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Five Years of Internet Voting for Swiss Expatriates

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***Abstract:** Initially targeted at residential voters only, Swiss internet voting trials have recently been extended to expatriates. In this paper, we review the Swiss experience with internet voting systems for expatriates. After a short overview of the Swiss internet voting roll-out focusing on the recent trials involving expatriates, we present newly collected data on the usage of the electronic voting channel. We find that internet voting is rather popular among expatriates. Already, every second Swiss abroad eligible to e-vote makes use of the electronic channel, with increasing tendency. Moreover, we inquire about the socio-demographic characteristics of the expatriate online voter. Most of the known socio-demographic correlates of electronic voting - in particular male gender, IT skills, political knowledge, and possibly young age - seem to replicate for the case of expatriates. The only factor specific to expatriates is that the probability of casting the vote electronically increases with geographical distance to the home country.*

Keywords: Electronic voting, internet voting, online voting, expatriates, Swiss abroad

Introduction

Switzerland ranks among the electronic voting¹ pioneers. Already since the early 2000s, several Swiss cantons (the second-tier political units in Switzerland) are experimenting with the new remote voting channel. Initially, internet voting trials were restricted to Swiss residents, but recently they have been extended to expatriates. Expatriates constitute a significant and dynamically growing share of the Swiss electorate. In 2012 more than 700,000 Swiss nationals resided abroad (Federal Department of Foreign Affairs, 2012), and a continually increasing number of Swiss expatriates wishes to participate in the electoral process. Already, more than every seventh Swiss abroad is registered to vote, a number that equals the size of a middle-sized canton (Lutz, 2012).

In this paper, we review the Swiss experience with the introduction of internet voting systems for expatriates. There are at least two reasons which render the case of the Swiss internet voting trials for expatriates worth studying. First, in many Swiss cantons the introduction of e-voting for expatriates is considered a precursor to a possible general introduction of internet voting. Therefore, we should closely examine the lessons that can be drawn from the expatriate trials.

¹ We use the terms 'electronic voting', 'e-voting', 'internet voting', and 'online voting' interchangeably. Also note that by 'referendum' we broadly refer to both mandatory and facultative referendums as well as citizen's initiatives.

Second, and more generally, it is conceivable that other countries will follow the Swiss lead and begin to experiment with online voting for expatriates. Citizenship in modern democracies continues to be defined on the basis of the nationality principle, and one of the major implications of the nationality principle is that *all* nationals should have access to the electoral process. From there it is only a short way to arguing that also nationals residing abroad should be allowed to participate. However, traditional remote voting channels, such as postal voting or consular voting, often fail to effectively empower expatriates to vote. By implication one can argue that the increasing transnational migration flows pose a challenge to the political legitimacy of modern democracies. Internet voting offers an obvious and attractive remedy to this challenge.

The review is structured as follows. First, we trace the evolution of the expatriates' voting rights over time, noting an increased demand for the introduction of online voting. In the second section we go on to provide an overview of the Swiss internet voting trials, with a focus on the recent trials involving the Swiss abroad. The third section inquires about the frequency with which the electronic voting channel is used. The fourth section investigates the socio-demographic characteristics of the Swiss online voter from abroad. The final section concludes.

The expatriates' demand for online voting

Until well into the second half of the 20th century the Swiss living abroad were fully excluded from political participation. Not surprisingly, political enfranchisement has therefore always been a core demand of the Swiss expatriate community. The first success could be celebrated in 1977, when political participation in federal elections and referendums became legally possible for the Swiss abroad. However, because voting still required physical presence in the country, the 1977 reform was essentially meaningless for most Swiss abroad (Thurnherr and Messerli, 2002). The second and more substantial success came about in 1992 with the introduction of postal voting for federal elections and referendums. At least in principle, postal voting allows expatriates to cast their vote from abroad. The introduction of postal voting for expatriates can thus be considered a milestone in the enfranchisement of Swiss expatriates.

