Statistics Finland

PX-Edit 3.2

Charts

Rain graphics

- PX-Edit charts are made with Adrian *Smith*'s (www.sharpplot.com) graphics engine called *Rain*
  - all the Rain graphics is handled internally as PostScript

- PX-Edit supports five different chart types:
  - line chart (at most 200 observations at time as default)
  - bar chart (at most 50 observations)
  - horizontal bar chart (at most 50 observations)
  - pie chart (when just one row or column is selected)
  - pyramid chart (when two rows or columns are selected)

Chart creation

Step one: the table

– If the table is already in px format, just open it in PX-Edit

– The table (which often comes from Excel) needs to be formatted as a structured table before importing to PX-Edit
  – the table **title** must be in the first cell
  – the **variable** names and their value texts are given in corresponding rows and columns
    • column variables: the names are in the leftmost column
    • row variables: the names are in the same row beneath the column variables
  – two empty lines (e.g. before the footers) stop the table reading

Example of a structured table (note the empty cells)

	A	B	C	D	E	F	G	H
1	Table title							
2	3rd variable (column variable)		value text 3/1		value text 3/2		value text 3/3	
3	4th variable (column variable)		value text 4/1	value text 4/2	value text 4/1	value text 4/2	value text 4/1	value text 4/2
4	1st variable (row variable)	2nd variable (row variable)						
5	value text 1/1	value text 2/1	1111	1112	1121	1122	1131	1132
6		value text 2/2	1211	1212	1221	1222	1231	1232
7		value text 2/3	1311	1312	1321	1322	1331	1332
8	value text 1/2	value text 2/1	2111	2112	2121	2122	2131	2132
9		value text 2/2	2211	2212	2221	2222	2231	2232
10		value text 2/3	2311	2312	2321	2322	2331	2332
11								
12								
13	table footer							
14								

Step two: arrange the variables

– The chart will be created from consecutive rows and columns
  – one row or column: pie chart
  – two rows or columns: pyramid

– Data range arranging
  – variables may be rearranged (*Metadata/View*)
  – variable values may be sorted (*Metadata/Sort*)
  – needed variable values may be selected (*Metadata/Select*)
  – the data range for the chart starts from the selected data cell (anchor cell)

Step three: selections

- The selection window opens with *Edit|Graph..* or using **Ctrl+G** shortcut or right-clicking the anchor cell and selecting *Graph..* in the popup menu

- The data range is selected from the anchor cell
  - too much data will make the chart unusable

- There are other selections, too
  - the chart height (cm)
  - the chart type
  - chart orientation

- Pressing **Chart** will create the chart in a new window

Step four: fine-tuning and saving

– Double-clicking the window pane opens the Settings window
  – four tabs: *Headers*, *Chart*, *Axes* and *Legend*
  – basic settings follow Statistics Finland's standards
  – the legend positioning usually needs to be set
  – getting the desired result may take time because there are so many settings

– Right-clicking the window opens the Chart menu, which allows:
  – saving to different file types (png, eps, pdf, svg and vml)
  – copying to clipboard and printing
  – saving and loading the chart setting files (pxg)

Statistics Finland

User interface

Data selection
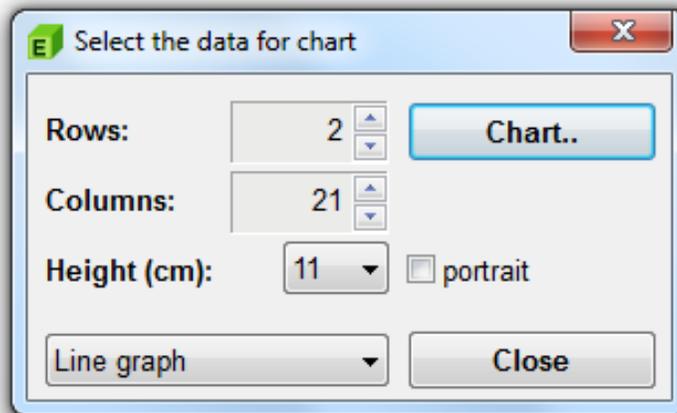
- Double-clicking the Rows or Columns field will set default values

- Pressing **Ctrl** key and double-clicking the Rows or Columns field will set the maximum table value (use with care)

- The chart may have either landscape (default) or portrait orientation

- Used settings are remembered throughout the session

Chart window
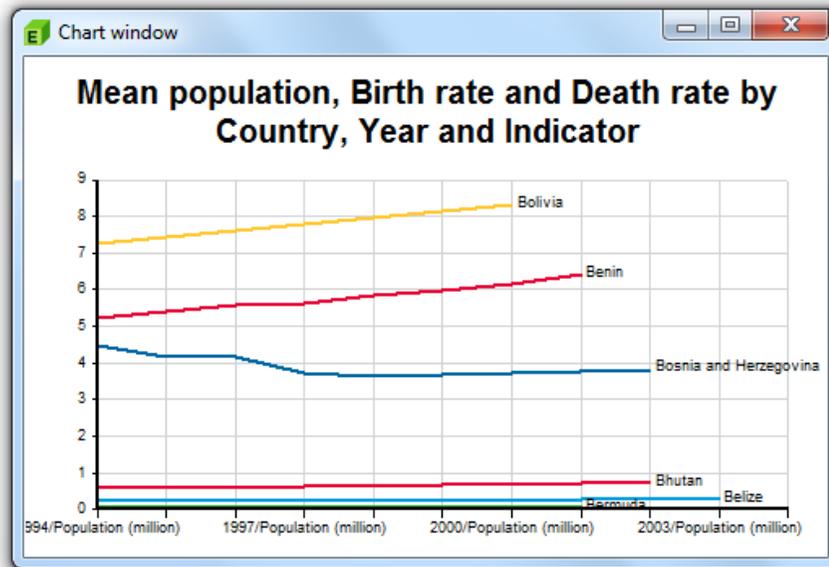
- The chart will be drawn according to the chart type settings

- PX-Edit will save the settings for each chart type
  - chart templates (settings files) might make standard chart creation easier

- Open the Chart settings window by double-clicking the chart (or using the Chart menu)

Chart settings
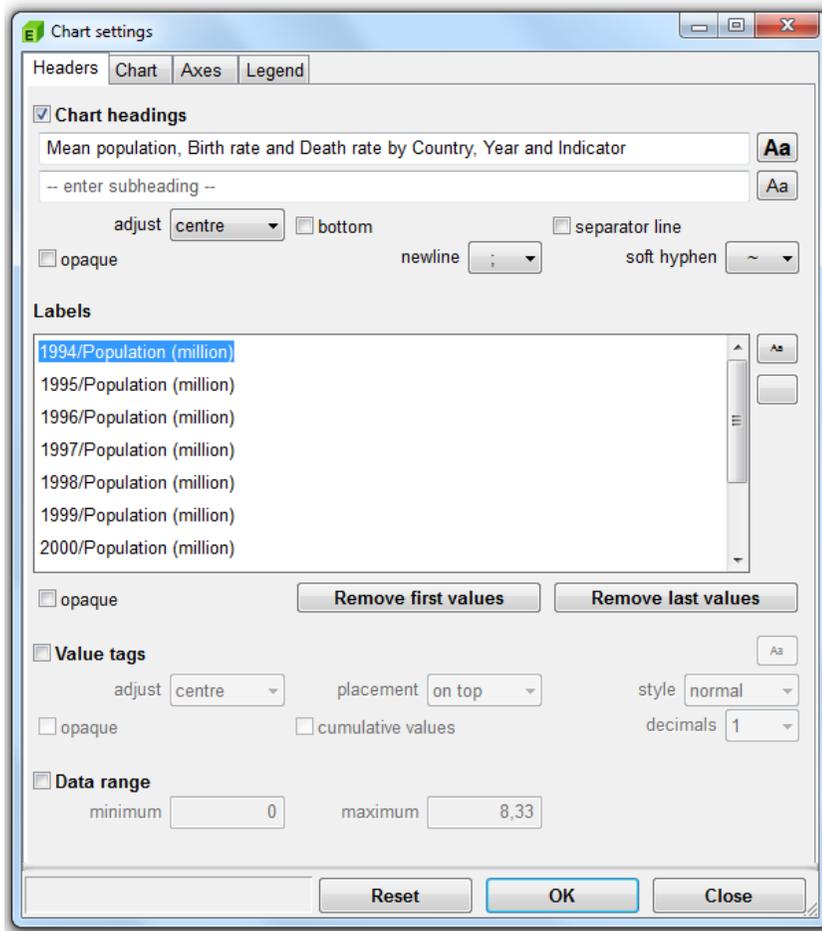
- Chart elements can be adjusted
  - probably only a few adjustments are necessary for everyday chart production

- Only the settings that apply to the current chart type are active

- **Reset**: return to the defaults
- **OK**: create a new chart
- **Close**: discard changes

