

V0A Excel2013: Create Centered Stacked 100% Bar Charts for Odd-Choice Ordinal Data 1

Centered Stacked Bar-Charts for Odd-Choice Ordinal Data

Milo Schield
Member: International Statistical Institute
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Slides at: www.StatLit.org/pdf/Excel2013-Bar-Chart-Ordinal-Centered-Odd-Slides.pdf

V0A Excel2013: Create Centered Stacked 100% Bar Charts for Odd-Choice Ordinal Data 2

The Goal. The Data

Goal: Use Excel 2013 to create 100% stacked bar charts for ordinal data where each bar has an odd number of choices and each bar is centered on its median.

This chart is not yet standard. For a review, see www.jstatsoft.org/v57/i05

Others name these bar-charts as diverging or sliding. We name these as 'centered' since these diverging and sliding forms are consequences of the centering.

The results of this exercises are at www.StatLit.org/pdf/Excel2013-Bar-Chart-Ordinal-Centered-Odd-Output.pdf

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Steps to create 100% Bar chart: Ordinal Data, Centered & Odd

Access Pre-formatted Data Worksheet:

1. Calculate Buffer amounts
2. Create 1st horizontal stacked 100% bar chart
3. Reverse columns and rows
4. Color buffer categories white
5. Clean up the graph
6. Eliminate white space; add bar descriptions
7. Eliminate horizontal (X) axis.

Upload completed worksheet.

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0: Open Data worksheet: Odd Number of Choices

SA = Strongly Agree; N=Neutral; SD = Strongly Disagree

SA	A	N	D	SD
35%	35%	15%	8%	7%
60%	10%	10%	10%	10%
40%	30%	5%	15%	10%

Data at www.StatLit.org/XLS/Excel2013-BarCharts-Ordinal-Centered-Odd-Data.xlsx

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1: Calculate Buffer Amounts

Enter formula in B4 and H4. Pull down to row 6.

A	B	C	D	E	F	G	H	I
2								
3	Buffer1	SA	A	N	D	SD	Buffer2	
4	22.5%	35%	35%	15%	8%	7%	77.5%	Question 1
5	25.0%	60%	10%	10%	10%	10%	75.0%	Question 2
6	27.5%	40%	30%	5%	15%	10%	72.5%	Question 3
7								
8		B4 =100%-SUM(C4:D4)-E4/2			H4 =100%-B4			
9		SA = Strongly Agree			SD = Strongly Disagree			
10		S = Agree			D = Disagree			
11		N=Neutral						

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2: Create Horizontal Stacked 100% Bar-Chart

Select B3:H6. Insert Chart/Horiz. Bar/2D 100% stacked.

Chart Title

Buffer2
SD
D
N
A
SA
Buffer1

0% 20% 40% 60% 80% 100%

Series1 Series2 Series3

7

3: Reverse Columns & Rows

Right click on a data bar in the graph
Select "Select data". Select "Switch Row/Column".

8

4: Fill two Buffer categories with White

a. Right click on Buffer1. Select "Format Data Series".
b. Under "Format Shape", click on tipped paint bucket.
c. Select Fill / Solid Fill / Color / White (Upper-left)

Repeat with Buffer2.

9

5: Clean up graph; Add Data Labels

a. Delete legend, Y-axis and gridlines. Add chart title.
b. Select series; Right-mouse; "Add Data Labels"

10

6: Eliminate White Space Outside the Stacked Bars

Select X-axis. Right mouse. Select "Format Axis".
a. Set MINIMUM at $\text{MIN}(\text{Buffer1})/2 = 0.1125$
b. Set MAXIMUM at $0.5 + [\text{Max}(\text{Buffer1})/2] = 0.6375$

11

7: Add titles for bars. Delete X-Axis

12

Summary

Centered 100% stacked bar charts are not common.

But using traditional (un-stacked) bar charts

1. with separated bars treats ordinal data as categorical.
2. with touching bars treats ordinal data as quantitative.

