

Preliminary draft

Local TV Markets and Elections

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Abstract: The ability of citizens to effectively control government depends partly on the information available to them. In terms of time spent, television is the most important information source of voters. Due the importance of animated pictures on television, TV news differ from news in newspapers in systematic ways. Person-related information is relatively more important than factual information and news are presented in a simpler style. Cross-sectional and panel data on the diffusion of local TV in Switzerland reveal that television has a measurable impact on behavior of both voters and politicians. Specifically, the presence of local TV induces people with low education to consume more news and participate more in elections. Parties and politicians react to the presence of local TV stations by changing the focus of their election campaigns from issues of content to the promotion of people. Therefore, the number of candidates for Council of States elections increases. The effects are strong when local TV markets match well with sub-national jurisdictions or electoral districts and are not statistically significant when local TV markets span over several jurisdictions.

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1. Introduction

Mass media play a unique role in transmitting information to voters and in shaping their political attitudes. The diffusion of free, non-partisan media during the last centuries is therefore regarded as crucial for the development of functioning democracies. Gentzkow et al. (2006) relate “the Rise of the Fourth Estate” in the US, i.e. the development of the non-partisan press in the 19th century, to the sharp decline of corruption in that era.

The 20th century saw even more radical changes in the media landscape with the introduction and rapid diffusion of radio, television and the internet. In fact, radio and TV are the technical inventions of the 20th century with the highest diffusion rates. In only 7 years 75% of US households were in possession of a TV set. Radio diffused with a comparable speed (8 years to reach 75% of US households). Neither the fridge (23 years) nor the telephone (67 years) had a similar success (Bowden and Offer 1994). Today, television is by far the most important and time-consuming kind of media. Europeans spend on average over 3 hours a day watching TV and US Americans even about 5 hours (IP Network 2006)¹.

Despite the prevalence and importance of television in the lives of people, little is known about causal effects of television on the behavior of political agents. Exceptions are the few studies (Gentzkow 2006; Oberholzer-Gee and Waldfogel 2007) that convincingly show - negative and positive - effects of television on voter turnout. Prat and Strömberg (2005) analyze the effect of the introduction of private TV in Sweden on voter information and Olken (2006) shows that better TV signal reception in Indonesian villages due to topographical differences is related to lower participation in local government activities but not to measures of village governance. Most other studies of the effects of media on the political process use data on newspapers or on general media freedom rather than television, as data on the former are more readily available.

To empirically address a possible causal relationship between television and behavior of voters and politicians I compiled cross-sectional as well as panel data sets on the diffusion of local television Switzerland. This country is an ideal setting to empirically analyze the effects of TV on the behavior of voters and politicians. Because of the country’s federal structure, important political decisions are made at state or community level. This, in combination with

¹ These figures not only relate to the information function of television, but also to its entertainment function. However, data from the European Social Survey also show the dominance of television when only concentrating on news consumption. More than 40% of respondents watch more than 1.5 hours news on TV daily, while only about 30% spend so much time on listening to the news on radio and only 20% on reading newspapers (Frey and Benesch 2007).

the presence of direct democratic institutions, places great importance on local political information and therefore on local media. Moreover, the supply of local television varies to a large extent over regions and over time. The empirical results show that politicians as well as voters systematically react to the presence of local television. Hence, media should be taken seriously as a force in the political process.

Two major aspects of TV are highlighted in the empirical analysis. Local TV attracts different socio-economic groups than other media like newspapers and radio. People with low education are more likely to watch TV news when local TV is available. This effect is found in areas where local TV markets match well with jurisdictions. For people with higher education news consumption does not differ with the availability of local TV. More importantly, people react to the news supply of local TV stations by increasing their participation in federal elections. Again, this effect is much more pronounced for people with low education than for those with high education and limited to areas where local TV markets correspond to one jurisdiction or electoral district. When local TV markets span over several jurisdictions there is no statistically significant effect of the availability of local TV news on voter participation. The presence of these differentiated effects lends support to the proclaimed direction of causality from TV to behavior.