Headers Tab
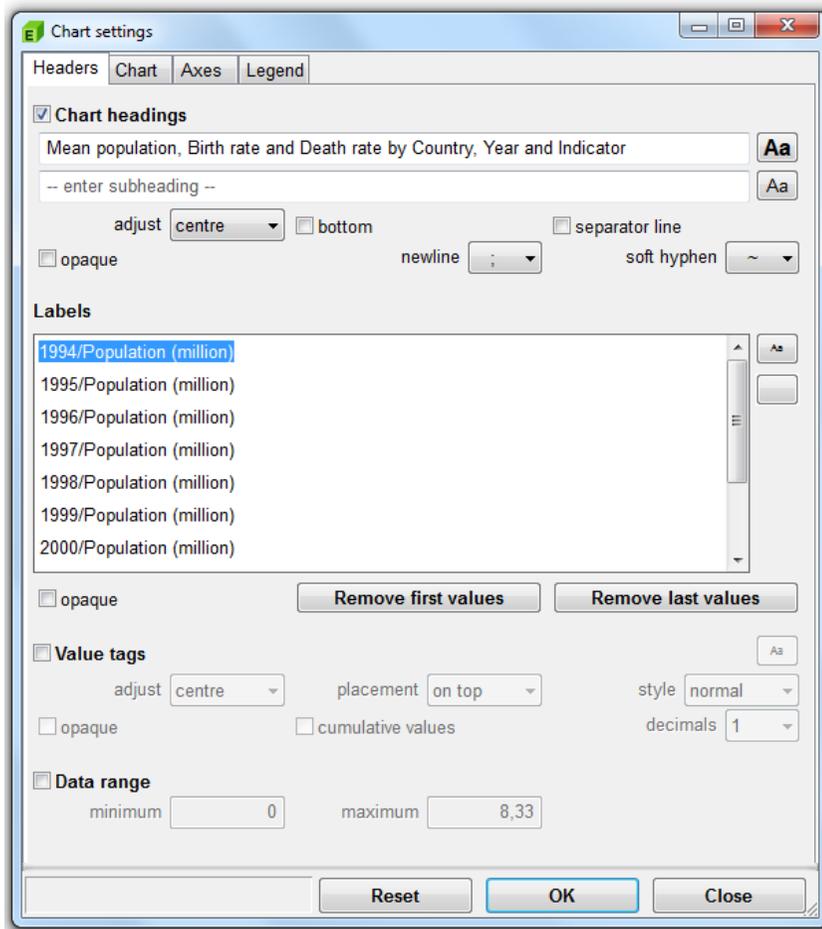
— Chart headings switch controls whether the heading (and sub-heading) is drawn along the chart

— The default chart heading is the table heading (usually the *TITLE* keyword)

— Double-clicking the Font button [**Aa**] opens the corresponding font selection window
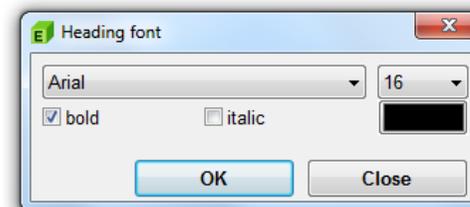
Headings
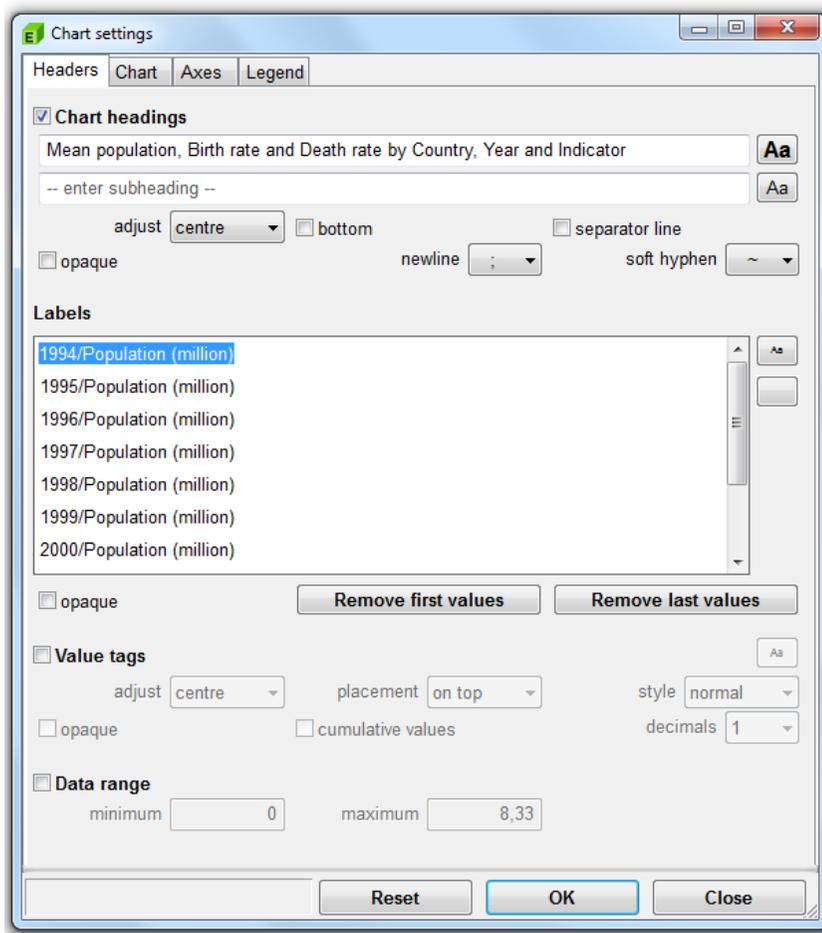
- The chart heading may be aligned left, right or centred; and it may be drawn on top (default) or at the bottom
    - these selections also affect the possible subheading
    - the opaque switch draws the heading on top of the chart
    - the separator line switch creates a separating line between the heading and the chart
    - the newline and soft hyphen characters can be set (they affect the way all text lines are being split)

Labels
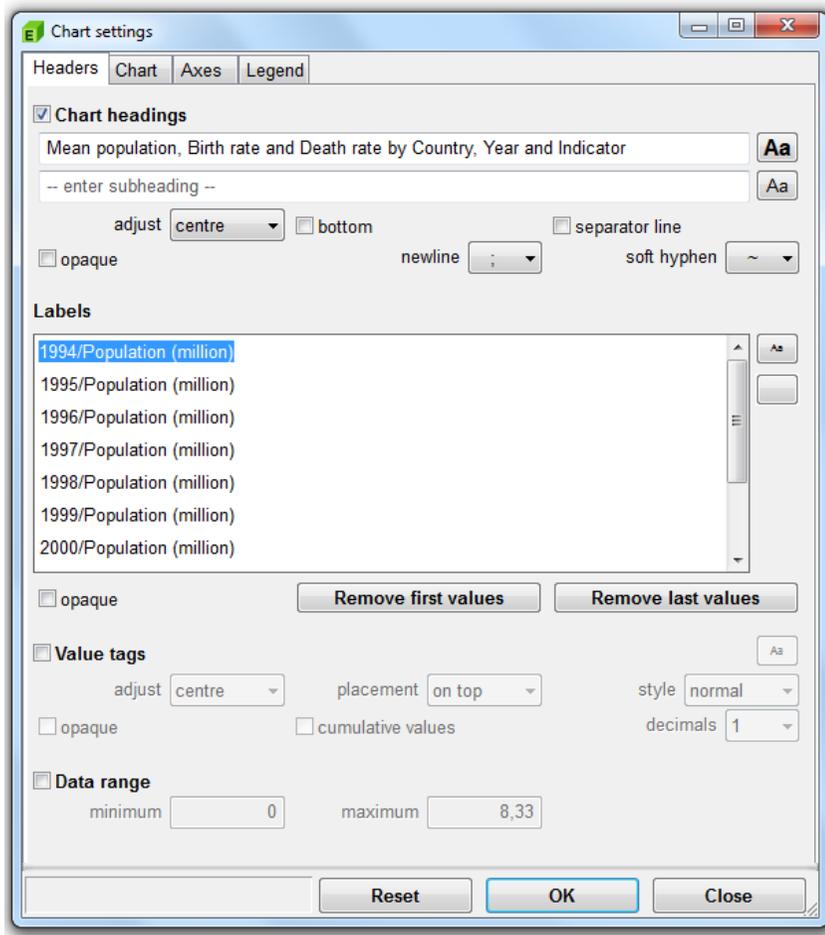
— The editable list shows chart labels using the chart font

— Labels are made by joining the selected value texts of the row or column variables with a slash (/)

    – if all the labels have the same prefix, it will be discarded

— **Remove values** buttons make it possible to drop either the first or last variable value texts