There is no indication that these bars must sum to 100%. Stacked bar charts show that the total must be 100%.

Sources: www.jstatsoft.org/v57/i05
<http://stephanieevergreen.com/diverging-stacked-bars/>

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Steps to create 100% Bar chart: Ordinal Data, Centered & Odd

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Upload completed worksheet.

0: Open Data worksheet: Odd Number of Choices

SA = Strongly Agree; N=Neutral; SD = Strongly Disagree

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35%	35%	15%	8%	7%	
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Excel2013-BarCharts-Ordinal-Centered-Odd-Data.xlsx

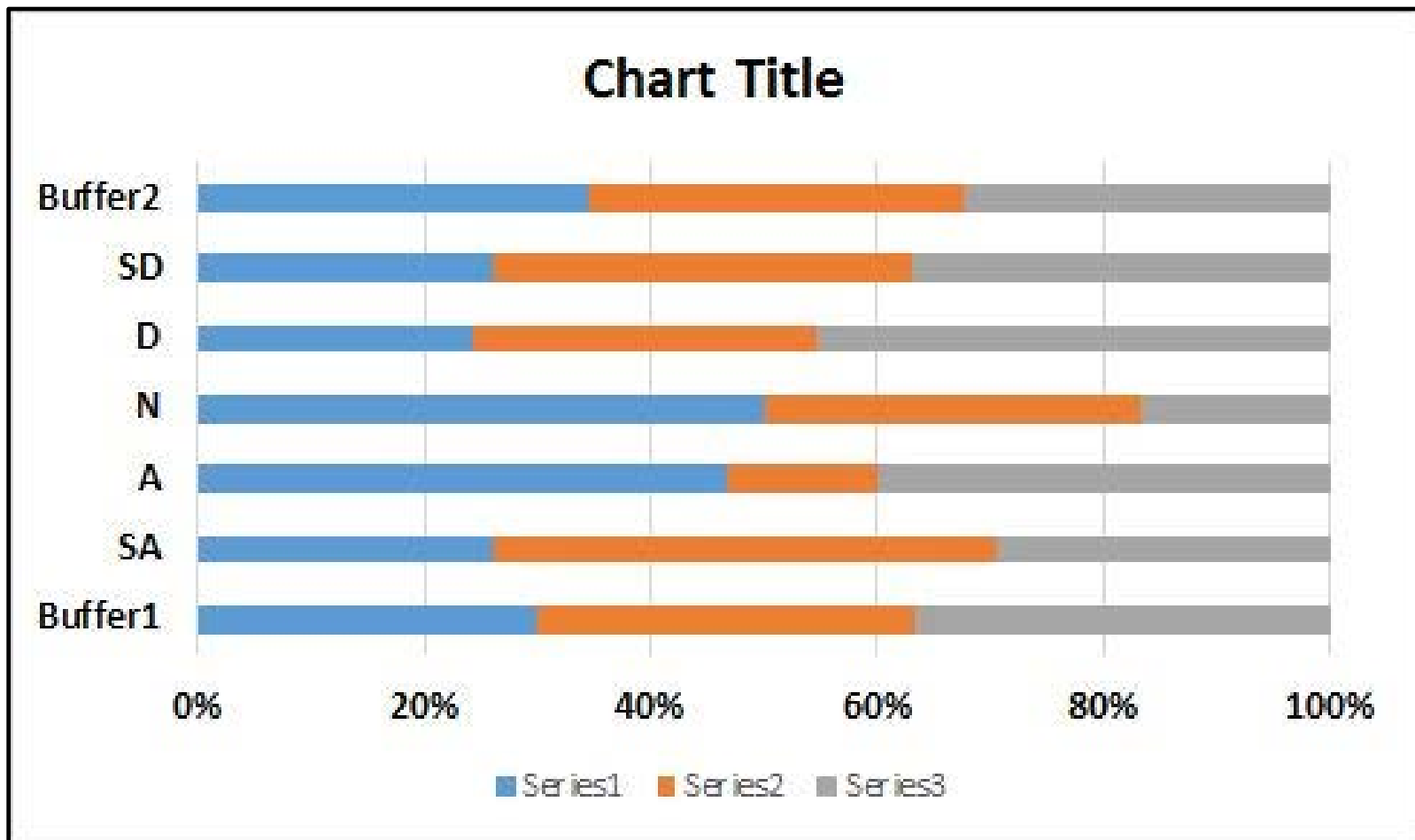
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9	SA = Strongly Agree			SD = Strongly Disagree				
10		S = Agree		D = Disagree				
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2: Create Horizontal Stacked 100% Bar-Chart

