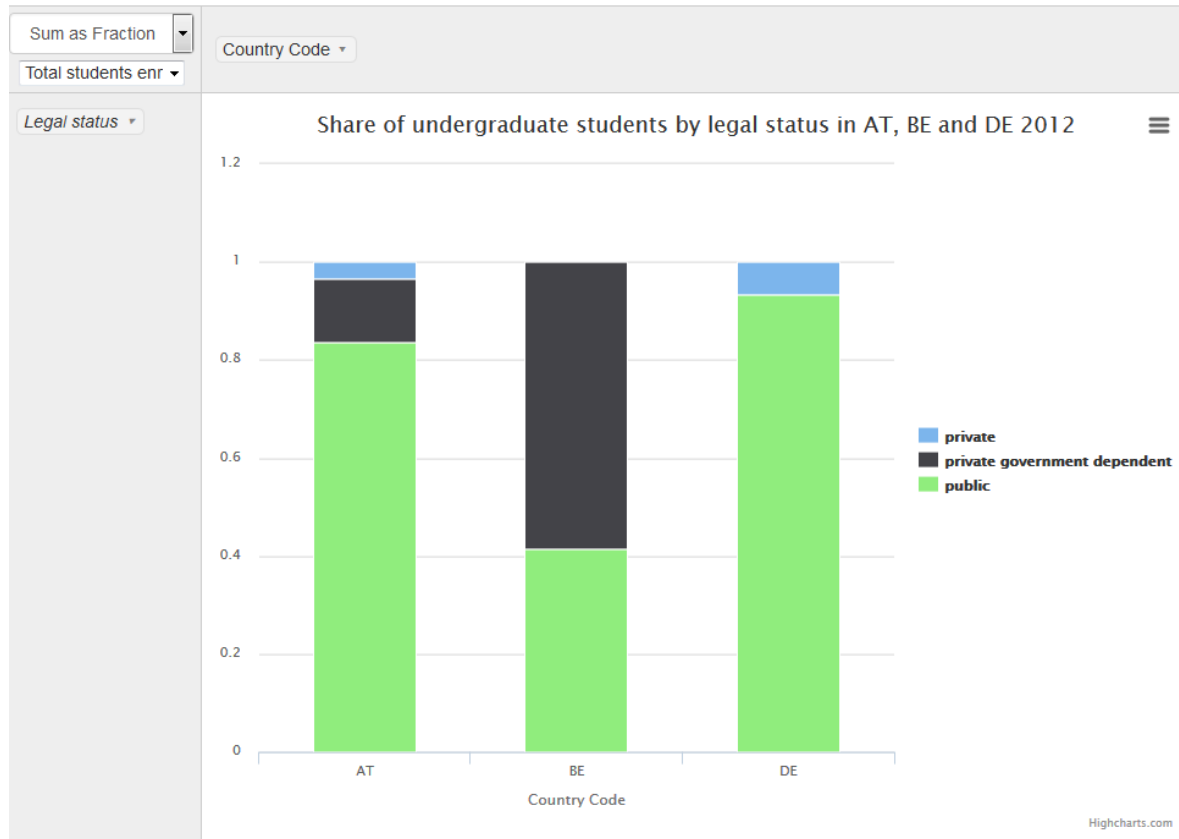
Area Chart

Area charts can be used to emphasize differences in data, either by years or other characteristics. The following example shows the changes in ISCED 6 students by the highest degree delivered of institutions in Germany. Please notice the differences, which occur by not customizing the chart title and by using variable codes instead of variable labels.

Figure 16: Area Chart of Share of ISCED 6 students by highest degree delivered in institution in Germany 2011-2013
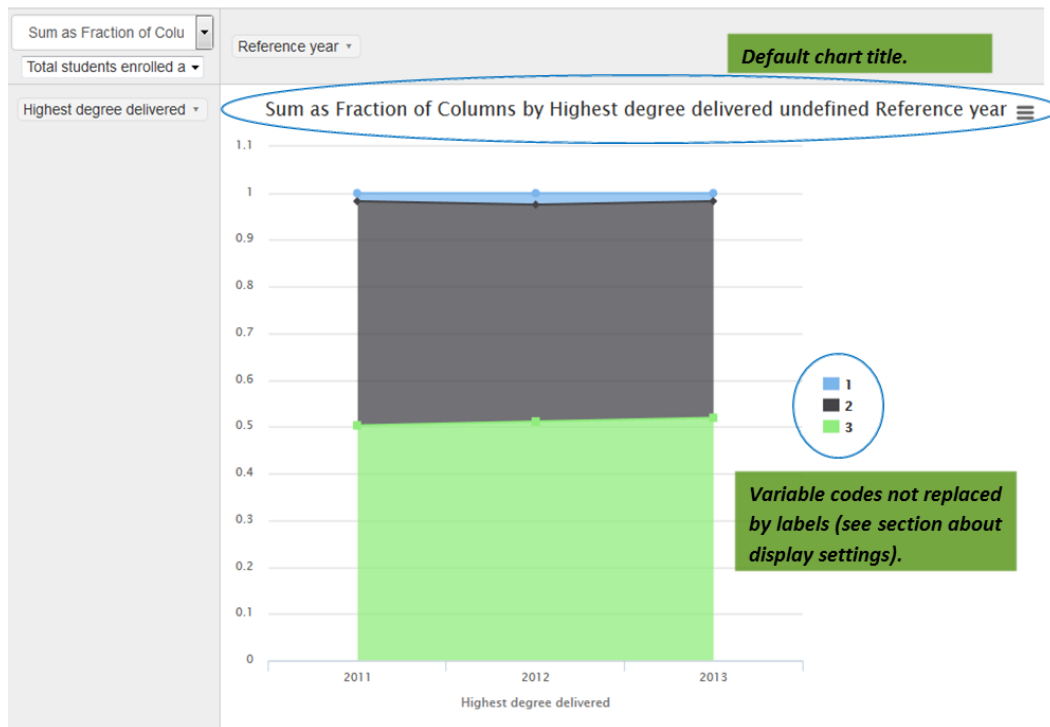
Pie Chart

The pie chart option can be used to emphasize the distribution of a variable. The example below shows for example that a large part of Austrian students at ISCED level 5-7 are enrolled in public universities.

Figure 17: Pie Chart of students at ISCED level 5-7 in Austria by type of institutions 2013