— The opaque switch draws the labels on top of the chart

Value tags
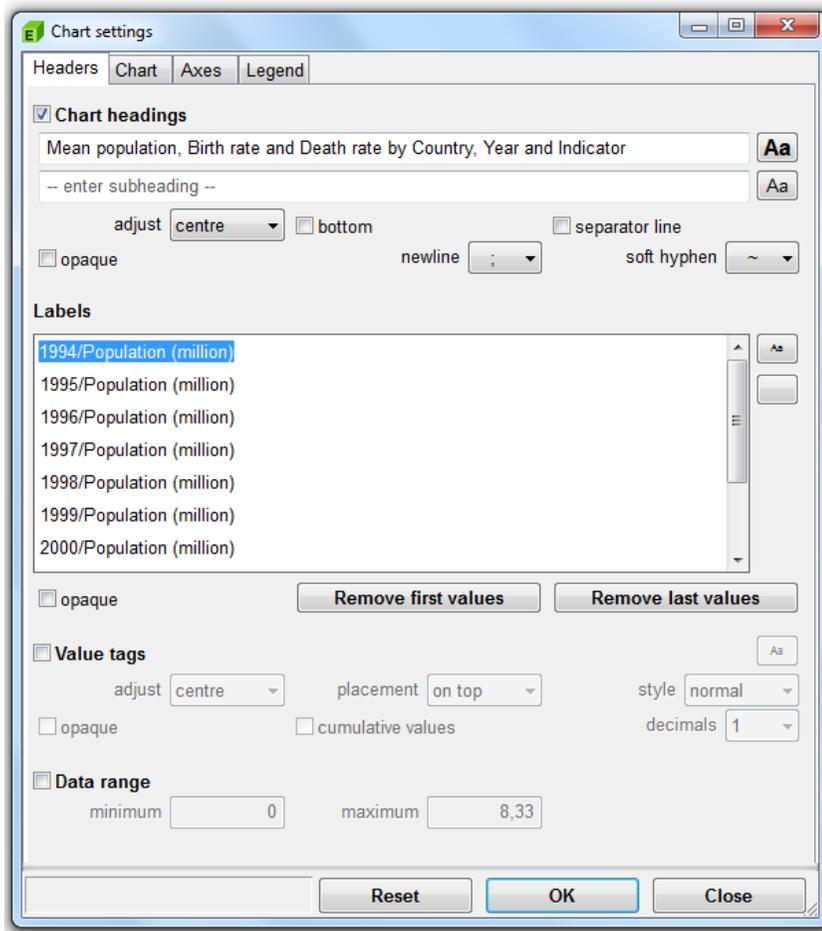
- Value tags may be adjusted and positioned according to the picture element, and the shown decimals may be set, too

- The cumulative values switch calculates cumulated values (for bar charts)

- The tags may be opaque, and they may have different styles

Data range

— The data range defaults the range between the minimum and maximum data values

    — may be set separately

Chart style /1
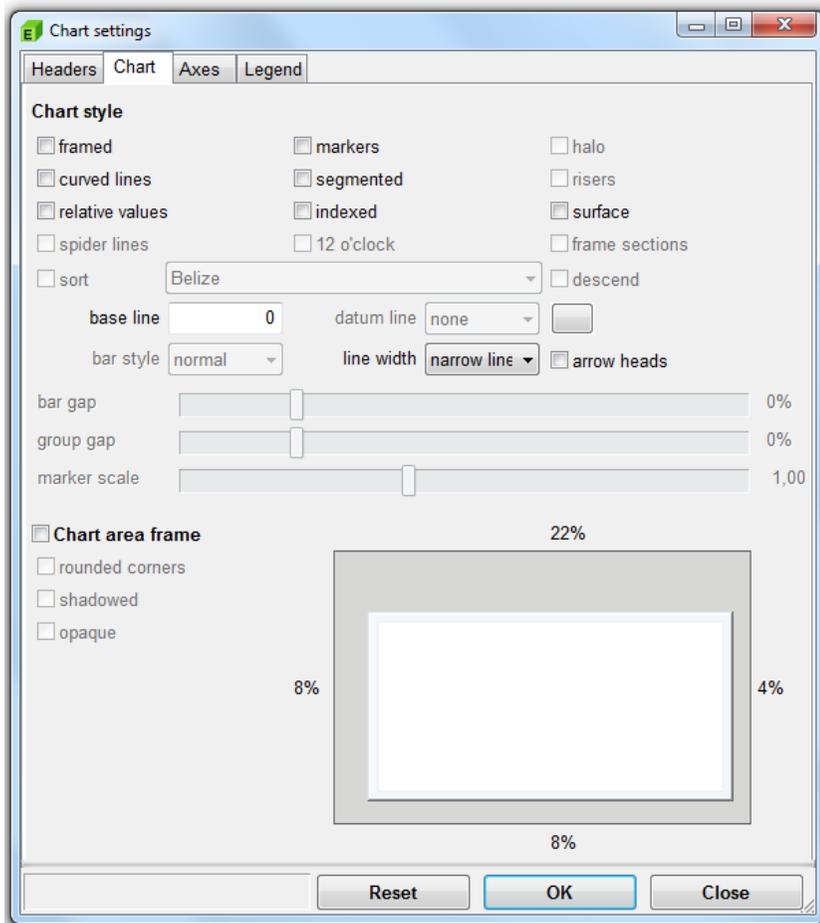
- Framed switch draws the frame around the chart area only

- Line graphs may be drawn with markers or risers

- The halo switch separates markers from the chart

- The curved lines switch draws lines using the Bézier smoothing method

- The segmented switch leaves the missing data (i.e. dot codes) undrawn in the line graph

Statistics Finland

Chart style /2
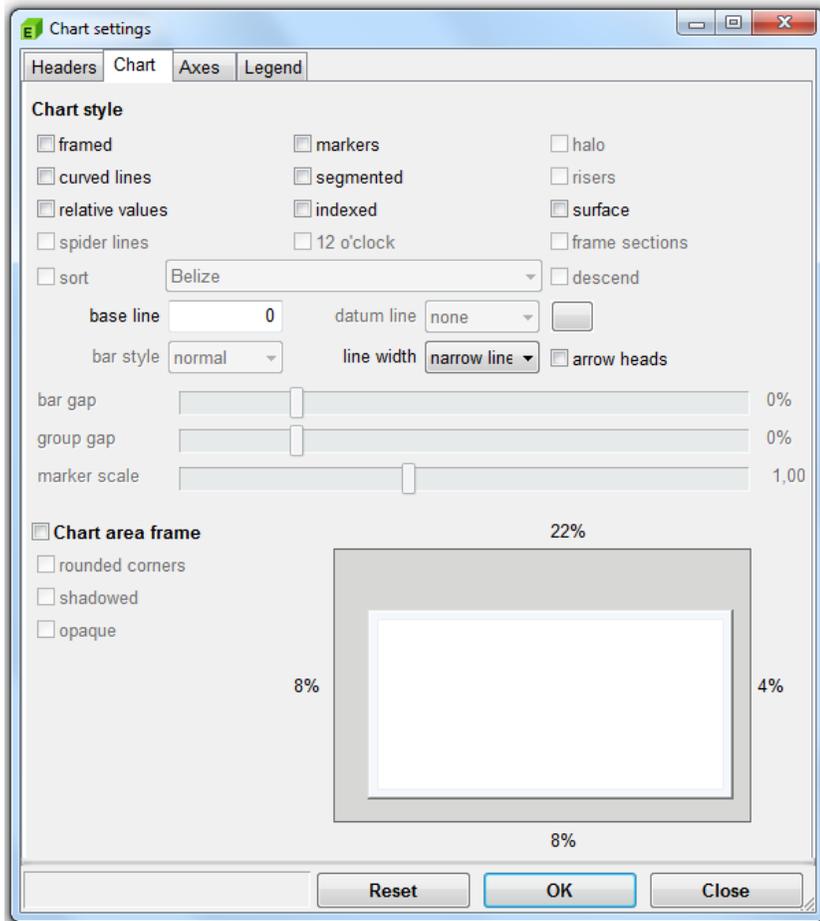
- The data values may be set relative and they may be indexed (starting from `100`)

- The surface switch changes line graphs to surface charts

- Pie segments may be connected to their label texts with spider lines

- Pie segments may be drawn from 3 (the default) or 12 o'clock
  - affects the drawing direction, too

- Bar and pie chart sections may be framed

Chart style /3
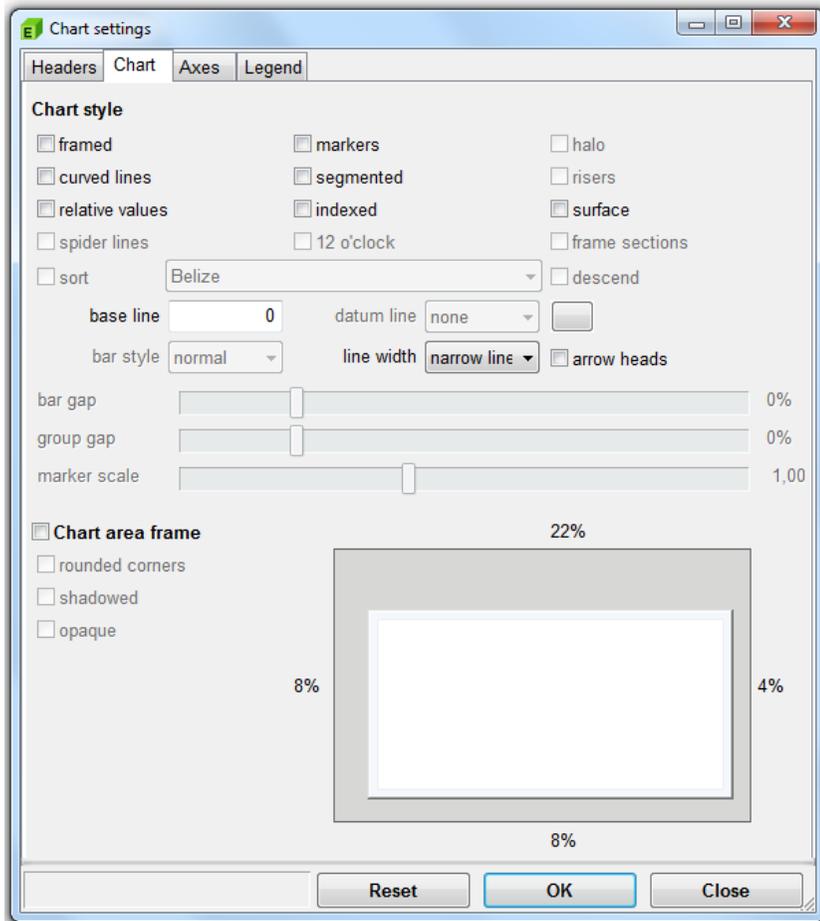

- Pie segments or horizontal bars may be sorted before drawing
  - the ordering value can be selected for a grouped horizontal bar chart
  - the sorting direction may be set descending

