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**More than toys: a first assessment of voting advice
applications' impact on the electoral decision of voters**

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1 Introduction

In 1998, the first online Voting Advice Application (VAA) went online and operational; the Dutch *Stemwijzer* (<http://www.stemwijzer.nl>). During the last twelve years, VAAs like the *Stemwijzer* have become increasingly popular all over Europe. Today, there is hardly any country in Europe without at least one own operational VAA during its electoral campaigns.

VAAs are websites providing voters with information about which political party or which candidate comes closest to their own political values and policy preferences. In order to do so, they proceed in three steps: First, the voters are asked to create their political profile by filling in a questionnaire on different political issues. Second, the VAA compares their answers with the positions of parties or candidates on these issues. And finally, voters are provided with a voting recommendation in form of a list ranking parties or candidates according to the degree of their issue congruence with the particular voter.

When the *Stemwijzer* went online for the first time in 1998, it provided 250'000 voting advices. Eight years later, during the campaign to the 2006 elections, this figure exploded to 4.7 million voting advices – this equals 40% of the Dutch electorate (Walgrave et al. 2008:52). In 2006 additional 1.5 million voting advices were provided by a second Dutch VAA called *Kieskompas* (<http://www.kieskompas.nl>) (Kleinnijenhuis et al. 2007). In Switzerland the VAA *smartvote* (<http://www.smartvote.ch>) was launched in 2003 and could increase the number of generated voting advices from 255'000 in 2003 to almost one million in 2007 (Ladner et al. 2010), whereas in Germany the *Wahl-O-Mat* (<http://www.wahl-o-mat.de>) started with 3.6 million voting advices in the 2002 elections (Marschall 2005), and delivered over 6.7 million voting advices during the campaign of the 2009 elections (Marschall 2009). These are just a few examples for the fast-growing popularity of VAAs. Beside the mentioned countries, VAAs have also become a common part of electoral campaigns in countries like Austria, Belgium, Finland and Luxembourg.

Despite this obvious popularity of VAAs, there is up to now no such thing as an established field of research dealing with questions, which arise around this new type of websites. Until some years ago this issue was widely neglected by political scientists. Only very few scholars took notice of the existence of VAAs, but usually only in the footnotes and not as their main research focus (e.g. Klein 2006: 595; Lau and Redlawsk 2006: 262). However, in the last couple of years VAAs are receiving more and more attention from scholars.

A 'first wave' of publications on VAAs was focusing mainly on descriptions of VAAs and their functionality instead of on quantitatively oriented analyses (e.g. Liebhart and Wassermair 2003; Jeitziner and Fivaz 2005; Fivaz and Schwarz 2007). During this first phase of VAA related research, it was more important to establish a research framework for following studies in the near future. One problem at the beginning was that a common language among the involved scientists had to be found. There was for example for years not even a common agreement of how such websites should be called. The term 'Voting Advice Applications' was introduced and broadly accepted only about three years ago.

Since two or three years, one can speak of a second wave of research publications on VAAs. This second wave is not only larger in regard to the number of published studies, the specific publications are also gaining in regard of their analytical depth by focusing in-

creasingly on empirical analyses and developing a more critical perspective towards their research object.

Rütsche (2008; see also section 2.1 in this paper), for instance is addressing the legal foundations of VAAs and is debating the requirement of certain standards to which VAAs should adapt. From his point of view, any particular VAA should guarantee equal treatment of all parties and candidates, and also a high level of transparency with regard to the applied statistical methods of the issue-matching procedure, as well as regarding how and by whom it is financed.

Another critical article is the one of Ramonaitė (2010). On the basis of data from the Lithuanian VAA *Manobalsas* (<http://www.manobalsas.lt>) she sees some evidence that VAAs offer some advantages to populist parties and the danger of promoting strategic behavior of such parties. In contrast to other parties, populist parties can switch their policy positions to the supposed positions of the median voter on short notice before the elections and therefore benefit particularly from the services offered by VAAs.