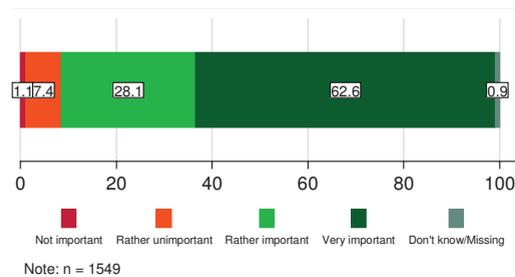


Figure 1: Attitudes towards the introduction of online voting among Swiss expatriates (in %)

However, despite the introduction of postal voting many expatriates continued to be pre-empted from the exercise of their political rights. Late dispatch of voting materials or problems with postal delivery often meant that expatriates remained effectively disenfranchised. With the emergence of the Internet and the relatively successful Swiss internet voting experiments beginning in the early 2000s, a substantial demand developed among Swiss expatriates for the

general introduction of electronic voting. A secondary analysis of a survey recently undertaken in the context of the 2011 Swiss national election study (Lutz, 2012) exemplifies the expatriate's strong preference for online voting. Out of 1,549 polled Swiss abroad, a clear majority of almost 63 per cent indicated a strong preference for the introduction of internet voting for expatriates.² Another 28 per cent deem it at least rather important. In combination this yields an overwhelming 91 per cent support rate for the introduction of online voting (see Figure 1). The expatriates' strong preference for online voting should not come as too big a surprise. Internet voting offers a potential solution for many of the problems expatriates face with postal voting, given that it substantially accelerates the return of the ballot and provides higher certainty that ballots actually reach their destination and are counted. Still, the survey results should be taken with a pinch of salt. First, the survey did not sample the entire expatriate population³, and secondly there is a problem with self-selection into the survey⁴ (Lutz, 2012: 83), which in combination makes it likely that the survey over-represents support for online voting.⁵ However, it remains rather unlikely that the picture would change entirely in a fully representative survey, given the clear-cut figures and the amount of bias necessary to overturn them.

Internet voting for the Swiss abroad

The Swiss government has proven receptive to the expatriates' demand: the internet voting trials have recently been extended to expatriates. In this section, we trace the emerging internet voting offer in Switzerland, focusing mainly on the trials directed at the expatriate community. Similar to other Western democracies, Switzerland's history of online voting begins at the turn of the millennium when initial ideas to implement electronic forms of voting began to develop. However, in contrast to most other countries where these plans were soon to be abandoned, Switzerland can be said to have followed through on the initial idea, if only in a piecemeal kind of way (Mendez and Serdült, 2014). In Switzerland the organisation of elections and referendum votes is a cantonal (or in some cases even a communal) matter. Therefore the Swiss implementation of online voting is strongly determined by the federal structure of the country (Driza-Maurer, 2013). Rather than centrally-administered tests with a single internet voting portal the Swiss route involved the independent set-up of three distinct online voting systems in the cantons of Geneva, Neuchâtel, and Zurich. The first-ever binding online vote in Switzerland took place in 2003 in Anières, a small municipality in the canton of Geneva. Subsequently, more municipalities were included in online voting trials, with the cantons of Neuchâtel and Zurich joining the tests in 2005 (Gerlach and Gasser, 2009). Since then, hundreds of internet voting trials for both referendum votes and elections have taken place in the three pilot cantons. With the

² Specifically, respondents were asked about the importance they attributed to the swift provision of e-voting for expatriates.

³ The survey designers invited a randomized sample of Swiss abroad who are registered to vote to partake in an online survey. Swiss abroad who were not registered to vote were not sampled at all, and these make up more than 80 per cent of Swiss abroad. Moreover, respondents were contacted via e-mail, and e-mail addresses were available for every second registered Swiss abroad only.

⁴ Of the 7,000 Swiss abroad contacted by the survey team a mere 23 per cent actually took part in the survey.

⁵ In particular, survey respondents can be expected to have higher interest in Swiss politics (those not interested are unlikely to take the burden of registering and/or to take an online survey) and higher internet affinity (Swiss abroad with low internet affinity are unlikely to have an e-mail address and/or to take an online survey). Both political interest and internet affinity are likely to correlate with support for online voting.

exception of the canton of Zurich where the programme was temporarily stopped in 2011 due to technical reasons the trials continue to date (Mendez and Serdült, 2014).⁶

In the initial implementation phase the Swiss abroad were not included in the internet voting trials. This began to change in 2006, when the Swiss government in its e-voting report explicitly acknowledged the major interest of expatriates in internet voting (Federal Chancellery, 2006). Several reasons can be cited for this policy change. The substantial lobbying efforts by the Swiss expatriates' main advocacy organization, the Organization of the Swiss Abroad (OSA), certainly constitute a significant factor.⁷ Moreover, the extension of internet voting to expatriates was linked to hopes of boosting turnout among this segment of voters. However, a final, decisive factor is that by the extension the Swiss government is hoping to make way for a further expansion of e-voting amongst residents of Switzerland. Internet voting for expatriates is politically much less contested. High adoption rates would help to create a positive story that would eventually spill over to the domestic debate, where internet voting is periodically challenged by representatives of all political colours (see Mendez and Serdült, 2014).