- The chart may have a base line (other than zero)

- Single line graphs may have a datum line (trend line, growth line or average line, also available for the bar charts)
  - the datum line colour may be changed with the attached colour button

Chart style /4
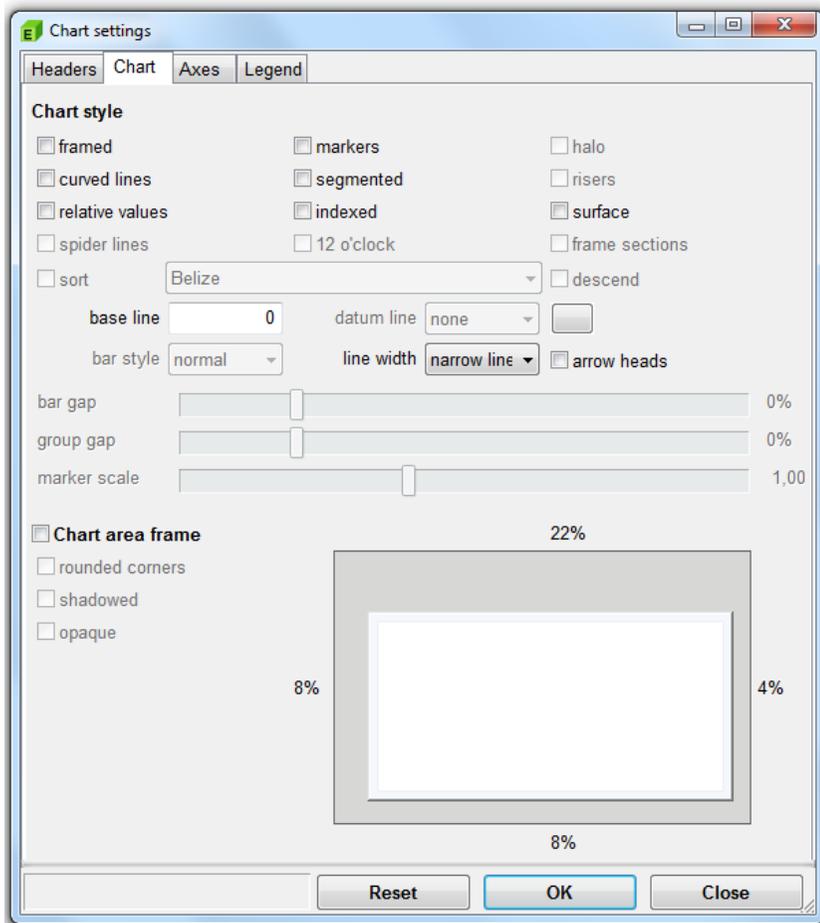
- Bar chart styles can be chosen between normal, floating or stacked

- Line graphs may be decorated with arrow heads and the line width may be changed

- The bar gap and bar group gap may be set for bar charts
  - widths are given as a percentage of the bar width
  - negative values will define overlapped bars

- The marker scaling may be adjusted

Statistics Finland
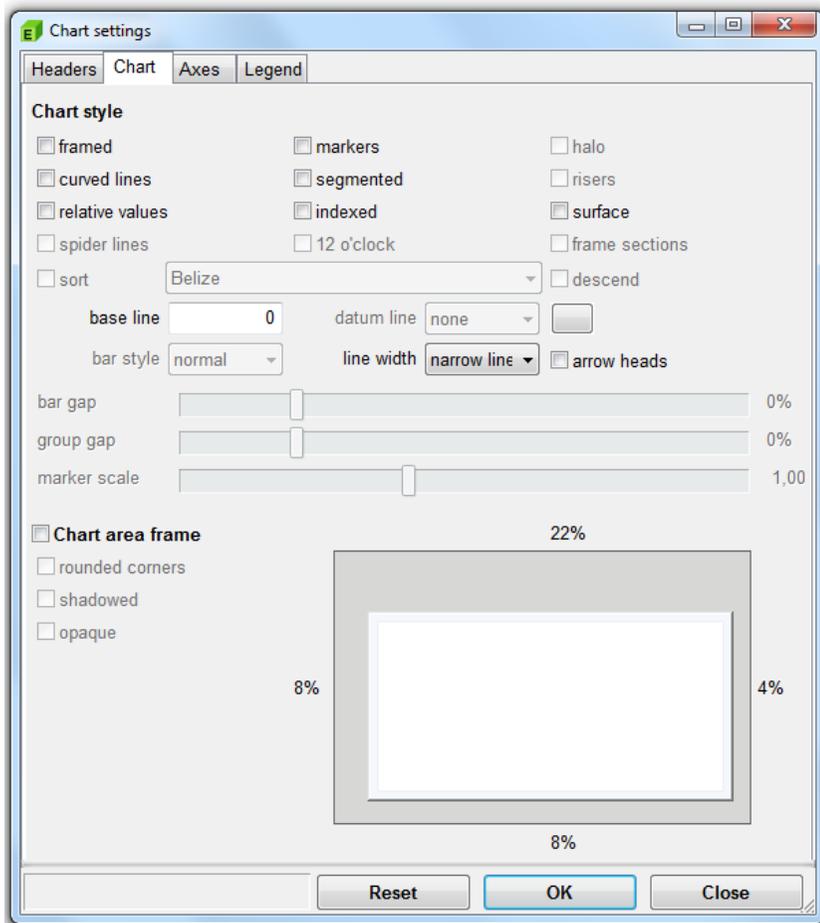
Margins

- Margins are given as a percentage of the chart size, they may be changed sliding the given picture frame edges

- The whole chart area can be framed
  - the frame may have rounded corners, may be shadowed and opaque (drawn on top of the chart)

Axes Tab
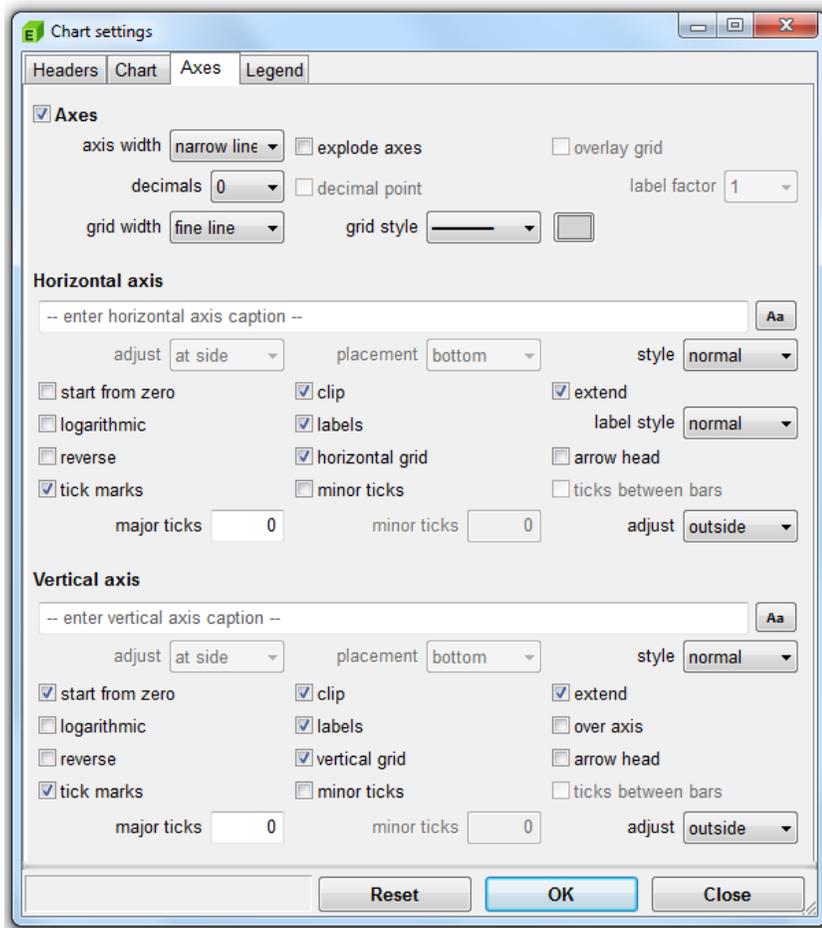
- Axis and grid line widths may be changed, and the axes may be exploded (moved slightly from the basic position)

- The grid style and colour may be set, and the grid may be drawn over the bar chart

- The default decimal setting for the chart values and axis labels may be changed with the drop-down menu