In regard to Ramonaitė's findings, a study of Switzerland by Schwarz et al. (2010; see also section 2.2 in this paper) shows – at least partly – contradictory results. Schwarz et al. compared the policy positions of candidates before elections (based on their answers to a Swiss VAA) with the legislative behavior of the elected candidates/MPs after elections (based on roll-call data). There were no signs of a widespread use of strategic behavior of candidates. On the contrary, the overwhelming majority of elected candidates acted, once they were in parliament, according to their policy preferences revealed in the VAA before the elections.

Most of the VAAs claim to contribute to an increased political interest and participation among voters by offering an additional channel of information and a new way of support in their decision-making process. And indeed, first evidence indicates a positive relation between the use of VAAs and voter turnout. The analyses for the 2006 elections in the Netherlands of Rusuuvirta and Rosema (2009) suggest that VAAs have a modest effect on voter turnout. This finding is supported by similar analyses for Switzerland. It can be shown that the use of VAAs goes together with a higher voter turnout. The strongest effects in this regard were found among women as well as young and first-time voters (Fivaz 2008, Fivaz and Nadig 2010, Ladner et al. 2010).

In this working paper the question about the impact of VAAs on the voters electoral decision is being addressed. With other words, the question is “Do voters take a VAAs' voting advice seriously into consideration, when they are making up their minds in regard to their electoral decision?” In respect of the nature of the services VAAs provide, this seems a crucial and quite self-evident question. It is somewhat surprising that it was up to now only a side issue of VAA related research. This may be connected with different perceptions of VAAs in different countries. A comparison between the perceptions of VAAs in Switzerland and Germany can serve as a useful example. In Germany, the *Wahl-O-Mat* has the status of toy, which offers a new and above all entertaining approach to bring politics and political parties closer to the voters. Correspondingly, even German scholars conducting research on VAAs, use the term ‘playing the *Wahl-O-Mat*’ to name the activity of voters on the website. Also the term ‘Wahlempfehlung’ (voting recommendation) is avoided by them, because this

stands in contrast to the prevailing perception of the predominant intention of VAA, which is generating interest in politics and providing information but definitely not interfering directly in voters decision-making processes by giving them recommendations for which party they should vote (Marschall 2009 and 2010). In contrast, in Switzerland *smartvote* is seen – by candidates as well as by voters – predominantly as a serious tool, which delivers a needed and reliable service for voters. Subsequently, there is a completely different picture prevailing in Switzerland what the functions of a VAA should be. For example almost all candidates share the expectation that voters will follow – at least partially – the voting advice they receive from *smartvote* (Ladner et al. 2010). Thus, from our point of view, it is time to draw more attention to the potential impact that VAAs could have on voters' electoral choice.

The next section gives a short introduction into the theoretical background, whereas the third section provides a description of the available data. The fourth section presents some first empirical results. In the conclusions the results of the fourth section are discussed and a very brief outlook on the further developments of the project in the years to come is provided.

2 Theoretical background

Since there is hardly any theoretical oriented literature on VAAs to be found, we are bound to apply findings and debates out of the general literature on electoral behavior in order to gain some theoretical foundations for the above raised question on the expected impact of VAAs on electoral decision-making.

What determines the electoral choice of voters? State-of-the-art theories on electoral behavior stress – besides other factors such as party attachment, and the affection to candidates – the prominent role of issue voting (Niemi and Weisberg 2001: 14). A large number of studies show the crucial importance of political parties' issue positions in regard to a voter's electoral choice (e.g. Alvarez and Nagler 2000, Powell 2000, Kriesi and Sciarini 2003 (for the case of Switzerland), or Schoen and Weiss 2005).

Klein (2006: 595) emphasizes also the importance of issue voting and describes, according to normative democratic theories, the ideal voter as follows: The ideal voter informs himself carefully about all the pressing political issues and the positions of political parties towards them. Then the voter compares the parties' positions with his own preferences and makes the voting decision based on this matching. Furthermore Klein offers a direct link to VAAs by remarking that the services provided by VAAs come very close to this normative ideal type for electoral decision-making. And Klein is not alone with this point of view (see e.g. Jeitziner 2004).

