LORE methodological note 2014:11

Device used to answer web surveys – demographics and stability

Elias Markstedt

ABSTRACT

Objective and subjective measures of on-line survey response device are both shown to be reliable. Smartphones are more often used by women, the young and the highly educated, while the opposite is true for desktop and laptop computers. The use of computers to respond to surveys is very common, though there are indications that it is slowly decreasing.

Background

It is known that respondents use a multitude of different technical devices to respond to web surveys. This methodological note first examines how reliable measures of device used are when compared to self-reported measures. Second, it examines how the choice of device differs across demographic groups, and third, how stable device choice is between waves.

Methodology and data

Six separate waves of the Citizen Panel (Sw. *Medborgarpanelen* - MP), collected between June 2013 and November 2014, are analyzed in this report, MP7-MP12. Participation rates (corresponding to AAPOR RR5) ranges from 55 percent in MP9 to 61 percent in MP7 and MP10. Two different variables are used to assess what device respondents are using. The first measure, called the *self-reported* measure, means that respondents state themselves which type of device they are using; desktop computer, laptop computer, tablet, smartphone or other device. The second measure, called the *objective* measure, utilizes the so called user agent, a string variable which is automatically collected as paradata. It includes, among other things, information about the respondent's operating system (OS). Every OS is coded as one of three device types: computer (here including both desktop and laptop computers), tablet or smartphone. Since android tablets and smartphones may use the same OS, further information from the user agent is parsed out, for example whether it includes the "Mobile" keyword or not (for more information see e.g.: https://developer.chrome.com/multidevice/user-agent).

Series editor: Johan Martinsson

Results

Table 1 shows a cross tabulation of the self-reported and objective measures of device. Smartphone seems to be the most difficult category to pin down using the user agent. However, only less than 1 percent of all cases are miscategorized. This is close enough to conclude that either self-reported or objective measures can be used (unless both are incorrect, which is an unlikely supposition). Since self-reported device was only measured in MP7, it is the objective measure that will be used for the rest of the note.

Table 1. Self-reported and objective device measures (column percent)

	Objective device			
	Computer	**Tablet**	**Smart-phone**	**Total**
Self-reported device				
Desktop	43	0	0	35
Laptop	57	0	1	45
Tablet	0	99	1	8
Smartphone	0	1	98	12
Total	99	100	99	99
Obs.	1,632	165	250	2,048

Comment: The data in the table was collected in MP7.

Table 2. Device by demographics (row percent)

	Objective device				
	Computer	**Tablet**	**Smart-phone**	**Total**	**Obs**
Total	80	9	11	100	32,883
Gender					
Male	82	8	10	100	20,375
Female	77	10	14	100	12,506
Age group					
Age 17-29	73	5	22	100	2,304
Age 30-39	69	9	22	100	5,767
Age 40-49	76	9	15	100	6,535
Age 50-59	83	9	8	100	7,184
Age 60-69	87	9	4	100	7,519
Age 70+	90	8	2	100	3,574
Education					
Low education	84	8	8	100	6,776
Mid-level education	82	9	9	100	7,528
High education	77	9	14	100	18,582

Comment: The table summarizes the responses in MP7-MP12. The table only includes respondents who responded to at least two waves

Table 2 shows what device different subgroups used to respond to the surveys. In general, tablet use is fairly constant across different categories, except that it is somewhat lower among the youngest respondents, which might be due to lower availability in that specific group. Computer and smartphone use varies more; smartphones are primarily used by the highly educated, women, and the young (where differences are most pronounced). This is in line with results from studies on general mobile phone use in Sweden (see e.g. Westlund 2011), except when it comes to gender differences.

Table 3. Device use stability over 6 waves

	Responses using specific devices		*Respondents who used device at least once*		*Mean % of obs (within respondents)*	*Respondents who only used one kind of device*
	Freq.	**Percent**	**Freq.**	**Percent**	**Percent**	**Percent**
Computer	30,141	80	8,735	91	87	20
Tablet	3,324	9	1,618	17	51	3
Smartphone	4,421	11	2,241	23	52	3
Total	37,886	100	12,594	131	76	28

n = 9,613

Comments: The table only includes respondents who responded to at least two waves.

Table 3 shows how stable device choice is when responding to six waves of Citizen Panel surveys. 80 percent of all surveys were responded to using a computer. 91 percent of all respondents used computer at least once, and in that specific subset of respondents, an average of 87 percent of the responses were given using a computer. One in five respondents only used desktop or laptop computer, while the equivalent number for tablet and smartphone is significantly lower. The use of tablets and smartphones is more flexible, which is logical given the nature of more portable devices. Lastly, table 4 indicates that the use of handheld devices is increasing slowly.

Table 4. Device use trend

	Computer	**Tablet**	**Smart-phone**	**Total**	**Obs**
Citizen Panel 7 *(Jun 2013)*	80,7	7,8	11,5	100	2,057
Citizen Panel 8 *(Nov 2013)*	82,1	7,5	10,4	100	9,299
Citizen Panel 9 *(Mar 2014)*	80,8	8,7	10,6	100	11,262
Citizen Panel 10 *(Jun 2014)*	78,3	9,5	12,2	100	11,635
Citizen Panel 11 *(Sept 2014)*	77,2	9,2	13,6	100	6,125
Citizen Panel 12 *(Oct 2014)*	77,4	9,8	12,8	100	7,960

Comments: The table only includes respondents who responded to at least two waves

To summarize, objective and subjective measures of survey response device are in accordance. Device choice differs somewhat between different demographic subgroups. Most noticeable, younger respondents are more inclined towards using a smartphone, while the older tend to keep to their desktop or laptop computer. The use of desktop and

laptop computers still clearly dominates the surveys as the most common form of response device. There are however indications that this is slowly changing.

References:

Westlund, O. (2011), ”Ständigt uppkopplad och uppdaterad”, i Sören Holmberg, Lennart Weibull & Henrik Oscarsson (red) *Lycksalighetens ö*. Göteborg: SOM-institutet, Göteborgs universitet http://www.som.gu.se/digitalAssets/1351/1351284_499-510-oscar-westlund.pdf

The Laboratory of Opinion Research (LORE) is an academic web survey center located at the Department of Political Science at the University of Gothenburg. LORE was established in 2010 as part of an initiative to strengthen multidisciplinary research on opinion and democracy. The objective of the Laboratory of Opinion Research is to facilitate for social scientists to conduct web survey experiments, collect panel data, and to contribute to methodological development. For more information, please contact us at:

info@lore.gu.se