- The decimal separator and the label factor can be changed

Statistics Finland

Axis settings /1
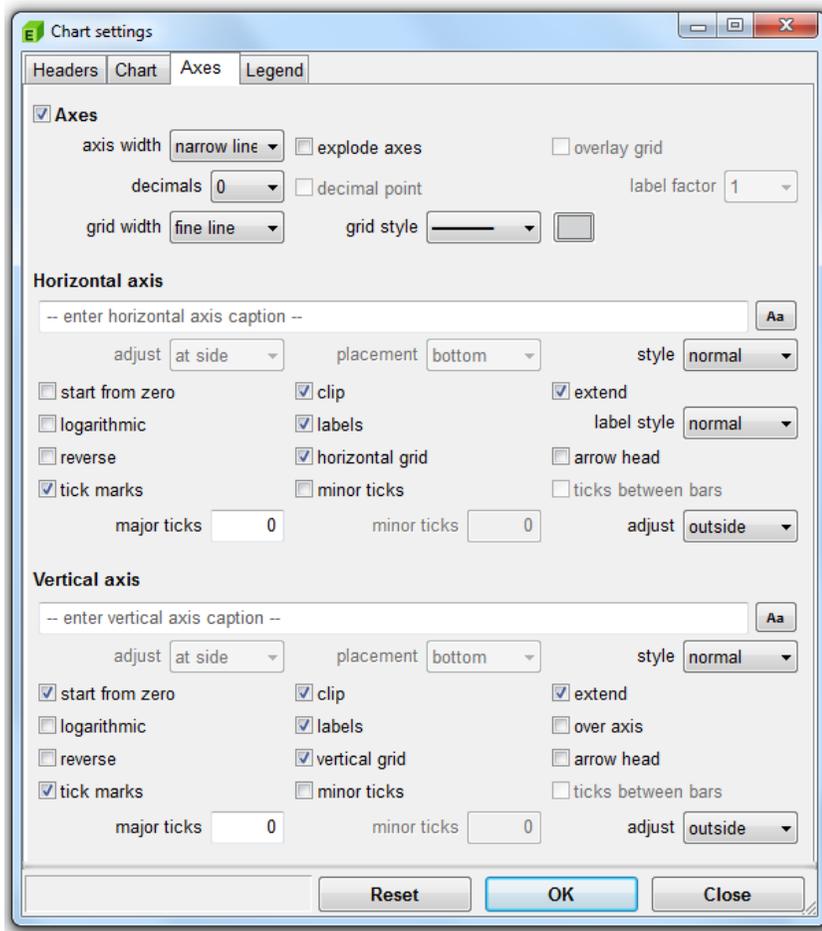
- The axis captions are drawn in relation to the corresponding axis

- The caption adjustment, placement, and style may be set

- The force zero switch starts the axis always at least from zero

- The clip switch trims the drawn chart at the axis (e.g. when the data range is too small)

- The extend switch draws the axis to the next tick mark

Statistics Finland

Axis settings /2
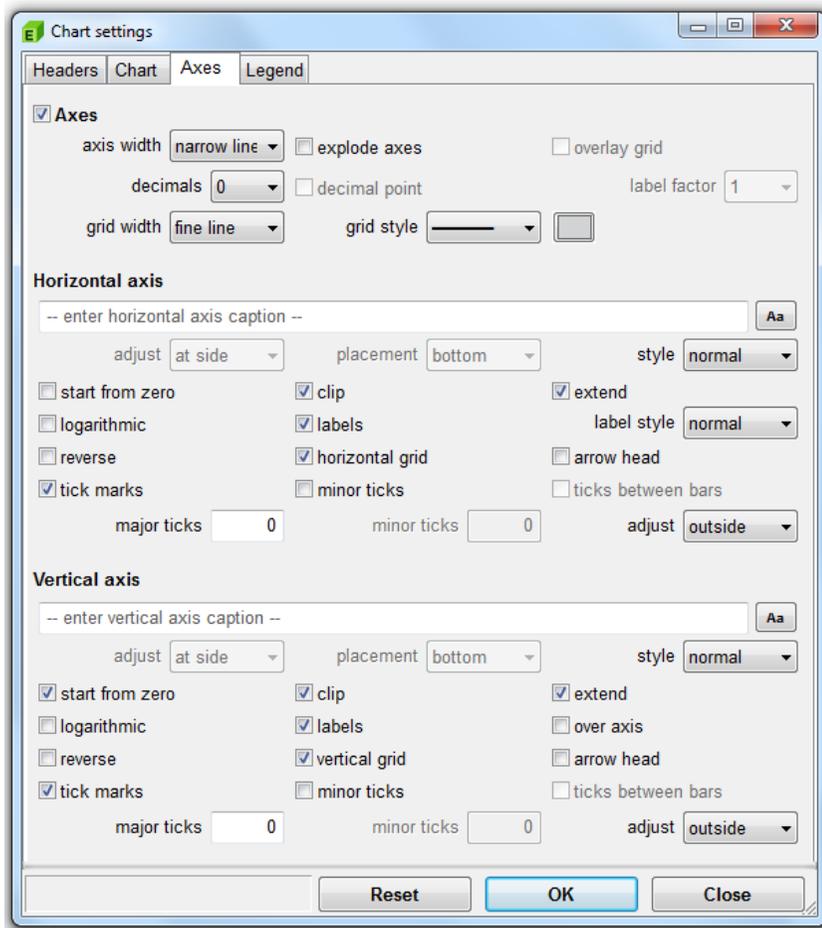
- The axes may be logarithmic, they may contain labels and the label styles may be set

- The axis direction may be reversed, there can be parallel grid lines, and the axis may end with arrow heads

- The axis tick marks and minor ticks may be set and adjusted as well

Statistics Finland
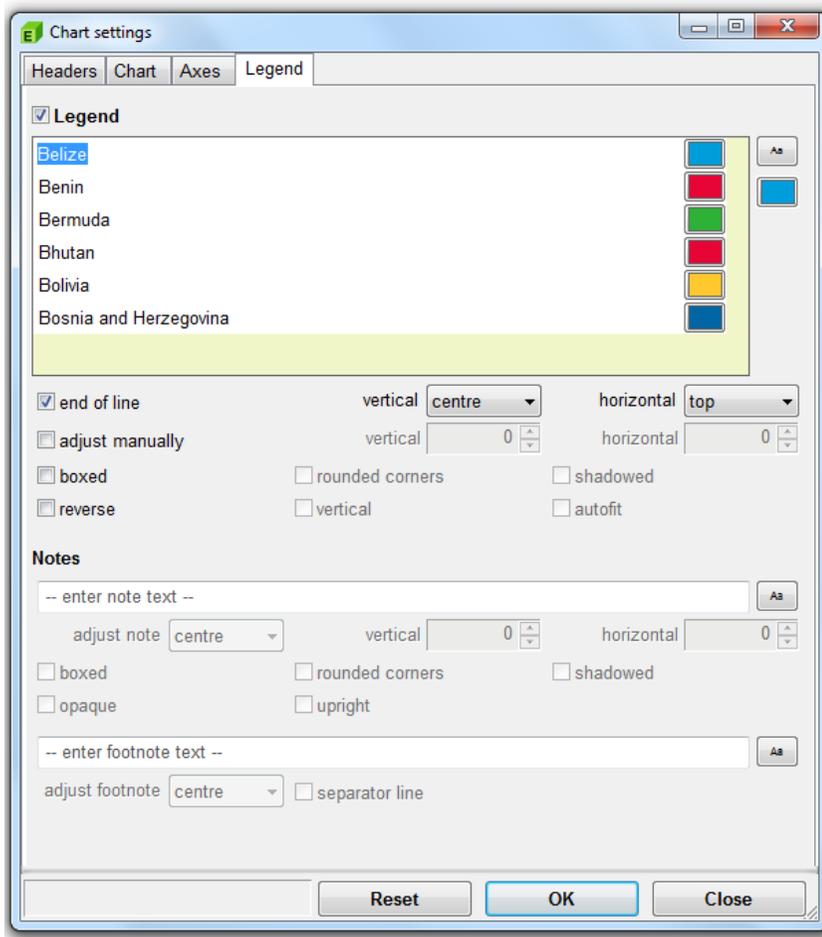
Legend Tab

- The Legend texts may be edited

- Chart colours may be changed with the colour buttons
  - all the colours may be set with the separate colour button

- The adjust manually switch enables absolute positioning of the legend inside the chart area
  - position is given as pixel coordinates
  - the lower left corner equals 0, 0
  - the chart area is based on the used chart size and margins