All VAAs are based on conceptions of spatial voting or to be more precise on the famous proximity voting-model of Downs (1957). Downs' original model was a very simple one based on an election with only one issue dimension (usually the left-right dimension) and only two competing candidates. According to Downs a voter will vote for the candidate, which is closer to his own position on the issue dimension. Over the following decades the model was adapted to more and more complex electoral systems (e.g. multi-seats and multi-party systems, or systems with open lists; see e.g. Cox 1997), and the model was also extended to

include multiple issue dimensions instead of only one. Today the proximity-voting model is often criticized on the grounds that the average voter is not willing or even capable to gather and process all the necessary information to perform the demanded comparison of policy positions. This might be possible in the original model, but clearly not in elections with multiple parties debating on a large number of political issues (Rabinowitz and MacDonald 1989).

With regard to this critique concerning voters' limited information collecting and information processing capacities, VAAs seem to offer an interesting solution. VAAs reduce voters' information and transaction costs at large. They provide easy accessible information on policy positions of political parties and not only for one issue but for a large number of issues. Supported by a VAA, everyone is capable to conduct his own, personalized issue matching with all the relevant political parties within a couple of minutes. The large number of voters using VAAs (see the examples in the preceding section) seems to support this view. VAAs are obviously offering services needed and appreciated by voters. This leads us to the following twofold assumption: First, we suppose that voters see VAAs not merely as toys, which offer entertainment for people interested in politics, but they see them as serious tools, providing needed advice. And second, we assume that VAAs have an impact on the electoral choice of voters using them.

The assumption that VAAs have an impact on the electoral choice is backed up by the observation of voters' party attachment. Party attachment is seen within the social-psychological theory of voting as one of the main factors to explain voting decisions (e.g. Schoen and Weiss 2005). However, the last ten to 20 years showed a constant decline of voters' party attachments (e.g. a decline in party memberships or an increasing number of swing voters) in almost all advanced democracies (e.g. Dalton and Wattenberg 2000, or Dalton 2006). Since this evident decline, the explanatory power of party attachments for the electoral choice seems questionable.

Even though there are – from a theoretical point of view – several good reasons to assume that VAAs affect voters' electoral choice, the results of the few existing empirical studies on this topic show mixed results. Walgrave et al. (2008) analysed the Belgian VAA *Stemtest* ('Do the Vote Test') and its impact on voters during the 2004 election campaign in Belgium. They found indeed evidence that the *Stemtest* had affected Belgian voters in their electoral choice but only on a very modest level. These findings about a limited effect of VAAs are somewhat in contrast to other studies. Both Kleinnijenhuis et al. (2007) as well as Rusuuvirta and Rosema (2009) found evidence that in elections in the Netherlands, VAAs played an important role and had a clear impact on the voting decision of Dutch voters.

3 Available Data

The empirical analyses presented in this working paper are based on three online-surveys conducted among voters using *smartvote* before and after the 2007 elections. All surveys were conducted in close cooperation with Politools – the NGO operating *smartvote*.

The first survey was pre-electoral. When voters received their voting recommendation on the *smartvote* website, they were asked to participate in this additional scientific survey. 13'361 voters did fill in the survey. At the end of this survey, the respondents were asked if they would also answer a second survey after the elections. 4'331 voters also participated in this second, post-electoral survey.

Parallel to this a third, also post-electoral survey was conducted among all the *smartvote* users, who had created a user account on the website. Shortly after the elections, all of the 80'225 voters with a *smartvote* user account were asked by e-mail to support the research project by answering an online survey. A total of 13'959 filled in this third survey.

The three surveys were designed in such a way that we could merge them into one combined dataset with a total of 27'320 respondents. Whereas questions about the socio-demographic characteristics were part of all three questionnaires, some questions were only asked in the pre-electoral survey (e.g. voting intentions) or in the two post-electoral surveys (e.g. actual participation in the election or the actual voting decision). Answers to participation and voting decision are available for about half of the sample.

Using this data we have to address an important issue: the explanatory power of this dataset. The design of the data collection does of course not permit analyses concerning the whole electorate. But this working paper focuses on a sub-group of the electorate, the *smartvote* users, and not on the electorate as a whole. Is it possible to draw a representative picture of those based on this data? In regard of the existing self-selection processes within the data collecting process it is clear that a large number of respondents does not automatically guarantee a sufficient representativeness of the dataset. However, if we compare the respondents' socio-demographic characteristics with findings of similar studies for other countries and other VAAs as well as with results from studies on Internet use in general (e.g. Marschall 2005 or Wall et al. 2009) we find very similar patterns. Therefore, we can assume that this dataset offers a sufficient quality for analyses among *smartvote* users, which is at least comparable with the state of the art of research on VAAs in other countries.