The second aspect that distinguishes TV from more traditional media is the transmission of information not only via words but also via moving pictures. Therefore, person-related information becomes more important than factual information compared to information in newspapers and on radio. Hence, the role of individual politicians is being strengthened in comparison to the role played by parties and their programs. The empirical results show that parties - especially small ones with negligible chance of being elected into the Council of States (the small chamber of the federal parliament with two representatives from each full canton) - nominate more candidates when local TV is available. Again, this effect is stronger in regions with a good match between local TV markets and electoral districts and it is confirmed in cross-sectional as well as panel data.

Section 2 reviews the economic literature on media institutions and their effects on the behavior of voters and politicians. Section 3 discusses the differences between TV and other news media and presents the existing empirical literature. The local TV market in Switzerland is described in section 4, while section 5 presents the empirical analysis. Section 6 concludes.

2. Media and Politics

The ability of voters and interest groups to enforce their preferences in the political process and to effectively control government depends on the information available to them, and on the cost of information respectively. Interest groups with concentrated benefits will be able to organize themselves and keep themselves informed, exerting pressure on politicians. In contrast, consumers or taxpayers with dispersed interests will have little individual incentives to inform themselves and will therefore not receive favorable policies (Olson 1965). Mass media may attenuate this bias, “since they provide politicians with a megaphone that reaches exactly the large, dispersed consumer groups” (Strömberg 2002: 97). Mass media decrease the information costs of large, unorganized interest groups.

Politicians are therefore expected to react to the amount and kind of information available to different voters and to react to the extent of media distribution. They bias government policies in favor of informed voters. Strömberg (2004b) shows empirically that the diffusion of radio in the US led to an increase in government spending to counties with more radio access. Yet, not all groups are equally important for media firms. News, especially the ones of private, almost exclusively advertising financed TV channels, will be tailored to groups with characteristics valuable for advertisers (see e.g Hamilton 2004). Strömberg (2004a) analyses theoretically how increasing-returns-to-scale technology and advertising financing of mass media leads to policies favorable to large groups and groups valuable to advertisers. Other authors analyze more generally the effects of free media on different political and economic outcomes. Private ownership of the media, press freedom and low concentration in the media market are, e.g., associated with better government accountability (Besley and Prat 2006), less corruption (Brunetti and Weder 2003) and more political rights and better social outcomes (Djankov et al. 2003). This is due to voters being better informed about politics and being politically more active in countries with freer media (Leeson 2008).

Yet, the diffusion of new media is also subject to worries and criticism. The penny papers of the 19th century, with their sensation mongering coverage of court cases, were at times accused of “corrupting ... social and moral habits” (Colored American 1840). Putnam (2000) relates the sharp decrease of social capital, civic engagement and political participation in the US to the diffusion of television (see also Gentzkow 2006). Sunstein (2001; 2007) fears negative effects of the Internet and its possibility to filter information on extremism and the functioning of democracy. In a similar direction go the discussions of Becker et al. (2007) or Trappel (2008) who argue that media freedom is not the only aspect important in modern

democracies. Other elements such media diversity, media accountability, and media's support of deliberation are relevant as well².

In any case, not only the absence or presence, or the amount of, free media influence the political process, but also the organization of media markets and other institutional settings can affect the behavior of voters and politicians. Snyder and Strömberg (2008) show that a better match or congruence between media markets and congressional districts leads to voters knowing more about their representatives and to politicians being more responsive to voters' needs. The geography of media markets also affects the political process in a further way. The spread of national media leads to less local news being consumed and to lower local voter turnout among target groups. George and Waldfogel (2006; 2007) show that the expansion of the *New York Times* decreases local newspaper readership among college graduates targeted by the *Times* and leads to them being less likely to vote in local elections. Localism is not only affected by newspapers but also by television. The presence of local TV news in Spanish increases Hispanic voter turnout in the US by 5 to 10 percentage points, relative to non-Hispanic voter turnout (Oberholzer-Gee and Waldfogel 2007).