Legend
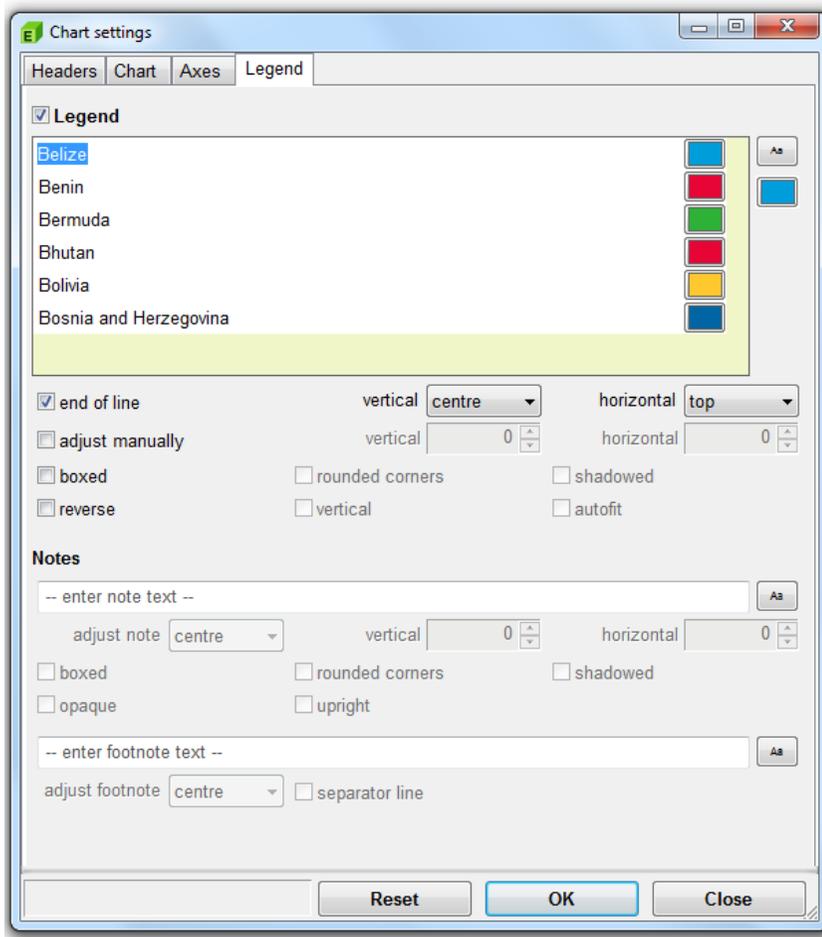
- Legend may be aligned to the area
  - horizontally: left, centre or right
  - vertically: top, middle or bottom

- Texts may be arranged vertically and the text order can be reversed

- The legend may be boxed with optional rounded corners and shadowed

- The autofit switch tries to fit the text inside the legend box (the font size may be adjusted)

- Texts may be written at the end of the line graphs

Notes
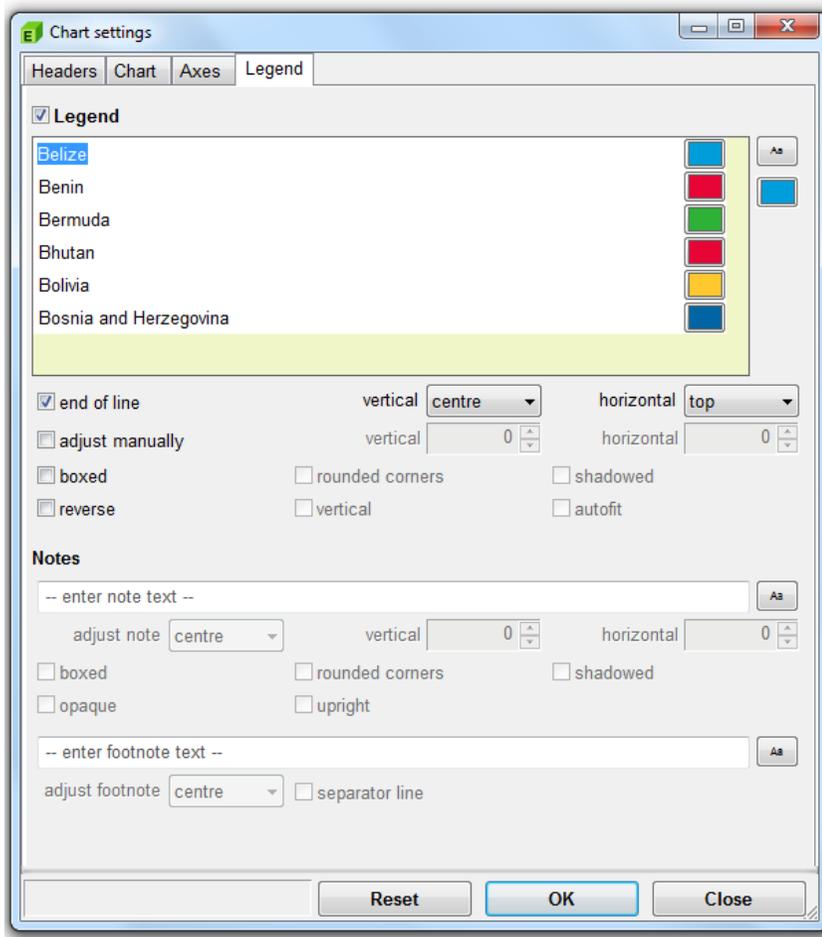
- **One** note text can be written in the chart area
  - can be aligned horizontally
  - can be boxed (with optional rounded corners and shadowed)
  - the note may be drawn vertically
  - the note may reside over the chart
  - the top left position of the note area is given in pixel coordinates (like the adjusted legend)

- The footnote can also be adjusted
  - there may be a separating line between the footnote and chart

Chart menu
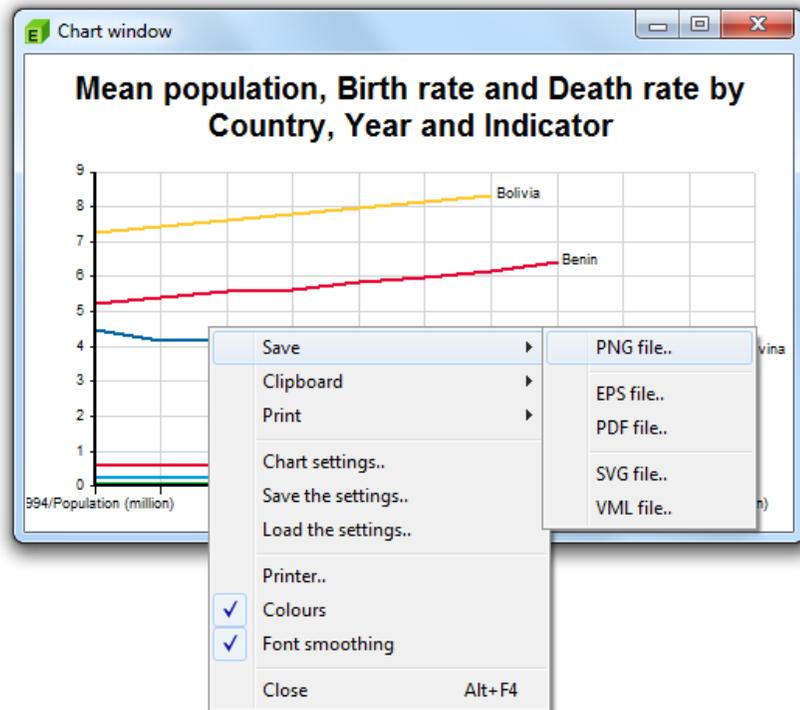
- Right-clicking the chart window opens the Chart menu

- The chart may be saved in different picture formats, copied to the clipboard or printed

- Chart settings can be saved in a separate text file (.pxg) for later use

Statistics Finland

Font smoothing

- If the font smoothing effect is in use (typically *ClearType*), it affects the output of the chart texts, especially small ones
  - this happens with all the graphics packages

- Font smoothing can be toggled off (and on) with the *Font smoothing* selection of the Chart menu
  - usually there is a short delay with Windows

Tips

- Table values may be scrolled within the chart either with a scroll mouse or by pressing **Alt**+arrow keys
  - the default moving range is the selection area
  - to move one line or row, use the **Shift** key

- The colours for a one row chart (e.g. in the horizontal bar chart) may be changed with the colour buttons

- Tick settings are handy for tuning the horizontal axis

Statistics Finland

An example

Produce a horizontal bar chart from an Excel table

The old version

1. Make the Excel table structured

— The title is already there

— Variable names need to be tuned

- the column variable name is missing, let's use a suitable one, e.g. *Hinnat* (Prices)
- add a new line for the row variable *Alueet* (Areas)
- variable names will not be shown in the chart

— The table is ready for importing after these changes

# 2. Import the table to PX-Edit

- After opening PX-Edit the table can be imported from Excel
  - either *File|Read|Excel Worksheet* or **Ctrl+E** shortcut

- Excel may now be closed without saving the changed table

3. Transpose the table
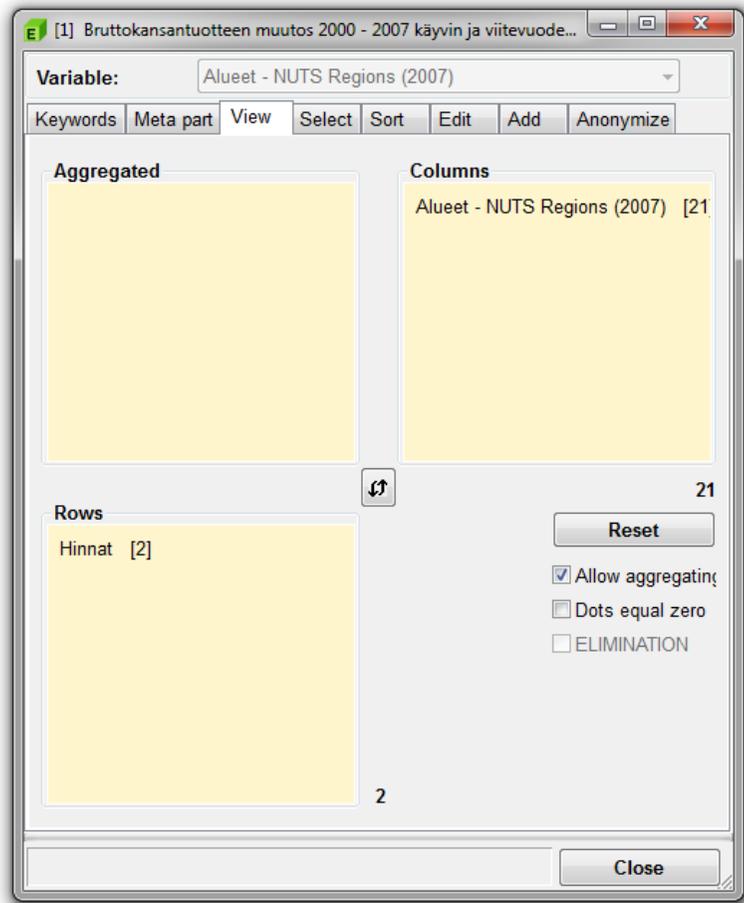
- The variables should be rearranged before making the chart
  - the Metadata editor may be opened either with *Edit|Metadata* or **Ctrl+M** shortcut or pressing the **m** button in the table window corner