4 A first assessment of VAAs' impact on the electoral choice

4.1 Direct measure: impact on voting decision by *smartvote*

The conducted post-electoral surveys among *smartvote* users contained a number of questions aiming directly on measuring the potential impact of *smartvote*. One part of these questions focused on the impact on political participation. Previous studies indicate that there is a positive effect with regard to the political participation especially among young and first time voters and women (Fivaz 2008, Fivaz and Nadig 2010). Another part of these surveys ad-

dressed the question, whether the use of *smartvote* has had a direct influence on the voting decision or not; and if yes, how exactly *smartvote* affected voters using it.

Asked directly, 67% of respondents stated that *smartvote* had affected their voting decision. These findings differ to a large extent from results of similar studies for Germany, the Netherlands and Belgium. According to Marschall (2005) in Germany only 6% of voters using a VAA were directly affected in their electoral decision, and also in Belgium, VAAs had only an impact on a few percent of their users (Walgrave et al. 2008). Research results for the Netherlands show higher values (Kees and van der Kolk 2007), but with 15% there is still a significant difference to the 67% we found for Switzerland.

In the following tables we present some simple statistics about the influence of *smartvote* on different user groups. Table 1a shows the share of influenced users with regard to age, gender and educational level.

Table 1a: Influence of *smartvote* on voting decision

Share of <i>smartvote</i> users (voters) influenced in their voting decision			
	Yes (%)	No (%)	N (=100%)
Age groups			
18-24	71	29	3'346
25-34	73	27	4'759
35-44	68	32	3'461
45-54	59	41	2'400
55-64	54	46	1'637
65+	48	52	711
Gender			
Male	65	35	11'382
Female	70	30	4'968
Educational Level			
Low	69	31	490
Middle	66	34	5'850
High	67	33	9'774

Source: NCCR "Democracy, IP16 "smart-voting 2.0" (<http://www.nccr-democracy.uzh.ch/research/module5/smart-voting/smart-voting>).

Table 1a shows that there are only minor differences between voters with regard to the educational level or gender. The by far largest differences are to be found between the several age groups. The influence of *smartvote* on the voting decision is the strongest among young voters.

One of the most important aspects of the Swiss electoral system is the large difference between the cantons (electoral districts) with regard to the number of seats (M) and

subsequently the number of candidates (C) running for a seat.¹ In Table 1b we compare the relation between C and M – with other words: the number of candidates per seat – with the impact of *smartvote* on its users. The more candidates running for a seat the more information has to be gathered and processed by voters. Thus, the already mentioned information problem of voters is most pressing in those constituencies with the highest C/M-ratio. Due to this aspect we would assume that VAAs are most intensively used in constituencies with a high C/M-ratio, and that VAAs also have their strongest influence in these constituencies.

Table 1b: Influence of *smartvote* on voting decision (continuation)

	Share of <i>smartvote</i> users (voters) influenced in their voting decision		
	Yes (%)	No (%)	N (=100%)
C/M-ratio¹			
1	22	78	46
3	13	87	16
4	33	67	42
7	52	48	103
8	31	69	99
9	54	46	474
10	50	50	221
11	59	41	1'087
12	60	40	2'514
13	72	28	1'147
16	68	32	1'448
18	62	38	407
19	66	34	1'453
20	72	28	3'376
24	72	28	3'941
Average	67	33	16'374

Source: NCCR "Democracy, IP16 "smart-voting 2.0" (<http://www.nccr-democracy.uzh.ch/research/module5/smart-voting/smart-voting>).

Remarks: 1) C/M-ratio: the numerical relation between the number of candidates (C) and the number of seats (M) in a particular constituency. The higher the C/M-ratio the more candidates are competing against each other per seat.

Indeed, Table 1b supports our assumption. The higher the C/M-ratio in a constituency, the more *smartvote* users were affected in their voting decision by the voting recommendation they received.