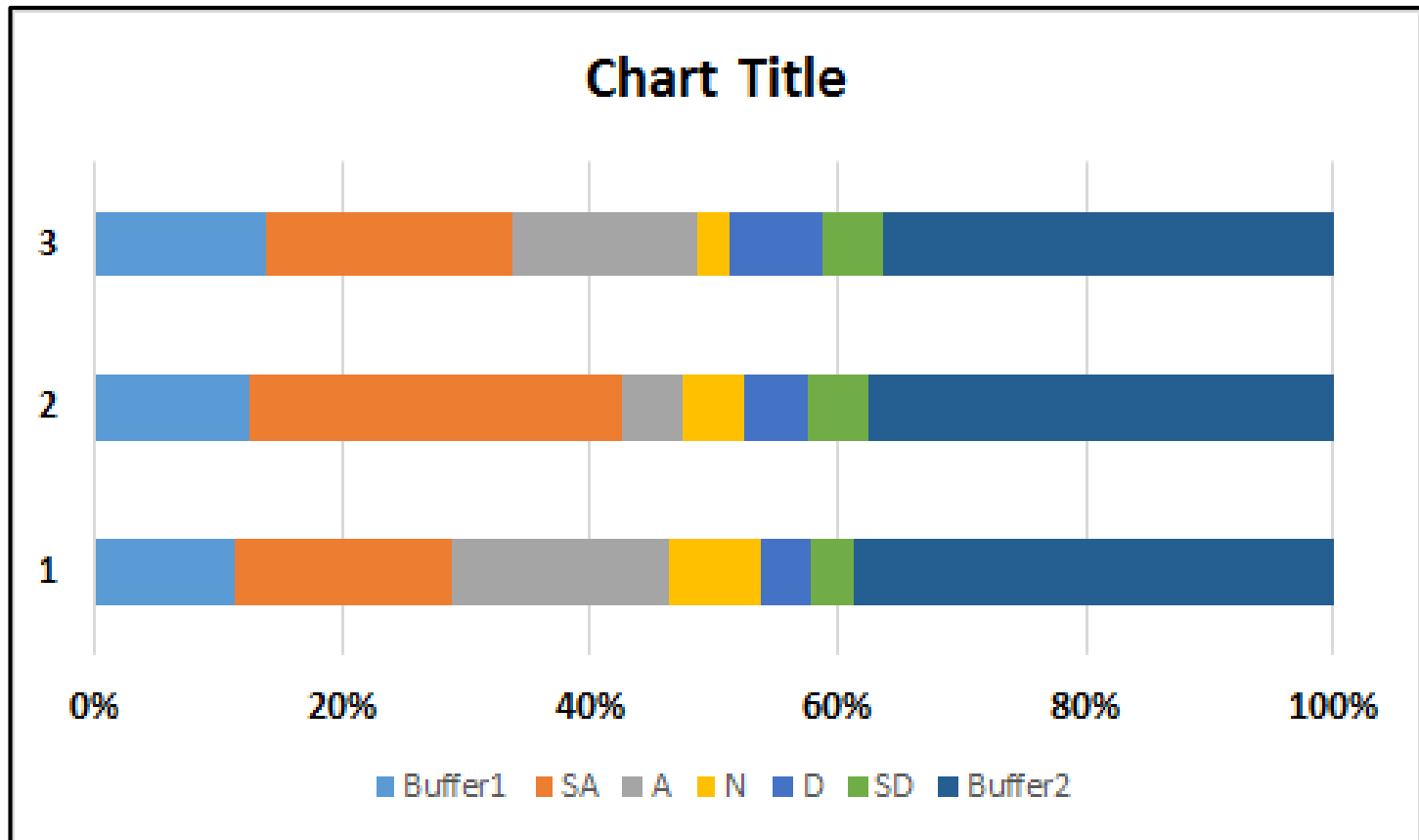
Select B3:H6. Insert Chart/Horiz. Bar/2D 100% stacked.



