Google Motion Charts with R: Package Vignette

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Abstract

The `GoogleMotionChart` package is providing an interface between R and the Google Visualisation API. The functions of the package allow the user to transform data stored in a R `data.frame` structure into a Google Motion Chart. The output is html code, which when run on a web server, generates a dynamic flash based bubble chart to explore several indicators over time.

1   Introduction

The standard motion chart is essentially an animated bubble chart, which allows the user to explore several indicators over time. The idea of motion chart was popularised by Hans Rosling at a Ted talk [TED06] about social and economic developments in the world, see also [Gap10].

2   Google Motion Chart API

The Google Motion Chart is part of Google Visualisation API [Goo10a]. Charts are rendered within a browser using Adobe Flash. The charting data can either be embedded into the html file or read dynamically. Key to Google Visualisation API is that the data is structured into a DataTable [Goo10c]. The data has to have at least four columns with bubble name (`idvar`), time (`timevar`) and two columns of numeric values. Further columns are optional. The Google Public Data Explorer [Goo10b] shows several examples of motion charts and how they can help to analyse data.

Chart type
Change between bubble, bar and line chart.

Motion Chart

Lin / Log scale
X- and y-axis scales can be linear or logarithmic. A log scale can make it easier to see trends.

Colour
Click to choose another indicator for colour.

Colour
Location
■ East
■ West

Lin
90

To zoom in:
1. Put your mouse in the chart area.
2. Hold down the left mouse button and draw a rectangle over the items that you want to zoom in.
3. Release the left mouse button.
4. In the menu that pops up, select 'Zoom in'.

To zoom out:
Click the 'Zoom out' link above the zoom thumbnail in the right panel.

85

Size
Profit
40

Size indicator
Select the indicator which represents the size of the bubble

Y-axis
Click here to select indicators for the y-axis.

80

Select
☐ Apples
☐ Bananas
☐ Oranges
☑ Trails

Select variables
Click boxes to select specific variables. (You can also click the bubbles.)

75

Trails
Click Trails to follow a selected country while the animation plays.

70

Expenses

Speed of animation
Drag to change the speed of the animation.

85   90   95   100   105   110   115

Sales

Lin ▾

Play / Stop
Click Play/Stop to control the animation. (How the graph changes over time.)

2008

Settings
Change opacity of non selected items and further advanced settings

2010-07-26/22:03:08
R version 2.11.1 (2010-05-31)

Time
Click and drag to change year.

X-axis
Click here to select indicators for the x-axis. You can also choose to display time on this axis.

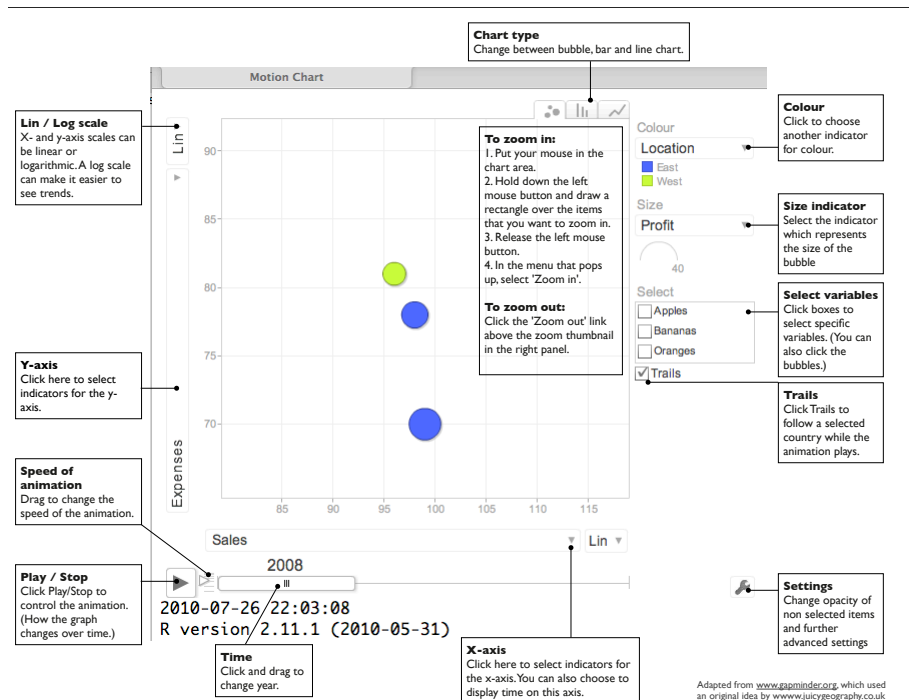Adapted from www.gapminder.org, which used an original idea by wwww.juicygeography.co.uk

Figure 1: Overview of a Google motion chart. Screenshot of the output of `MotionChartPage(Fruits, idvar='Fruit', timevar='Year', file='FruitAnalysis.rsp')`

References

[Gap10] Gapminder, http://www.gapminder.org. 2010.

[Goo10a] Google Inc., http://code.google.com/apis/visualization/documentation/gallery/motionchart.html. *Google Motion Chart API*, 2010.

[Goo10b] Google Inc., http://www.google.com/publicdata/home. *Google Public Data Explorer*, 2010.

[Goo10c] Google Inc, http://code.google.com/apis/visualization/documentation/reference.html. *Google Visualisation Reference*, 2010.

[TED06] TED Talk, http://www.ted.com/talks/hans_rosling_shows_the_best_stats_you_ve_ever_seen.html. *Hans Rosling shows the best stats you've ever seen*, 2006.