Finally, Table 1c contains the findings with regard to political attitudes like the ideological self-positioning and the party choice (we only included the six most important parties).

¹ In the literature on the effects of electoral systems on the outcome of elections "M" is used as the abbreviation for the number of seats, whereas for the number of Candidates a "C" is applied (see e.g. Carey and Shugart 1995 or Cox 1997).

Table 1c: Influence of *smartvote* on voting decision (continuation)

Share of voters influenced by <i>smartvote</i> in their voting decision			
	Yes (%)	No (%)	N (=100%)
Ideological Self-Positioning¹			
Left-wing	68	32	7'593
Centre	70	30	4'804
Right-wing	58	42	3'623
Party Choice²			
CVP	64	36	1'653
FDP	64	36	2'346
SVP	49	51	1'522
SP	66	34	4'696
GPS	71	29	2'918
GLP	80	20	1'181

Source: NCCR "Democracy, IP16 "smart-voting 2.0" (<http://www.nccr-democracy.uzh.ch/research/module5/smart-voting/smart-voting>).

Remarks: 1) The ideological position was measured with an eleven point scale (from "0" for left to "10" for right). The answers were coded as follows: 0 to 3 = left-wing; 4 to 6 = centre; 7 to 10 = right-wing. 2) CVP = Christian-democrats; FDP = Liberal-democrats; SVP = National-conservatives; SP = Social democrats; GPS = Greens; GLP = Green-liberals.

The results from Table 1c do not provide a stringent picture or at least one, which is easy to explain. It is common for both the ideological self-positioning and the party choice that right wing voters have been affected to a smaller degree than centre or left-wing voters. With regard to party choice, *smartvote* had its strongest impact on the voters of the Green-liberals (GLP). At least this aspect can be explained. In 2007, the GLP was a new party participating for the very first time in a national election. The GLP positions itself as a party between the left-wing parties like the Greens and the Social democrats on the one side and the classic centre parties like the Liberal or the Catholic-conservatives. The party program combines a strong focus on environmental issues (e.g. global warming) with moderate positions with regard to the economy, taxing or migration policy. Thus, they successfully addressed two groups of voters: First, the moderate voters of the left and the centre, who had become disappointed by the other parties, and welcomed the GLP as new alternative. Second, beside these swing voters, the GLP could gain a number of young and first-time voters. Both groups have in common that they have only weak party alignments. For such voters, a VAA is an ideal tool to seek for support with regard to the electoral choice, therefore the result of the GLP in Table 1c is not unexpected.

With regard to the Swiss electoral system, voters have at their disposal multiple options to express their political preferences on their ballot. Voters using *smartvote* were also asked in which way they have been affected in their electoral choice (see Table 2).

Table 2: Influence of *smartvote* on the voting decision (in percentage)

	Yes (%)	No (%)	N (=100%)
Did you copy the <i>smartvote</i> recommendation without any changes onto your voting list?	15	85	10'650
Based on the <i>smartvote</i> recommendation, did you rather vote for candidates from different lists (vote-splitting)?	61	39	10'580
Based on the <i>smartvote</i> recommendation, did you vote for parties and candidates, which you would otherwise not have voted for?	67	33	10'559
Based on the <i>smartvote</i> recommendation, did you abstain from voting for parties and candidates you would otherwise have voted for?	35	65	10'372

Source: NCCR "Democracy, IP16 "smart-voting 2.0" (<http://www.nccr-democracy.uzh.ch/research/module5/smart-voting/smart-voting>).

According to Table 2, only a small number of voters copied the voting recommendation without any changes on to their ballot. This indicates that VAAs do not produce a kind of an "instant voter", whose voting decision is completely computer-generated without own deliberations. In fact the opposite seems to be true. As we can see from Table 2, most of the voters used the voting recommendation to refine their ballot. Due to *smartvote*, they split their vote more often and also voted more often for candidates, which they otherwise would have overlooked. These findings come along with evidence from another study, which could show, that users do not trust *smartvote* blindly, but that they use it as a starting point for gathering further information about the candidates ranking highest in their voting recommendation (Fivaz and Nadig 2010).