Soon after the 2006 report the legal basis for the extension of the internet voting trials was laid (Driza-Maurer *et al.*, 2012), and in June 2008 Neuchâtel became the first canton to offer its expatriates the possibility to cast their vote electronically. Geneva followed suit in September 2009 and the remaining pilot canton, Zurich, in September 2010. Yet contrary to the situation with Swiss residents, the online voting for expatriates has not remained restricted to the three pilot cantons. In 2009, Basel-City became the first non-pilot canton to implement an internet voting programme for its Swiss abroad. Within less than two years nine additional cantons followed suit (see Table 1). Thus, with Zurich having stopped its programme in 2011, to date (end of 2013) expat online voting is available in 12 out of 26 cantons, and a total of 143 expat internet voting trials have been conducted.

⁶ The proper interaction between the Internet voting system and the electoral management system could no longer be guaranteed due to problems with both hardware and software. Geneva also had to deal with a temporary stop in 2005 but has resumed again in late 2008. Namely, the Green Party has asked for an extended legal basis which was eventually granted in a referendum vote by a solid 70% majority in favour of internet voting (Mendez and Serdült, 2014).

⁷ In response to the expatriates' demand for a swift introduction of internet voting, the OSA has become one of the most outspoken promoters of online voting. Among the more notable lobbying efforts is the handing over of a petition signed by more than 15,000 Swiss citizens for the comprehensive introduction of online voting for both Swiss abroad and Swiss residents in January 2012. See <http://aso.ch/en/politics/petition-evoting> (accessed December 28, 2013).

Table 1: Overview of the internet voting offer for expatriates (by federal votes and cantons)

	NE*	GE*	ZH*	BS	FR	GR	SG	SO	AG	LU	SH	TG	BE
01.06.2008	✓												
30.11.2008	✓												
08.02.2009	✓												
17.05.2009	✓												
27.09.2009	✓	✓											
29.11.2009	✓	✓		✓									
07.03.2010	✓	✓		✓									
26.09.2010	✓	✓	✓	✓	(✓)	(✓)	✓	(✓)					
28.11.2010	✓	✓	✓	✓	(✓)	(✓)	✓	✓	✓	✓	✓	✓	
13.02.2011	✓	✓	✓	✓	(✓)	(✓)	✓	✓	✓	✓	✓	✓	
23.10.2011				✓		✓	✓		✓				
11.03.2012	✓	✓		✓	(✓)	✓	✓	✓	✓	✓	✓	✓	(✓)
17.06.2012	✓	✓		✓	(✓)	✓	✓	✓	✓	✓	✓	✓	✓
23.09.2012	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
25.11.2012	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
03.03.2013	✓	✓		✓	✓	✓	✓		✓	✓	✓	✓	✓
09.06.2013	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	(✓)
22.09.2013	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
24.11.2013	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	(✓)

Note: ticks indicate that internet voting was possible for all Swiss abroad residing in a EU member state, a state that has ratified the Wassenaar Treaty or one of the European microstates; ticks in brackets indicate that online voting was in addition restricted to Swiss abroad registered in selected municipalities; the asterisks denote the three pilot cantons; green denotes usage of the Zurich internet voting system, yellow usage of the Geneva system, and red usage of the Neuchâtel system.

For reasons of cost and efficiency, the newcomer cantons did not develop or buy their own internet voting solutions, but decided to draw on the existing ones (Driza-Maurer *et al.*, 2012). Two models emerged. On the one hand, seven of the newcomer cantons agreed to cooperate with the canton of Zurich in the form of a 'consortium'.⁸ In Table 1 these cantons are shown green. The consortium cantons run a copy of the Zurich system, which is operated by a private company. The remaining three non-pilot cantons instead chose to cooperate with the canton of Geneva. In Table 1 these cantons are shown in yellow. The cantons associated with Geneva are hosted on the Geneva system, which is entirely owned and run by the canton of Geneva itself. Neuchâtel, the third pilot canton (in red), has not shared its system with another canton at least for the time being, mainly due to its peculiar setup with e-voting only being part of a larger e-government portal.