- The *View* Tab is meant for changing the order of table variables

- The variable names can be dragged and dropped, but in this case, clicking the transpose button is even simpler ☺

- Close the Metadata editor

4. Select data for the chart
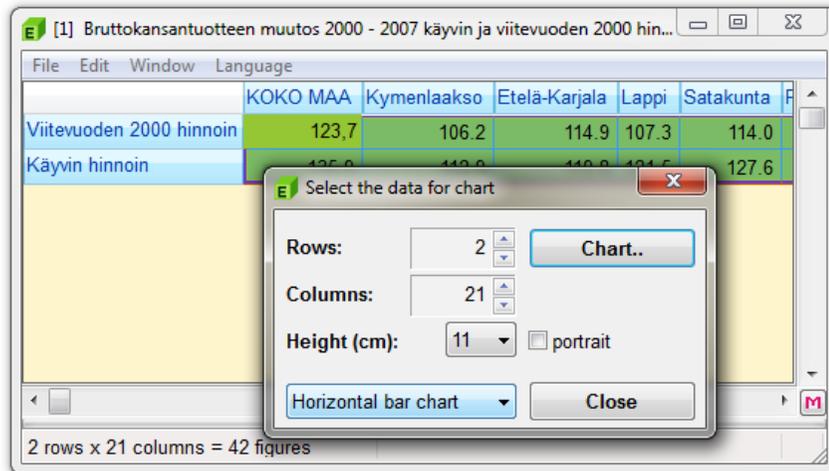
- Select the first table cell and either press the **Ctrl+G** shortcut or select *Edit|Graph..* from the menu bar or press the right mouse button and select *Graph..* from the popup menu
  - NB: use the Expert user level

- The data selection window opens
  - since the table is small, all the data may be selected

- Practise some settings
  - height to `15` cm
  - chart type to *Horizontal bar chart*

- Press the **Chart** button

5. First version
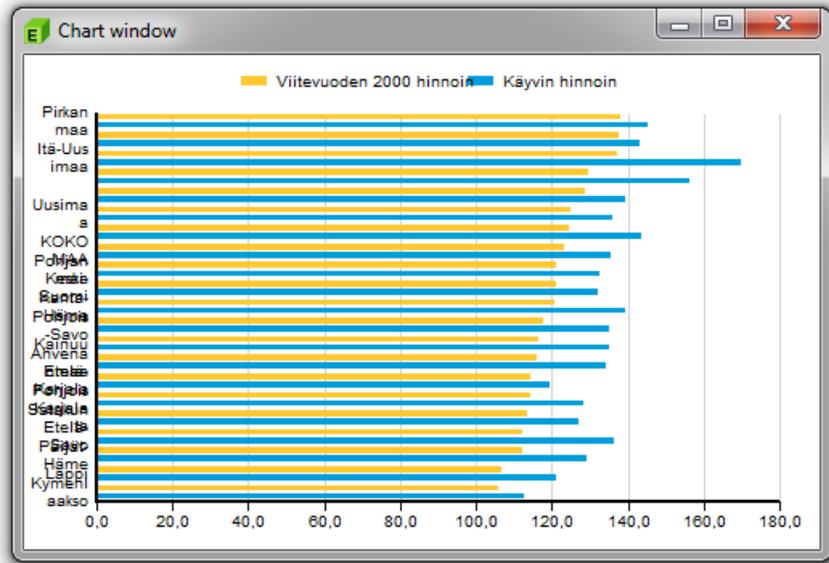
- There's lot to be changed:
  - margins
  - bar colours and widths
  - the order of the bars
  - legend
  - data range
  - the decimal setting of the horizontal axis labels
- Double-clicking the chart will open the Settings window

6. Data range
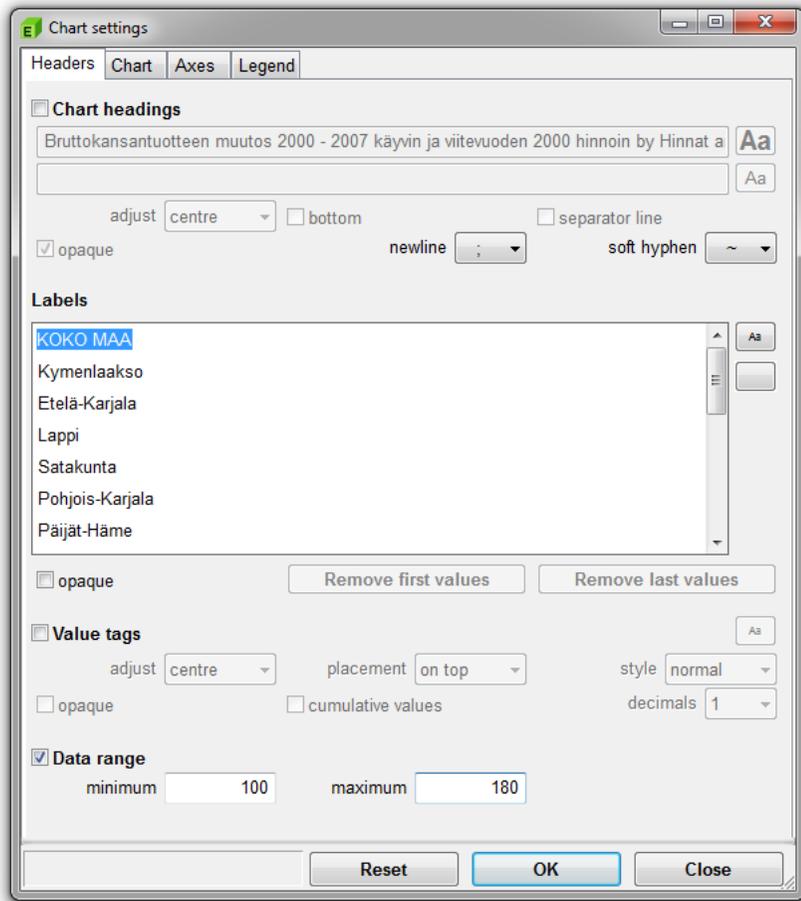
— Data range is adjusted as in the original example (`100 .. 180`)

    — although this is against the standard principle of always starting a bar graph from zero!

7. Chart settings
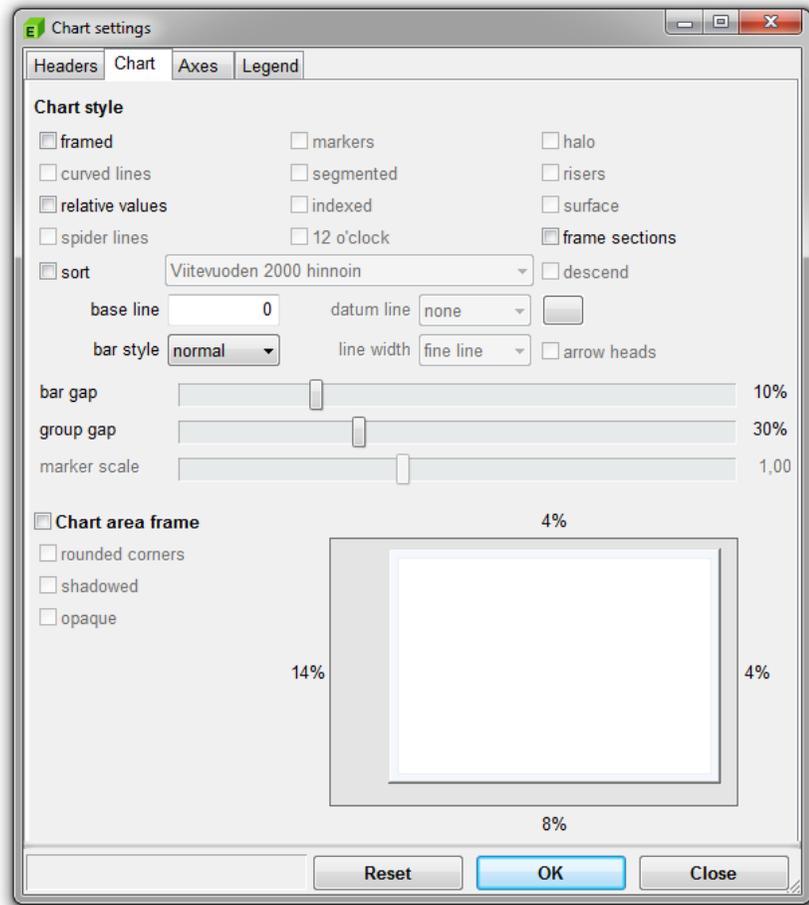
- No value sorting

- The bar gap is set as `10%` and the group gap as `30%`

- Margins are set with the sliders
  - make room to the left for the labels
  - adjust the top (there is no heading) and bottom margins, too
 - marginal settings sometimes need plenty of iterations