The findings presented in this section so far show that *smartvote* has a significant impact on the voting decision of its users. Even though not all users are affected to the same degree, the impact on all groups of users is on an average level several times higher than it is observed in other countries. Nevertheless, the findings are also somewhat questionable, and they should be dealt with some caution. First, one should keep in mind that the presented analyses are based on surveys, which deal with the problem of self-selection among its respondents. It is plausible to consider, that users, which are pleased with *smartvote* and its outcome are more likely to fill in this additional survey, than users, which are disappointed with it. Second and more important, Walgrave et al. (2008) show evidence that users' subjective perceptions about the impact of a VAA on their actual electoral choice are often misleading. They tend to overrate the impact of VAAs. In the following section we try to overcome this problem by applying an additional method to assess the impact of *smartvote*.

4.2 Indirect measure: swing voters among *smartvote* users

As presented in the previous section a large majority of *smartvote* users stated that the tool has affected their vote choice. However, we likewise mentioned that we do not know whether this influence was actually exercised at the polls. As Walgrave et al.'s (2008) study on the 2004 Belgian elections suggests the VAAs did affect first of all people's vote intentions and only to a lesser extent their actual vote. Thus, we will now apply a new indicator to measure the impact of *smartvote*. Instead of the direct question used in the preceding section, we will use swing voters as a kind of an alternative, indirect impact measurement.

Swing voters were defined as voters who had voted in 2007 for a different party than in the previous elections in 2003.² Regarding the kind of services VAAs are offering it seems very likely that VAAs are especially interesting for swing voters. The numbers presented in Table 3 confirm this view. Swing voters were affected at a much larger degree by *smartvote* than the other voters (73% compared to 56%).

Table 3: Swing voters influenced by *smartvote* in their voting decision

	Influenced by <i>smartvote</i>		N
	Yes (%)	No (%)	
Swing voters			
Yes	73	27	4'426
No	56	44	7'136
Total	63	37	11'562

Source: NCCR "Democracy, IP16 "smart-voting 2.0" (<http://www.nccr-democracy.uzh.ch/research/module5/smart-voting/smart-voting>).

The following tables are structured the same way as Tables 1a to 1c and present the share of swing voters among several specific groups.

² With this definition some voters dropped out of our data sample (e.g. those who were too young to vote in 2003 or those who could not remember anymore for which party they had voted in 2003).

Table 4a: Share of swing voters among age, gender and education levels (in percentage)

	Share of swing voters		N (=100%)
	Yes (%)	No (%)	
Age groups			
18-24	41	59	1'066
25-34	43	57	3'512
35-44	40	60	2'842
45-54	34	66	2'121
55-64	33	67	1'473
65+	28	72	677
Gender			
Male	38	62	8'678
Female	38	62	3'039
Educational Level			
Low	22	78	59
Middle	39	61	3'476
High	38	62	8'038

Source: NCCR "Democracy, IP16 "smart-voting 2.0" (<http://www.nccr-democracy.uzh.ch/research/module5/smart-voting/smart-voting>).

There are no differences between women and men – at least with regard to the results in Table 4a. The share of swing voters is also almost identical between voters with a high and a medium educational level. However, among voters with only a low educational level there is a very low share of swing voters. Finally, the most distinct differences are to be found with regard to the age groups. The older the voters are the less swing voters can be found in those age groups.

The results in Table 4b go along with the expectations we had. With regard to the relevant literature (e.g. Cox 1997) it is to be expected that – under a proportional voting rule – there is a positive relation between the number of seats and the number of parties or candidates competing for them: with increasing number of seats there is also an increase of parties and candidates. In constituencies with a large number of candidates per seat, voters have more options at their disposal, which should in turn increase the likelihood for more swing voting – at least this was our assumption. Table 4b seems to confirm this assumption: In constituencies with a large M/C-ratio swing voting is more frequent.