3. Is Television different from other media?

Television has some obvious differences from other media, especially newspapers, due to technological reasons. Since the development of satellite technologies TV has been able to broadcast events live from any corner of the world. This is not possible for newspapers³. Another difference is that for TV news time is limited while newspapers have limited space and typically, TV is more limited. This leads to TV news usually including less and less detailed - and maybe better understandable - information. In contrast to newspaper readers TV viewers cannot control the pace at which they receive and must process information, unless the broadcasts are recorded (Druckman 2005). Further important differences concern the significance of visual aspects. The need to combine words with (moving) pictures on TV may lead to a completely different news product. Emphasis on emotional aspects, personalization and negativism may be the result.

² Another important aspect is, of course, the amount, causes, and consequences of media bias (see, e.g., Mullainathan and Shleifer 2005; Gentzkow and Shapiro 2006; Reuter and Zitzewitz 2006; Gerber, Karlan and Bergan 2008).

³ However, radio has the same possibilities and with the increasing diffusion of internet this feature has become less of a comparative advantage of TV.

While many authors just assume television to be different and even ascribe changes in political campaigning over time to the expansion of TV, especially of private stations (see e.g. Bean and Mughan 1989, p. 1168, 1175; and the discussion in Schoenbach 1996, p. 92-93), there is little empirical evidence that television content is really different from other media content. Many studies that empirically analyze, for example, personalization and tone of or negativism in political news look at trends over time in one type of media and do not compare television to other media (see e.g. Sigelman and Bullock 1991; Patterson 1993, p. 113-115; Wattenberg 1996; Wilke and Reinemann 2001). The few studies that do compare TV news to newspaper content present mixed results. Semetko and Valkenburg (2000) show in a cross-section of Dutch media that TV news are more personalized than newspapers in the sense that they use more often a human interest frame, i.e. bring “a human face or an emotional angle to the presentation of an event, issue, or problem”. Yet, differences between types of outlet are larger than between types of media. Druckman (2005) analyzes how local newspapers and local TV stations cover the 2000 Minnesota Senate campaign. While there are large differences in quantity of coverage (i.e. newspapers covered the senate campaign on 88% of the days coded while TV did so only on 34%) the differences in content style are rather small. Particularly, there are no differences in personalization between media types and only moderate differences in the use of issue frames (i.e. newspapers use an issue frame in 31% of analyzed cases and TV in 21%).

These studies have in common that, while they usually content analyze the whole newspapers, they usually look only at TV news and disregard other broadcast with political content. However, many TV stations feature regular discussion programs on political issues. Furthermore, TV debates between candidates have become an important aspect of election campaigns. This importance is also reflected in the usually extensive post-debate coverage not only on TV but also in newspapers (Reinemann and Wilke 2007). While candidates of course talk about political issues in a TV debate, the focus is on them as a person. It could therefore be argued that such TV formats represent the clear differences between TV and newspapers⁴. Even if content analyses show no systematic differences between news on television and newspapers TV overall probably puts politicians more into the center than it does policies, parties or other factual information.

⁴ Of course, Newspapers also print interviews with politicians. Yet, interviews usually do not use a large part of newspaper space and are typically included in the content analysis of newspapers.

Consequentially, the questions arise what impact this different coverage of politics on TV has on politics, or more concretely on the behavior of voters and politicians. Prominent in communications research is the mediatization or mediation hypothesis (see e.g. Blumler and Kavanagh 1999; Schulz 2004), which states due to the rise of mass media and especially TV “the media have been moving to centre of the political process [...] altering the behavior of candidates, the parties’ campaign organization and the behavior of the electorate” (Schulz, Zeh and Quiring 2005, p. 56). Central themes in empirical studies in this research field are the professionalization and personalization of as well as negativism in political campaigns and their effects on citizens. Two main types of empirical studies can be distinguished. Analogous to or even in connection with analyses of media content a first type of studies investigates changes over time. Again, results on personalization of, e.g., voter decisions are mixed and rather than showing a consistent time trend voters’ use of criteria to evaluate parties and candidates seem to be context specific (see e.g. Schulz, Zeh and Quiring 2005). A second type of studies compares newspaper readers to television viewers. TV viewers know less about politics than newspaper readers⁵, base their voting decisions more on criteria relating to the politician as a person as compared to her stand on political issues (e.g. Keeter 1987), their voter turnout is lower, and they are less interested in politics. It is however difficult to infer a causal effect of TV on knowledge and behavior. Not the same kind of people relies on political information from TV than from newspapers. Among other factors, TV viewers are less educated than newspaper readers, earn less and are less interested in politics (see e.g. the discussion in Graber 2006, 183-184).