However, in both pilot and newcomer cantons there are some restrictions in the roll-out of internet voting to expatriates. Most importantly, by federal law in all cantons internet voting was restricted to expatriates residing in a country that allows the exchange of encrypted data (until the end of the year 2013). These are states that have ratified the Wassenaar Treaty⁹, and certain European microstates, such as Liechtenstein, Andorra, and the Vatican. Data encryption is needed

⁸ The consortium was initially managed by the canton of Zurich. The canton of Argovia took over as Zurich stopped its internet voting programme in 2011.

⁹ The Wassenaar Treaty regulates export controls for dual-use goods and technologies, such as data encryption.

to guarantee the secrecy of the ballot. About 90 per cent of Swiss abroad live in a state that allows the exchange of encrypted data (Driza-Maurer *et al.* 2012: 7).

Second, in some of the newcomer cantons, such as Fribourg and the Grisons, the internet voting offer was initially restricted to Swiss abroad registered in selected municipalities. In all these cantons this distinction was soon abandoned and coverage extended to all municipalities. Finally, for technical and/or legal reasons the internet voting system of many cantons cannot accommodate referendum votes and elections at the same time. Thus for the 2011 federal elections online voting was offered in four cantons only, Basel-City, the Grisons, St. Gall, and Argovia. For the same reason Solothurn could not offer internet voting for the cantonal executive elections of March 2013. Because federal law stipulates that internet voting can only be offered if it is possible for all scheduled votes taking place simultaneously (Federal Chancellery, 2013), Solothurn could not offer internet voting for the referendum votes either. For similar reasons Berne could offer e-voting in selected districts only in June and November 2013.

Usage of the internet channel

As a consequence of the relatively high economic and organisational costs related to the introduction of the electronic voting channel, there is a certain political pressure that significant numbers of voters turn to the new voting channel from the beginning of the trials. Usage rates of internet voting are thus not a mere technicality; instead they are an important argument in the political debate. In this section we aim to provide an empirical basis for the debate, and gauge the popularity of the internet voting channel among both expatriates and Swiss residents. Inevitably due to the relatively short time period internet voting has been available the inferences we can draw are somewhat limited. However, not least given the unrivalled high frequency of referendum votes the Swiss case still allows for some interesting insights (Serdült, 2014).

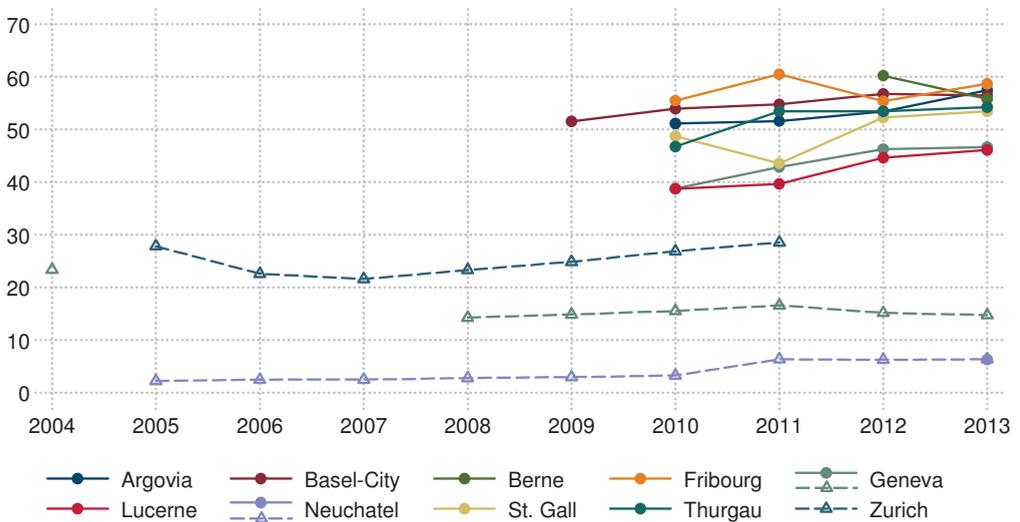
Our evaluation is based on a freshly collected data set on the usage of the internet voting channel in all federal votes, 2004-2013. Our data set has complete coverage of trials involving Swiss residents, i.e., we cover all federal votes where online voting was available in the three pilot cantons (Geneva, Zurich, and Neuchâtel). However, the data quality is slightly compromised in the case of Neuchâtel for the votes between June 2008 (when online voting for expatriates was introduced) and early 2013 since in this period our figures include not only residents but also Swiss abroad. This is due to the statistical office discarding most electoral data in the aftermath of each vote so as to safeguard the secrecy of the ballot, which makes it impossible to disaggregate the votes of Swiss residents and expatriates at a later stage. Fortunately, the resulting deviations are negligible, given that Swiss abroad make up only about 3 per cent of Neuchâtel's electorate.¹⁰ Moreover, Neuchâtel has begun to provide us with the necessary data before they are deleted as of the June 2013 vote.