3: Reverse Columns & Rows

Right click on a data bar in the graph

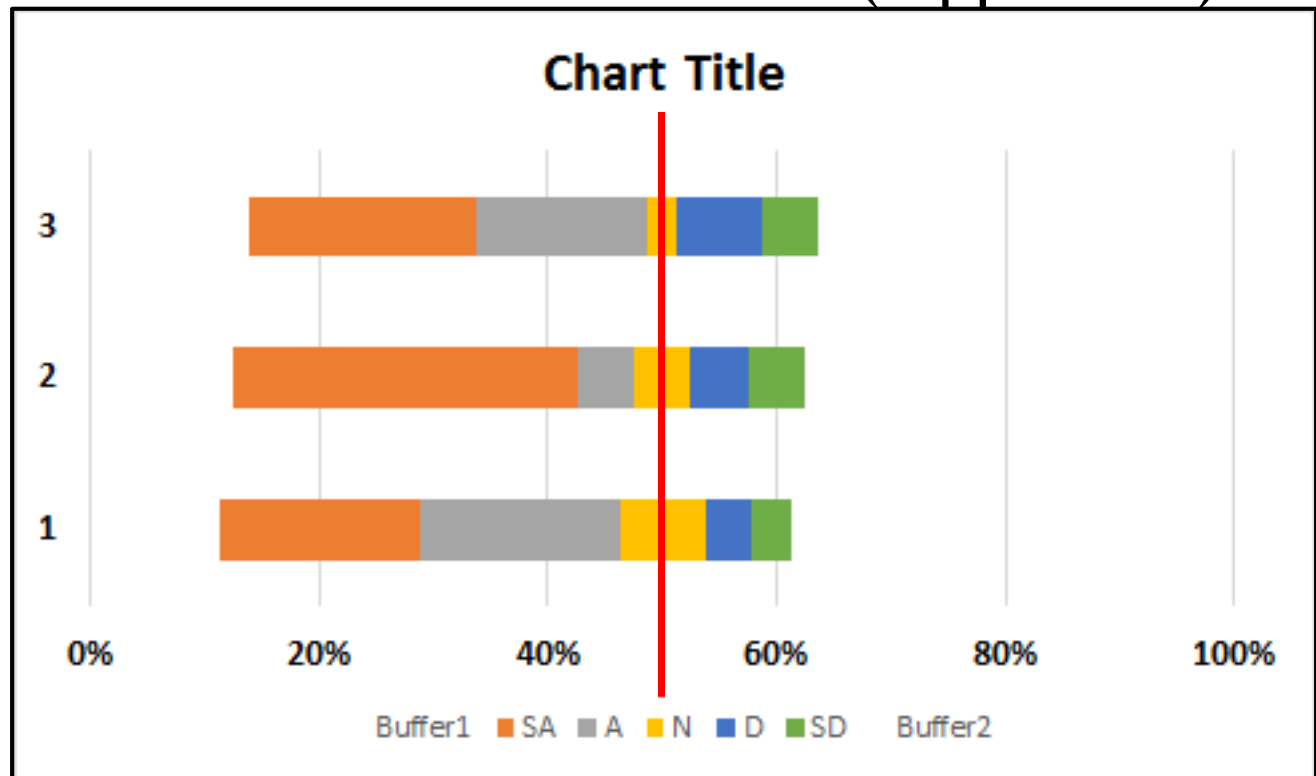
Select “Select data”. Select “Switch Row/Column”.