It is therefore difficult to assess in which direction the causal relationships run. How would it be possible to differentiate if, e.g., people with less political knowledge watch more TV or if TV imparts less knowledge than newspapers do? One would, e.g., have to analyze exogenous changes in television supply. Prat and Strömberg (2005) use exactly this approach in their analysis of private TV on voter information in Sweden. They show that the introduction of private TV in Sweden benefited the young and the previously less informed who used little other news sources (e.g. public television) before. This voter group has significantly higher knowledge and participates more in politics after the introduction of private TV than before. The analysis is based on panel data, i.e. the same people are surveyed before and after the introduction of the private channels, and allows therefore for a causal interpretation of the results. Interesting to note is also that the result of Prat and Strömberg confirm previous cross-

⁵ The same applies also when comparing viewers of public TV channels to viewers of private channels (Holtz-Bacha and Norris 2001).

sectional results that better informed people are more likely to watch public TV while worse informed groups rather watch private TV. Yet, the interpretation is not, as in many cross-sectional studies cited above, that (commercial) television has a negative impact on citizens' knowledge. On the contrary, less informed people not attracted by other media gain from private TV (see Prat and Strömberg 2005, p. 4). It is therefore suspected that many cross-sectional results comparing, e.g., newspaper readers and TV viewers cannot be interpreted causal.

Some other studies allow causal interferences of TV on political participation. Gentzkow (2006) analyzes the introduction of television in the US that occurred in different regions at a different point of time due to exogenous, i.e. technical, reasons. His results are more pessimistic and show that TV reduced voter turnout considerably and largely due to its negative impact on newspaper readership. Oberholzer-Gee and Waldfogel (2007) use cross-sectional data, but their results are based on the comparison of different voter groups with different access to TV. They show that voter turnout of Hispanics in the US in areas with TV news in Spanish compared to the voter turnout of Non-Hispanics is much higher than in areas without News in Spanish. Also in a cross-sectional analysis, Olken (2006) analyzes exogenous differences in TV supply in Indonesian villages due to topographical reasons. He finds a negative impact of TV on attendance in town meetings.

It can only be speculated why these different studies sometimes find negative and sometimes positive effects of TV on political participation. Of course, TV does usually not enter into a setting where citizens did not have access to any media or political information before and media systems vary considerably between countries and times. The impact of TV might therefore depend on the complex substitutive and complementary relationships between the different types of media. Furthermore, mass media can even present a substitute to political participation itself. The threat of mass media to report on ill-behaving politicians might lead to them following voter's preferences to a larger extent or might even lead to selection of different politicians making political participation less necessary. Another reason for the differing results might be, as Prat and Strömberg (2005) show, that the effect of TV differs for different populations groups, especially as TV targets other population groups than, e.g., newspapers.

Here, it is hypothesized that the less educated or previously ill informed profit from television presenting news in a simpler and more personalized way than traditional (print) media. Having a type of news media meeting their needs better may lead to them consuming more

news and being better informed. Better information should decrease the probability of making a wrong voting decision and increase political participation.

Second, it is hypothesized that due to the dominance of the moving picture television news carry more person, i.e. politician, related information than factual information on policies and party programs compared to newspapers and radio. Political parties react to the presence of TV by increasingly putting individual politicians in the center of their parliamentary election campaigns instead of party programs. More parties will therefore nominate candidates for elections in which the candidates themselves and not the parties and their programs attract the most media attention.