On the other hand, unfortunately we cannot cover the expatriate trials in all cantons since in four of them (Zurich¹¹, the Grisons, Schaffhausen, and Solothurn) the relevant data is not recorded

¹⁰ A second issue is that up to early 2013 (and contrary to Geneva and Zurich) the figures for Neuchâtel also include foreigners (which in Neuchâtel have the right to vote in cantonal and local referendums) if there was a simultaneous cantonal or municipal vote. Judging by the three votes for which we have fully disaggregated data, the deviations to the figures for residential Swiss nationals remain minimal (between .1 and .3 percentage points).

¹¹ In the canton of Zurich expatriate votes are recorded in a single district (which also includes residential voters). In the three votes where this is relevant, this district was not included in the calculation of the residential e-voter share.

by the respective statistical offices. Moreover, for the reason stated above we have data for Neuchâtel as of June 2013 only.¹² Still, our data set covers 9 cantons and 89 out of the 143 internet voting trials involving expatriates. There is, however, some variation in the data quality. Recall that only Swiss abroad who live in countries that allow the exchange of encrypted data are allowed to vote via the Internet. Therefore the accurate online voter share can only be calculated if expatriate votes are recorded by the country of residence. Unfortunately, only four of the nine cantons in our data set do so (Basel-City, Berne, Fribourg, and Geneva). With the remaining five (Argovia, Lucerne, Neuchâtel, St. Gall, and Thurgau) the actual online voter share is higher than the one we report because also votes from Swiss abroad are counted who reside outside the European/Wassenaar context and therefore are ineligible to vote via the Internet. However, 90 per cent of Swiss abroad live in a country that allows the exchange of encrypted data; the biases should not therefore be dramatic.



Note: solid lines and dots denote Swiss abroad; dashed lines and hollow triangles Swiss residents.

Figure 2: Annualized share of online voters in federal votes (in %)

Keeping these smaller caveats in mind, we turn to the results. In Figure 2 we plot the annualized share of online voters by cantons and voter groups (residents or expatriates), whereby solid lines and dots represent expatriates, and dashed lines and hollow triangles Swiss residents (note that in 2013 the dot and triangle coincide for Neuchâtel because the figures for residents and expatriates are almost equal). An initial important observation is that a quite significant number of citizens casts their vote electronically; depending on the context from about 15 to 60 per cent of voters use the online channel. The only exception in this regard may be Neuchâtel, where the online voter

¹² In addition the first three trials in Geneva and the March 2012 vote in Fribourg are missing because the statistical offices were unable to provide us with the relevant data.

share is consistently below the 10 per cent marker. This is due to the fact that Neuchâtel's online voting portal – contrary to all other cantons – is integrated into a comprehensive e-government portal ('Guichet Unique') wherein citizens can directly interact with the government, for instance by filing tax reports. Therefore, in Neuchâtel eligibility to vote online requires signing up for the e-government portal as a whole. This involves significant costs, especially (but not only) for expatriates because it requires physical presence at the municipal administration. The extra burden to sign up for e-voting as part of the e-government portal appears to result in much lower usage of the online channel compared to the Geneva and Zurich systems used in the other cantons (which do not require pre-registration). However, Neuchâtel's online voter share is steadily increasing, and can be expected to increase further as more and more citizens will register for the portal.