Table 4b: Share of swing voters in relation to choices per seat (continuation)

	Share of swing voters		N (=100%)
	Yes (%)	No (%)	
C/M-ratio¹			
1	25	76	32
3	33	67	12
4	50	50	22
7	24	76	68
8	26	74	69
9	38	62	329
10	30	70	156
11	30	7	794
12	35	65	1'806
13	32	68	794
16	38	62	1'042
18	28	72	305
19	38	62	1'006
20	38	62	2'495
24	47	53	2'800
Total	38	62	11'730

Source: NCCR "Democracy, IP16 "smart-voting 2.0" (<http://www.nccr-democracy.uzh.ch/research/module5/smart-voting/smart-voting>).

Remarks: 1) C/M-ratio: the numerical relation between the number of candidates (C) and the number of seats (M) in a particular constituency. The higher the C/M-ratio the more are candidates competing against each other per seat.

Table 4c is addressing aspects of ideological and political positions. According to the ideological self-positioning of voters on the left-right axis, there are more swing voters among those who position themselves in the centre of the scale. In terms of party choice there is a little bit of a different picture. We find the highest shares of swing voters among parties of the left and the left part of the centre (GPS, CVP and Green-liberals). On first sight, the case of the Green-liberals with a share of 100% of swing voters is surprising. But one should keep in mind that this party was the first time participating in a national election in 2007. Thus, by definition all of their voters must be swing voters.

Table 4c: Share of swing voters (continuation)

	Share of swing voters		N (=100%)
	Yes (%)	No (%)	
Ideological Self-Positioning¹			
Left-wing	36	64	5'414
Centre	48	52	3'398
Right-wing	31	69	2'734
Party Choice²			
CVP	44	56	1'233
FDP	25	75	1'824
SVP	28	72	1'124
SP	14	86	3'491
GPS	58	42	2'096
GLP	100	0	803

Source: NCCR "Democracy, IP16 "smart-voting 2.0" (<http://www.nccr-democracy.uzh.ch/research/module5/smart-voting/smart-voting>).

Remarks: 1) The ideological position was measured with an eleven point scale (from "0" for left to "10" for right). The answers were recoded as follows: 0 to 3 = left-wing; 4 to 6 = centre; 7 to 10 = right-wing. 2) CVP = Christian-democrats; FDP = Liberal-democrats; SVP = National-conservatives; SP = Social democrats; GPS = Greens; GLP = Green-liberals.

In order to assess the impact of *smartvote*, we need to answer the question whether there is a positive correlation between using the tool and being a swing voter or not. We searched for an answer by conducting a multivariate analysis. We conducted a logistic regression analysis in order to predict a change in the electoral choice between the 2003 and 2007 elections. Table 5 contains the corresponding results.

The dependent variable in our regression is the change of the electoral choice. Furthermore, the regression contains nine independent and control variables and one constant. The most important of those is of course a dummy variable measuring, whether voters had stated that they had been influence by *smartvote* or not. We assumed that voters who had been surprised by the result of the *smartvote* voting advice were more likely to switch the party they voted for. Thus, we included also a corresponding variable, which indicates whether a voter was surprised by the received *smartvote* voting advice or not. We also controlled for the general openness with regard to a party change and for party attachment. Both variables were coded by using the so-called "propensity to vote"-questions. The survey contained a battery of questions, which asked voters on an eleven-point scale about the propensities to vote for the most important parties. The first variable was coded as "yes" if a voter had a high propensity to vote (8 or higher) for one or more parties different to the party they had actually voted for; the latter was coded as "yes" if a voter showed a high propensity to vote for at least one party at all. Moreover, it is to expect that voters with a general moderate centre-position are more likely to swing vote than voters with a position on the left or the right pole of the ideological spectrum. Therefore, we took into account also the centre-position of a

voter as a control variable. We already mentioned in this section our assumption that a large number of candidates competing per available seat is making swing voting more likely. Thus, we also included the already introduced M/C-ratio as a further control variable into the regression. Finally, we also included the standard socio-demographic factors like gender, age and educational level of voters as control variables.