4: Fill two Buffer categories with White

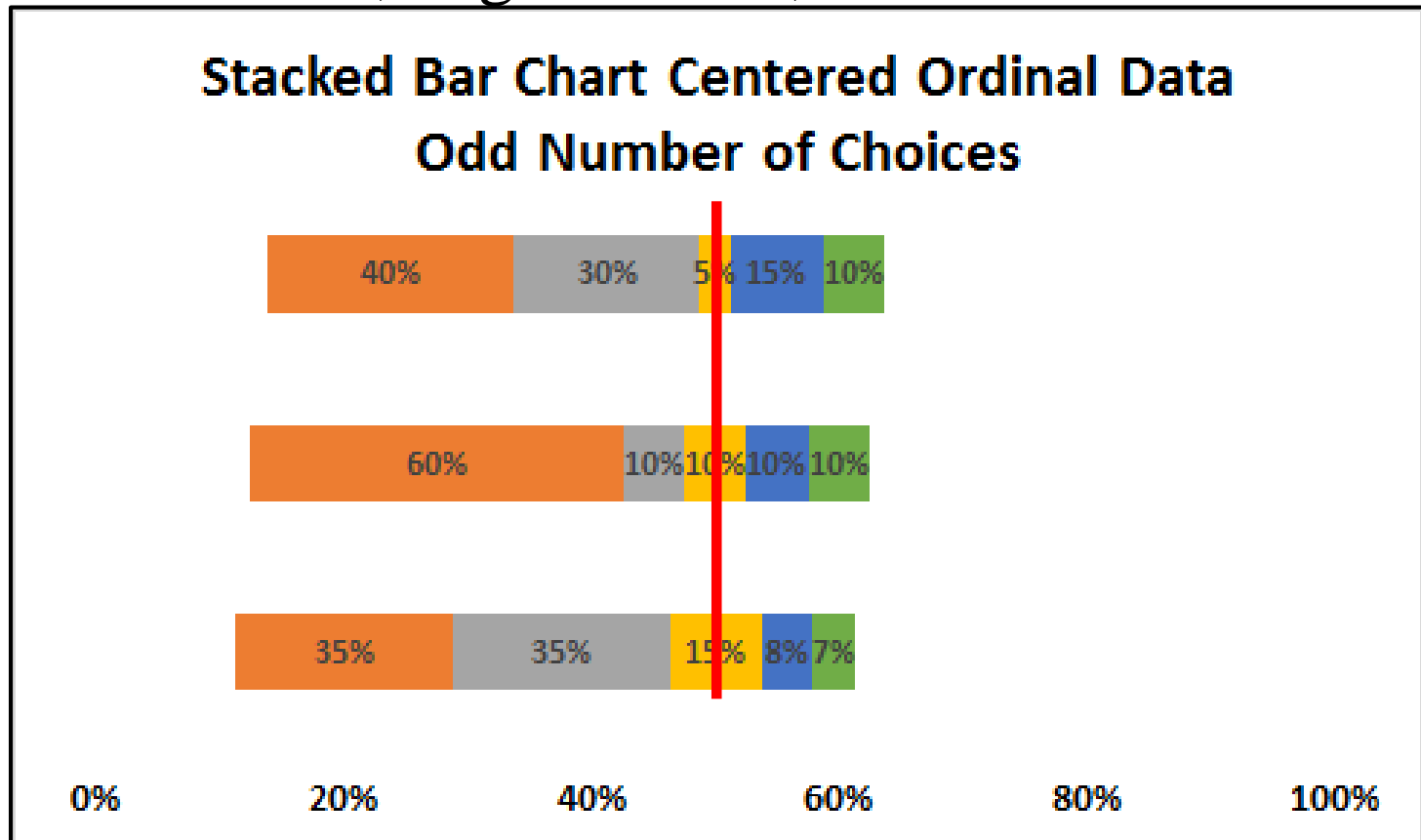
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- Under “Format Shape”, click on tipped paint bucket.
- Select Fill / Solid Fill / Color / White (Upper-left)

Repeat
with
Buffer2.