For the remaining discussion we will leave aside the deviating case of Neuchâtel, and focus on the other cantons which all use comparable internet voting systems. The most obvious finding here is that residents and expatriates tend to differ significantly in the usage of the online voting channel. Excluding Neuchâtel, on average about every second Swiss abroad casts the vote electronically (50.3 per cent).¹³ At 15.1 per cent for Geneva and 22.5 per cent for Zurich, the average rate is significantly lower in the comparable internet voting trials for Swiss residents. Of course, there is also inter-cantonal variation in the usage of the online channel. However, at least in the case of the expatriate experiments, these differences can largely be explained with variation in data quality. That is, the figures in low-performer cantons tend to be downward biased because they include Swiss abroad in non-European or non-Wassenaar states (who are not eligible to e-vote, see above).¹⁴ Thus, the crucial take-home message remains that compared to residents, expatriates are more frequent users of the electronic channel.

A closer look at changes over time offers additional insights. In both Geneva and Zurich, the trials involving Swiss residents featured a sudden drop in the internet voting rate of up to ten percentage points, suggesting a novelty effect whereby voters partly revert to their traditional mode of voting after giving the internet channel a few trials (Mendez and Serdült, 2014). To the contrary, no such sudden drop in the internet voting rate appears to occur in the expatriate experiments. We should always be cautious with micro-level inferences based on macro-level data. But the macro-level patterns provide quite clear evidence against a novelty effect in the case of the expatriate trials. On the contrary, from the outset we can observe a slight but quite consistent upward trend in most cantons. On average the cantonal online voting rate in the expatriate trials increased by about 1.8 percentage points by year. This upward trend is significant at the .1 per cent level in a regression model of the online voting rate on the number of years the programme is running, controlling for time-invariant between-canton variation (i.e., canton fixed effects). At this rate of growth - all other circumstances being equal - some cantons would reach internet voting usage rates of 70% in about five years. For Swiss residents the situation is more ambiguous. In Geneva, on the one hand, the internet voting rate appears to stabilize at around 15 per cent after the initial decrease, probably due to the novelty effect. On the other hand, after the initial setback Zurich shows a clear upward trend, at least before the e-voting program was discontinued in 2011.

¹³ Remember that the actual number is higher because Swiss abroad voters not eligible to online voting are included in the figures for some of the cantons.

¹⁴ The only major exception is Geneva. This is probably due to the high number of Swiss abroad registered in Geneva who live just across the border. As will be argued below, expatriates in neighbouring countries are somewhat less likely to use the electronic mode of voting.

Characteristics of the expatriate internet voter

A question that has repeatedly attracted scholarly interest is whether and how the socio-demographic profile of online voters differs from that of 'traditional' voters. To date studies of the socio-demographic profile of internet voters have largely focused on e-voting offers for residents. Alvarez *et al.* (2009), for instance, found in a recent appraisal of the Estonian internet voting experience that tech-savvy youngsters with high trust in the e-voting mechanism disproportionately make use of the online channel. More surprising may be their finding that Estonian online voters do not differ to a statistically significant extent from other voters in terms of sex, income, education, and political leaning. Given its focus on Geneva's internet voting trials (for residents), Sciarini *et al.*'s (2013) study may be more relevant to us, however. Contrary to Alvarez *et al.* (2009) they find that highly educated, politically knowledgeable, married, and male voters are more likely to vote online. Meanwhile they concur with Alvarez *et al.* (2009) in that computer skills, trust in the Internet, and age are correlated with usage of the online channel. In this section we investigate whether these findings replicate for the case of the Swiss abroad.