8. Axes
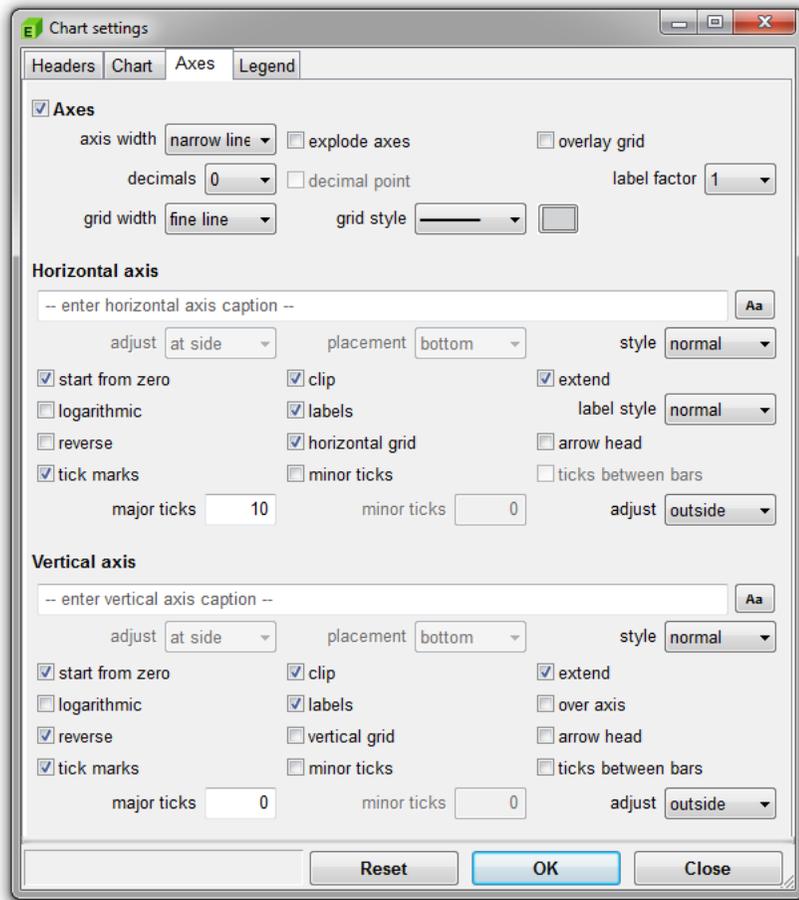
- Decimals to zero

- The horizontal major tick interval is set as `10`

- The vertical axes are to be reversed
 - the same effect could have been achieved in PX-Edit (*Metadata/Sort*)

9. Legend
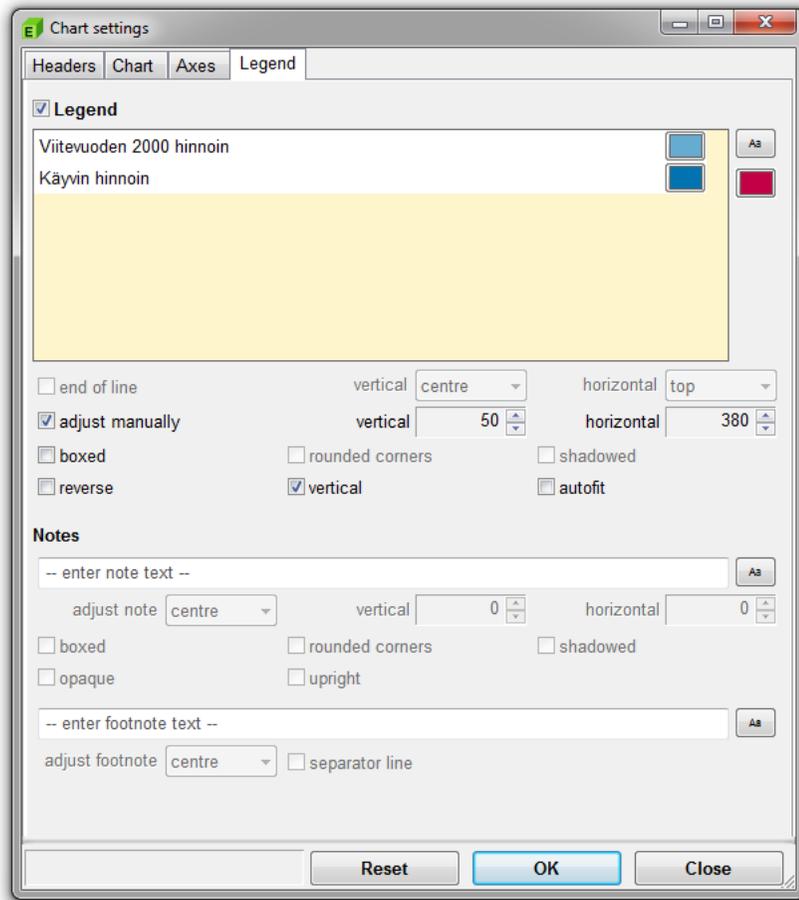
- Bar colours can be changed via the legend list colour buttons

- Adjust the absolute positioning of the legend to `50, 380`
  - finding the proper setting usually needs some fine-tuning

- Set the legend to vertical
  - the legend will not be framed (as in the original example)

- Press **OK**

10. Preview the fine-tuned chart
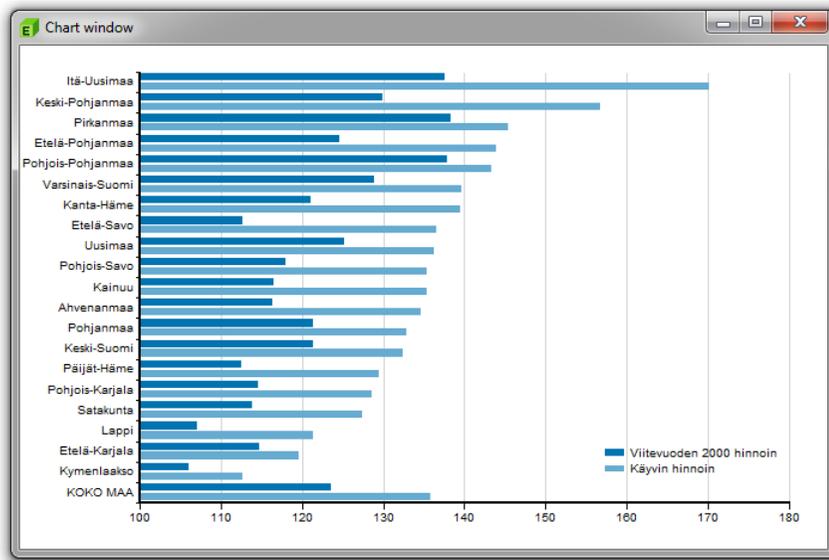
— Looks appropriate ☺

— The chart is internally handled in PostScript, so the saved picture file may look slightly different to the Chart window

Statistics Finland
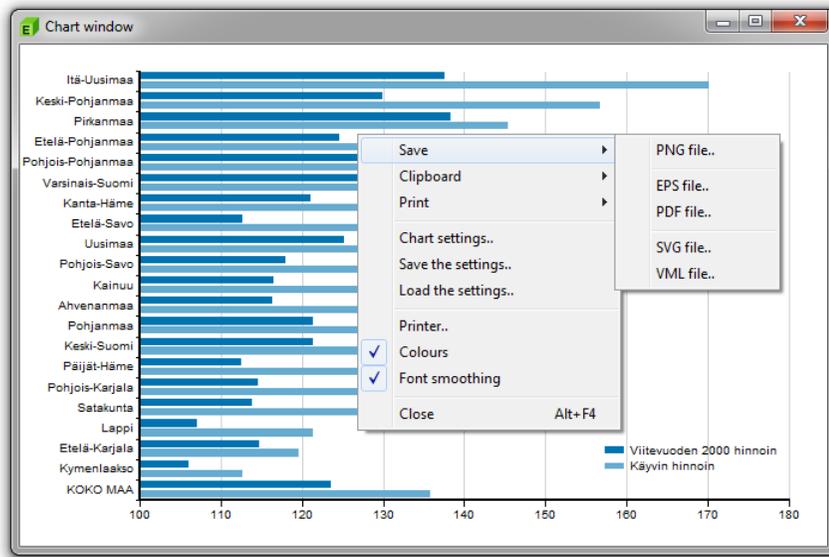
11. Save the chart

— Press the right mouse button on the Chart window

— Select *Save|PNG file..* and save with an appropriate name

— Open the saved file in an image viewer application to check it

— You may also save the chart settings in a separate file selecting *Save the settings..*

— You can now close PX-Edit

Final chart (as a png file)

Statistics Finland