5: Clean up graph; Add Data Labels

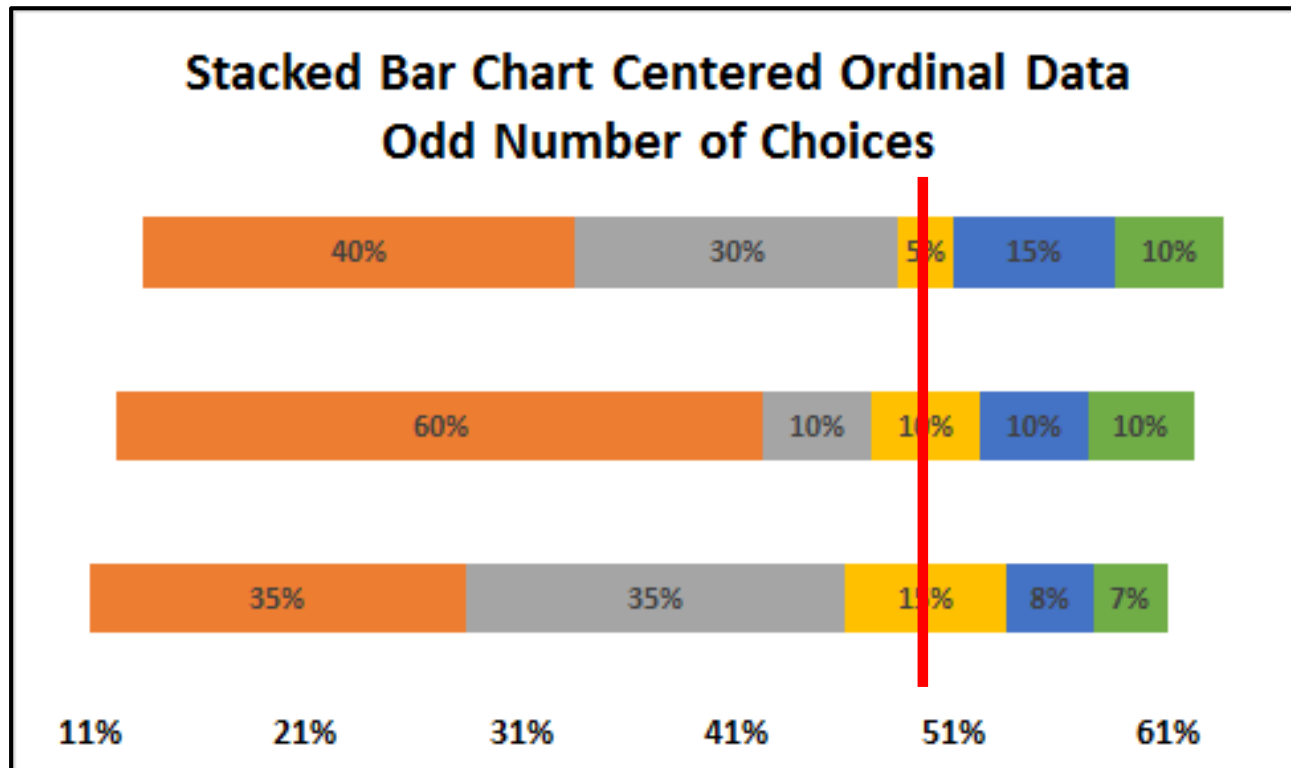
- Delete legend, Y-axis and gridlines. Add chart title.
- Select series; Right-mouse; “Add Data Labels”



