Selected Behavioral Evidence on Estonian Internet Voting

Eight elections since 2005

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1. Internet voting diffuses after three elections

Internet voters used to be a distinct subgroup of voters characterized by age, education and PC-literacy. After three e-enabled elections, however (and contrary to the popular view) e-voters are non-distinguishable from conventional on-paper voters. Since 2011 we cannot talk about a typical e-voter because chances of online voting are the same for the young and old, educated and less educated, PC-literate and less PC-literate. In other words, internet voting has diffused. However, it does not happen overnight. Evidence shows that at least three elections are required before internet voting starts to diffuse. Thus, new voting technology is inclusive rather than exclusive means of political participation and has the opportunity to bridge societal divisions.
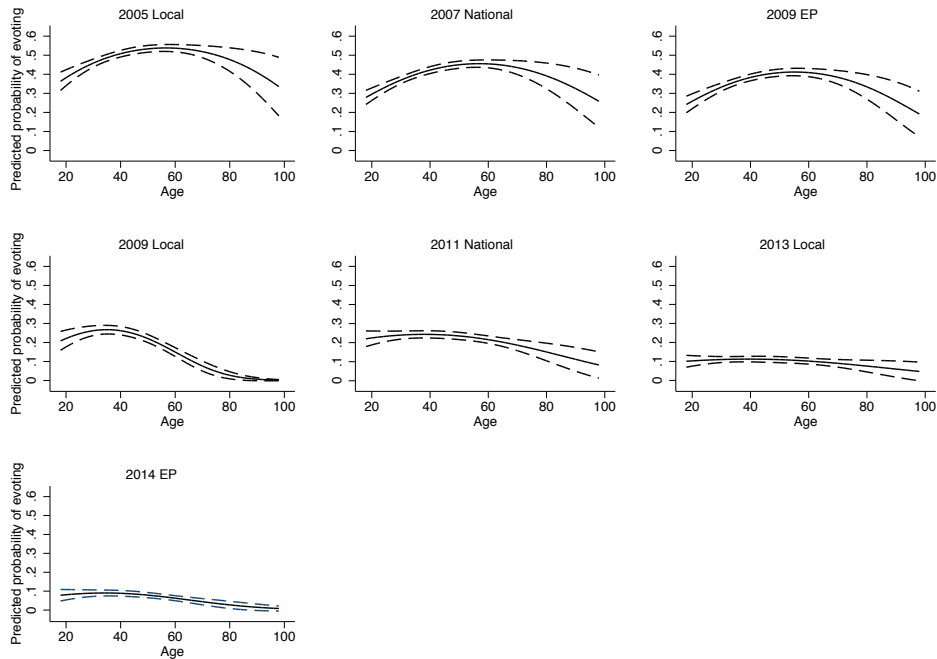
Figure 1. The dissappearing impact of age on the likelihod of internet voting – evidence of diffusion

Evidence: Kristjan Vassil, Mihkel Solvak, Michael Alvarez (Caltech), Alexander Trechsel (European University Institute), Priit Vinkel (Estonian National Electoral Committee) "Diffusion of Internet Voting in Estonia" paper presented at the 73rd Annual Midwest Political Science Association Conference April 16-19, 2015, Chicago.

2. Internet voting is sticky – if you start voting online you will stay voting online in the future

Over consecutive elections e-voters remain voting online to a larger degree than paper voters remain voting on paper and non-voters keep abstaining. E-voting is habit forming, i.e., once you start voting online the chances are very high that you keep on voting online also in subsequent elections. E-voting is habitual and therefore has the potential to increase voter turnout over the longer period (or if not increase then at least inhibit declingin levels of political participation.
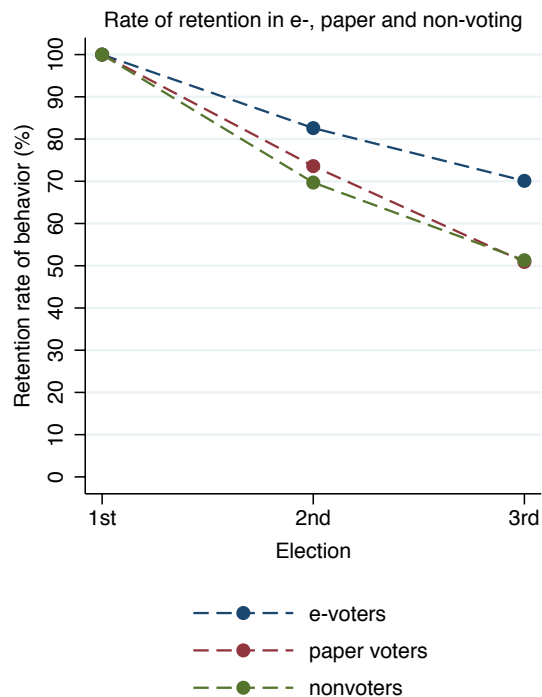

Figure 2. Rate of retention in modes of voting over three elections. How to read: all voter types start at 100% in 1st election. Amongst e-voters 82% remain voting online in the second election and 70% in the third election. The drop among paper voters and non-voters is more significant.