Evidence for the profile of expatriate online voters is scarce. The only study we are aware of is Serdült (2010). Serdült focuses on the two 2009 online voting trials in Geneva where expatriates were for the first time included in the e-voting roll-out, and he compares the profile of online voters to the profile of voters using the traditional postal channel. Three main findings emerged. First, Serdült found that male Swiss abroad are more likely to vote online, similar to Sciarini *et al.*'s finding for Geneva residents. Second and also similar to the situation with Geneva residents, Serdült found that younger expats were generally more likely to use the online channel. Interestingly, however, it was not the youngest voters with age 18-29 who used the online channel most often, but rather the 30-39 year-old cohort. Finally, Serdült found that geography plays a role: the more distant an expatriate's country of residence the likelier she is to use the online channel. For instance, while around 60 per cent of Swiss abroad in the US voted online, only around a third of Swiss abroad living in France did so. Two mechanisms may explain this pattern. On the one hand, problems with postal delivery presumably tend to be lower the closer the country of residence is to Switzerland. On the other hand, many of Geneva's Swiss abroad live just across the border in France and commute to Geneva on a daily basis. Since they can use Swiss letter boxes for the return of the ballot (some of the border checkpoints are even equipped with drive-through letter boxes), this group of expatriates does not face problems with postal delivery at all.

A major strength of Serdült's study is that it draws on official vote registry data and thereby fully circumvents sampling issues.¹⁵ However, this strength comes with a price: by its very nature, vote registry data covers only very basic socio-demographic statistics, such as age and sex. Thus, we complement Serdült's results with a secondary analysis based on the Swiss abroad survey we introduced above (Lutz, 2012). The primary advantage of survey data is that it allows us to go beyond the narrow socio-demographic statistics covered in vote registries. However, the price to pay is that we are no longer covering the universe, but rely on a sample. This price is particularly heavy in the present case since the survey involves severe selection bias (see footnotes 3, 4, and 5). Thus, the findings should be considered as tentative.

¹⁵ Geneva is the only canton to maintain an official voting records database which keeps records of each citizen's electoral participation along with basic socio-demographic statistics on an anonymous basis (see Sciarini *et al.*, 2013: 12).

The survey we are analysing focused on the 2011 federal elections, and included an item on the voting method in addition to the usual item on electoral participation. In the 2011 federal elections, expatriates in four cantons enjoyed the possibility to vote online (Argovia, Basel-City, Grisons, and St. Gall; see Table 1). Thus, we compare the profile of expatriate online voters from these four cantons to the profile of postal voters from the same four cantons.¹⁶ In total, our sample includes 130 expatriate voters, of which 101 voted online. We report averages by the voting channel and assess the statistical significance of differences with Chi-Square-Tests.

Table 2: Comparing expatriate online voters with expatriate postal voters

	<i>n</i>	Online	Postal	Diff.
Age	130	48.62	49.28	-.65
Female sex	130	.26	.41	-.16
Education	120	6.02	6.04	-.02
Married	130	.59	.45	.15
Political interest	130	2.5	2.38	.12
Left-right	117	4.63	4.92	-.28
Political knowledge	130	2.1	1.55	.55*
IT skills	122	.24	.08	.16*
Neighbour country	130	.3	.52	-.22**

Note: statistical significance of differences was evaluated with Chi-Square-Tests; * $p < .1$, ** $p < .05$, *** $p < .01$.

Table 2 gives the results. In a first step, we focus on the three variables also covered in Serdült (2010). The survey-based estimates largely confirm the patterns found by Serdült. In particular, in line with Serdült we find that expatriates living in a country that borders Switzerland are statistically significantly less likely to use the online channel, and therefore more likely to vote by mail. Moreover, and also in line with Serdült, we find that men are more likely to use the electronic channel. The gender gap is substantial but (barely) misses conventional levels of statistical significance. This could be due to the combination of our relatively small n with the small number of postal voters (29), which diminishes statistical power to detect statistically significant differences. The only substantial deviation from Serdült (2010) is that age appears unrelated to the usage of the online channel. It is possible that in the case of expatriates, the relatively large convenience associated with online voting is able to offset age effects, but this result may also be owed to the survey's lack of representativity.

However, the real strength of survey data is that it allows us a closer look at a few additional variables. Four interesting results emerge. First, we find that online voters are statistically significantly more tech-savvy.¹⁷ Second, online voters are more politically knowledgeable to a statistically significant degree.¹⁸ Third, married and politically interested respondents have a higher rate of using the online channel. These differences are not statistically significant, but come

¹⁶ Since these could not vote online, we exclude Swiss abroad from countries that do not allow the exchange of encrypted data. A small number of respondents (12) indicate to have voted online even though objectively this was not possible.

¹⁷ The survey does not include a direct measure of IT skills. We proxied for technical knowledge with an item asking respondents about the use of an Internet-based voting advice application called *smartvote* (see Germann et al. 2014).