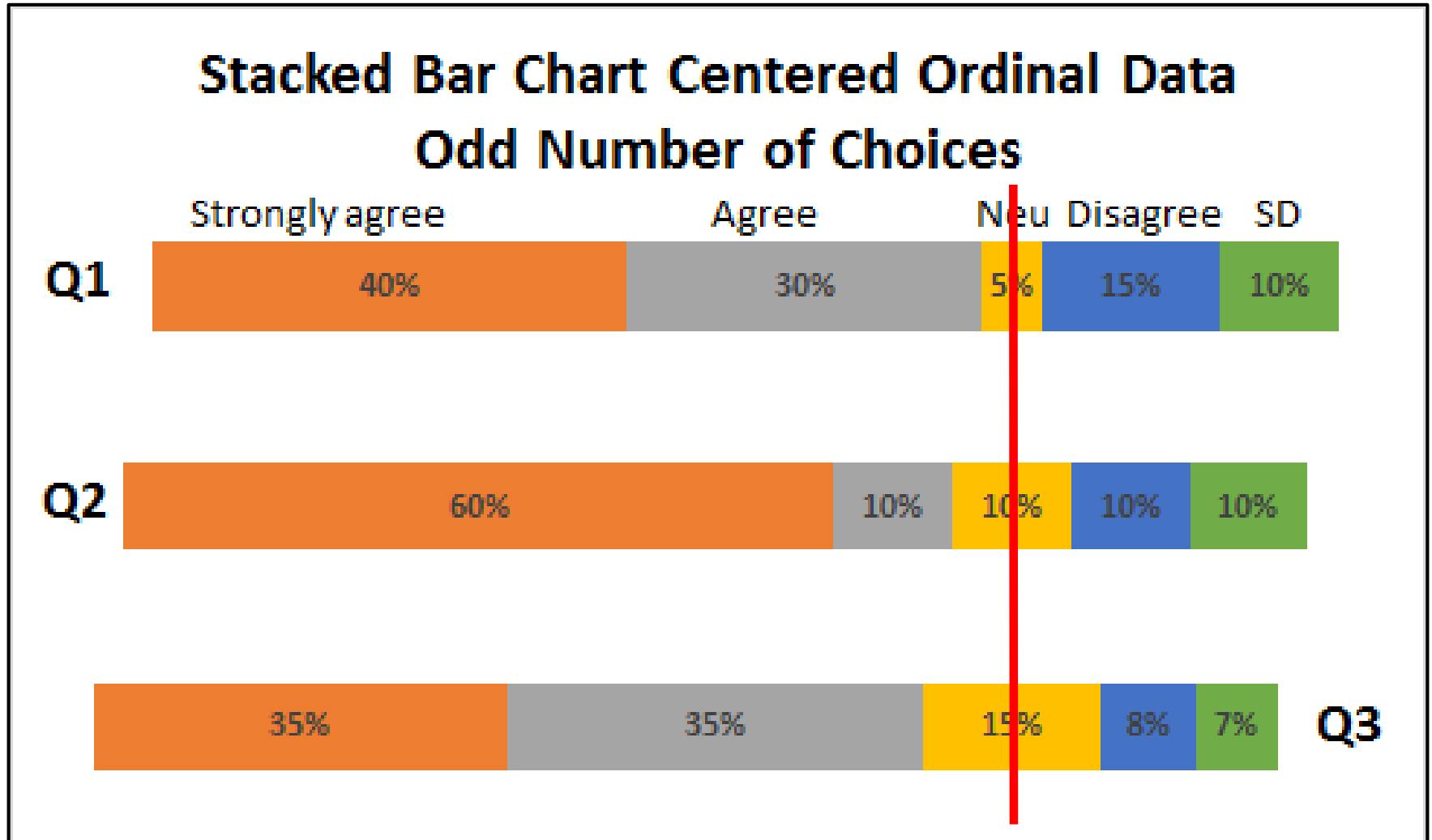
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