Table 5: Logit predictions for party change

	B	S.E.	Wald	Df	Sig.	Exp(B)
Affected by <i>smartvote</i>	.349	.091	14.53 6	1	.000	1.417
Surprised by voting recommendation	.141	.060	5.524	1	.019	1.151
Openness to party change	.297	.107	7.658	1	.006	1.346
Party attachment	-.434	.087	24.69 3	1	.000	.648
Centre position	.385	.088	18.96 8	1	.000	1.469
M/C-ratio of constituencies	.033	.008	15.55 1	1	.000	1.033
Age	-.180	.032	30.99 7	1	.000	.836
Gender	-.105	.096	1.183	1	.277	.901
Educational level	-.073	.086	.720	1	.396	.929
Constant	-.945	.332	8.097	1	.004	.389

Source: NCCR “Democracy, IP16 “smart-voting 2.0” (<http://www.nccr-democracy.uzh.ch/research/module5/smart-voting/smart-voting>).

Remarks: 1) Dependent variable is party change: binary coding, 0 = same party choice 2003 and 2007, 1= different party choice between 2003 and 2007. 2) N = 2'664, -2 Log likelihood= 3396.121, Cox&Snell R-Square= .060, Nagelkerke R Square= .082, % of correctly predicted cases = 63.3%, chi-square= 166.108 with p-2s=0.000.

The explanatory variable – being influenced by *smartvote* – proved to be a significant predictor for swing voting. The positive correlation shows that using *smartvote* increases the likelihood for swing voting.

With exception of gender and educational level all of the control variables were also significant. The positive correlation between being a swing voter and being surprised by the received voting advice can be interpreted as a further confirmation of the impact of *smartvote* on the voting behaviour. The outcome with regard to the other control variables was as expected: party attachment seems to be a negative predictor for party change, whereas the general openness for party change and the ideological centre-position are positive predictors of swing voters and increase significantly the likelihood of a party change. Facing a larger set of choices among candidates (a high M/C-ratio) also predicts higher odds for party change. With other words, those voters with more options to change their vote to another party are also more likely to be swing voters. With regard to the socio-demographic factors, only age significantly predicts the likelihood for party change.

All things considered, the regression analysis supports our assumption that voters see *smartvote* as a serious and useful tool for their decision-making and that it affects also their actual vote. Thus, the findings in this section come along with those of the previous section. And there is also a further argument that supports our assumption. As already mentioned our definition of swing voters excluded all the young voters who were eligible to vote in 2007 for the first time. On the other hand, above all the young voters are those who are most affected by *smartvote* as seen in Table 1a. Thus, it is not to be expected that analyses that include the young voters would come to totally different findings. Although we do find significant effects in our analysis presented above, we have to state that the overall model quality is weak (see remarks for Table 5).

5 Conclusion and outlook on the 2nd phase project

VAAAs have become increasingly popular and have emerged as indispensable elements in pre-election periods in many countries. But up to now only very few studies have focused on the impact of VAAAs on the actual electoral choice of their users. In this working paper we addressed the question whether there is such an impact or not, based on the example of the Swiss VAA *smartvote*.

We found strong evidence that *smartvote* users are indeed affected by the voting advice they receive. 67% of voters using the tool stated that it influenced their party choice. This figure is several times higher compared with the findings of similar studies from other countries (Marschall 2005, Kees and van der Kolk 2007, Walgrave et al. 2008, and Rusu-virta and Rosema 2009). We found further confirmation for our findings by additional analyses based on swing voters. We could show that the use of *smartvote* during the 2007 election campaign had a significant positive correlation with being a swing voter. However, we had to deal with several problems in regard to the quality of the available data (e.g. self-selection processes among respondents). Thus, we can only provide first and no final answers.

With a view to further research on this topic during the second phase of the NCCR Democracy, we suggest at least three aspects from where future studies should proceed. First, it is necessary to improve the quality of available data. Most studies use only data from online surveys with all the well-known problems of lacking representativeness. Thus, studies should use combined online and offline data whenever possible. The study of Walgrave et al. (2008) for the 2004 Belgian elections demonstrates impressively the advantages of such a research design. Second, regarding the large differences between our findings on the impact of *smartvote* and the findings for VAAAs in other countries we should pay more attention to international comparisons and the search for an explanation of these differences. In order to support comparative studies research projects, VAAAs should intensify their cooperation. A first step could be to develop comparable questionnaires and data sets. Third, concerning the presented results indicating a clear impact of VAAAs on the electoral choice we should also draw our attention to the question, whether this leads to 'better' voting decisions at all – a question, which becomes increasingly pressing.

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