¹⁸ Political knowledge was measured by a composite index of four political knowledge items and political interest on a self-reported 4-point scale.

relatively close to the 10 per cent level. Finally, there are clearly no significant differences with regards to political ideology and education.¹⁹

To conclude, we find that the socio-demographic correlates of online voting are generally replicated for the case of the Swiss abroad, in particular if compared to Sciarini *et al.*'s (2013) encompassing study of Geneva's e-voting offer for residents. Our results suggest that Swiss abroad online voters tend to be disproportionately male, technically skilled, married, and possibly of young age. We do not find any differences in terms of education, but expat online voters appear to have disproportionately high political knowledge. Also expatriate online voters do not differ significantly from other voters in terms of political leaning or interest. Finally, an interesting pattern that by its nature can only concern the expat context is that geography matters in that expatriates from more distant countries are more likely to turn out via the Internet. However, it has to be stressed that Serdült's study of the first two Geneva experiments is naturally limited in terms of temporal and spatial scope as well as in terms of the variables it can analyse, while the survey-based results are suggestive at best due to selection bias (and also limited in space and time). Moreover, all findings we have reported rely on bivariate correlations. Thus more research is needed to unravel the socio-demographic determinants of the expat online voter.

Conclusion

By generalising internet voting to all Swiss abroad irrespective of their country of residence in 2014 and by offering it in all or at least most cantons by the 2015 federal elections the electronic voting channel will continue to establish itself (Federal Chancellery, 2013). Provided that implementation for the Swiss abroad goes well and without further interruptions, internet voting is on the way of becoming the preferred voting channel for this segment of voters. With on average more than every second Swiss expatriate voter casting her or his vote electronically, online voting proves to be very popular among expatriates, especially if compared to Swiss residents who tend to have an acceptance rate of a bit less than 20% on average. The exception in this regard is Neuchâtel where the pre-registration requirement for online voting is responsible for the relatively low usage rate of about 8%. However, one should note that even though this figure for Neuchâtel seems to be fairly low it still clearly outnumbers that for voting in person at the polling station. As to the socio-demographic profile of the expat online voters, we can say that they tend to be disproportionately male, technically skilled, married, and possibly of young age. Specific to the case of expatriates is that Swiss abroad living in more distant countries are more likely to cast their vote electronically.

Inevitably this review remains limited in several regards. First and foremost, the short time frame internet voting has been available to expats naturally restricts the inferences we can draw. Also, existing expat surveys are marred by selection bias and/or focus exclusively on online voters. Finally, important questions have not been addressed in this review. In particular, there are good theoretical reasons to expect online voting offers for Swiss abroad will increase turnout rates, akin to the effect on Swiss resident turnout of about 4% due to the gradual introduction of postal voting (Lüchinger *et al.*, 2007). The Swiss abroad survey we have discussed provides some initial supporting evidence for the increasing turnout hypothesis, given that respondents in cantons with an e-voting offer are significantly more likely to have participated in the 2011 election (Lutz, 2012: 36). However, more systematic evidence is needed to substantiate a potential turnout effect.

¹⁹ Political ideology was measured via self-placement on an 11-point left-right scale and education on an 8-point scale.

Another, related question not addressed in this survey is that of a possible digital divide, or in other words the question whether the introduction of electronic voting will lead to a further overrepresentation of the resource-rich (Norris, 2001). For all these reasons, this review provides but a first account of the expat internet voting trials, and more research is needed.

Looking into the foreseeable future of Swiss internet voting trials and a potential generalisation thereof, we can detect both political and technical challenges on the horizon. Thus far, political ramifications on e-voting were mainly restricted to the cantonal level. However, recently parliamentary motions from across the political spectrum have opposed a further extension of internet voting for Swiss domestic voters or have asked to halt e-voting trials in general unless the source code of the software is made public and an upgrade to more secure and verifiable second generation systems can be achieved. An exception would only be made for the Swiss abroad. A smooth transition to more transparent and secure internet voting solutions would therefore help to accommodate some of the critical voices. Whether the so far largely positive experience with the Swiss abroad will spill over to the debate on internet voting for Swiss residents and thus work towards a further generalisation of the new voting channel is still to be seen. In many respects the year 2014 will be a crucial one.

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