Evidence: Mihkel Solvak, Kristjan Vassil, R- Michael Alvarez "Once an e-voter always an e-voter: "stickiness" of e-voting" paper presented at the 73rd Annual Midwest Political Science Association Conference April 16-19, 2015, Chicago.

3. E-voting lowers the cost of participation – the further you live from the ballots station, the more likely you vote online

People vote online because it saves time. Evidence shows that any additional minute that is required for conventional voting increases the odds of online voting. If the time spent for conventional voting exceed 30 minutes the chances of e-voting improve dramatically. E-voting indeed lowers the cost of political participation.

Notice that the positive time-saving mechanism of e-voting kicks in immediately, e.g., someone having to walk 10 minutes to the polling station is already more likely to e-vote than someone who has to walk a mere 5 minutes (see Figure 2).
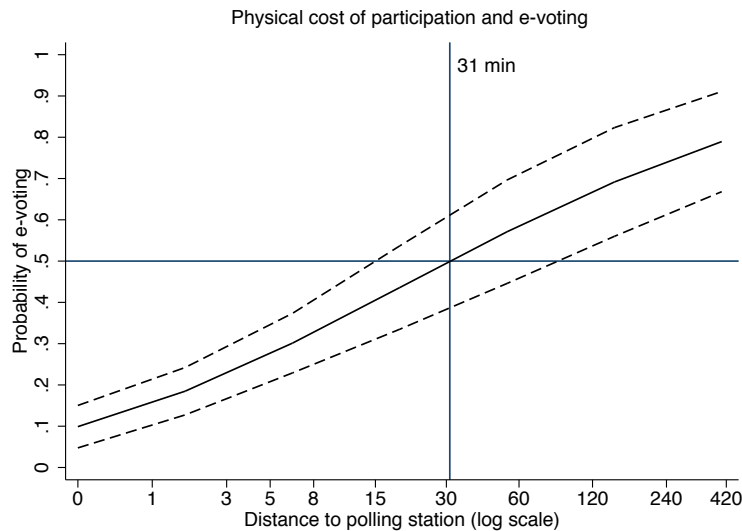

Figure 3. The effect of distance to the polling station on the likelihood of e-voting.

Evidence: Mihkel Solvak, Kristjan Vassil, Priit Vinkel "Vote cost and e-voting" paper presented at the ECPR General Conference, University of Glasgow, 3-6 September 2014.

4. On-paper voting is 16-times more time consuming than internet voting

Analysis of anonymized Estonian e-voting log files shows that casting an online vote takes 1.5 minutes on average. By comparison, an estimated time taken for conventional on-paper voting takes on average 24 minutes, i.e., 16-times more.
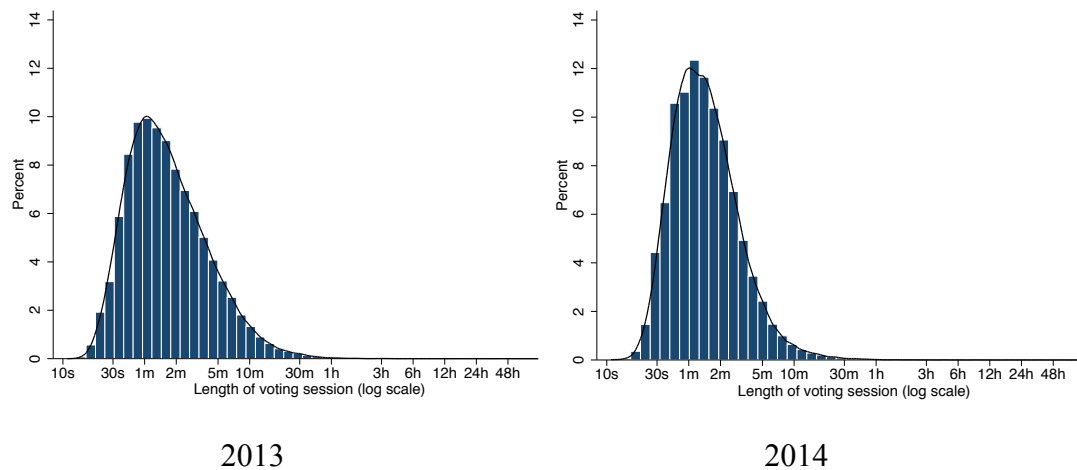

2013   2014

Figure 4. Distribution of length of e-voting session in 2013 and 2014.

Evidence: Kristjan Vassil, Mihkel Solvak "Estonian internet voting log-file analysis. Behavioral patterns of internet voters" A report submitted to Information System Authority. November, 2014.