The above hypotheses are tested using data on the presence of local TV news in Switzerland. Cross-sectional as well as panel data are used. It is thereby distinguished between TV channels serving only one canton, i.e. sub-national jurisdiction and electoral district for federal elections, and TV channels covering several cantons. The effects of local TV news on the behavior of voters and politicians are expected to be stronger when television news are targeted at one jurisdiction and political debates on TV present the candidates of one electoral district only. The next chapter describes the local TV market in Switzerland and the structure of the data in more detail.

4. Local Television in Switzerland

Television in Switzerland is heavily regulated. Until April 01, 2007⁶ all Swiss programs needed a concession from the *BAKOM*, the federal telecommunications and broadcasting authority. The Swiss television market is dominated by the public-broadcasting company *SF Schweizer Fernsehen* and its six license fee financed TV stations (two in German, two in Italian, two in French). However, most Swiss households also receive and watch many foreign channels, especially those from the surrounding countries Germany, Austria, France, and Italy (IP Network 2006).

Only during the mid-nineties domestic private television stations offering comprehensive programming developed. The only two private national channels that started during the nineties were (financially) not successful and closed again after a few years. Today, only the channel 3+ that started broadcasting in 2006 is still active. The local television market is,

⁶ As the data used in this paper is for the period 1990-2007 the following information relates to the situation before April 01, 2007, when a new Radio and Television Law was enacted.

however, much more active than the national market. According to data from the *BAKOM*, in 2006 18 private local or regional TV stations offered comprehensive programming with daily news broadcasts and 9 more stations weekly programming. 50 more providers were in possession of a concession but only offered videotext or sporadic shows, e.g. before local elections.

Local TV stations are licensed to distribute their program in a clearly defined territory, sometimes comprising several communities and often one canton⁷ or (parts of) several cantons. They can normally only be received via cable⁸. Terrestrial distribution or satellite distribution is usually not allowed. In their daily news and special broadcasts before elections these TV stations focus on regional issues happening in their broadcasting area. *TeleZüri*, the channel that can be received in the whole canton of Zurich, states on its homepage that its daily News broadcast, the *ZüriNews*, covers up-to-date news stories focusing on the area of Zurich. Similarly, *Tele Ostschweiz*, a channel broadcasting in 4 cantons in the eastern part of Switzerland, writes on its homepage that it covers “the most important news from the cantons of Appenzell Innerhoden, Appenzell Ausserrhoden, St.Gallen, and Thurgau”. These two examples reveal that local TV stations can be divided in two broad categories. “Cantonal stations” relate to one specific jurisdiction, i.e. canton, while “regional stations” cover several jurisdictions (cantons). Each channel can be assigned to one or several cantons according to its area of distribution and its mission statement (i.e. which areas it covers mainly in its daily local news) and classified as “cantonal or “regional”. *TeleZüri*, for example, can besides in most of the canton of Zurich be watched in some bordering communities of the cantons of Aargau, Glarus and Schwyz. Yet, it is only assigned as a cantonal station to the Canton of Zurich and not to the other cantons, as its main distribution area lies within the canton of Zurich and its news cover only the area of Zurich.

In Switzerland, many political decisions, including tax issues, are made at cantonal level and cantons correspond to electoral districts for federal parliamentary elections. Voters in cantons with a cantonal TV channel will therefore probably receive more information relevant for their voting decisions through local TV than voters in cantons with regional TV⁹.

⁷ Swiss cantons are the equivalent to US states.

⁸ 82% of Swiss households have access to cable TV (IP Network 2006).

⁹ This distinction between cantonal and regional channels is similar to the one Snyder and Strömberg (2008) make in their analysis of newspaper readership on politicians' behavior. They look at the congruence or match between media markets and congressional districts. They show that newspaper coverage of representatives is higher in areas with a better match between media markets and congressional districts and voters are therefore better informed.

Table 1 presents data on local TV in Swiss cantons for all federal election years since 1990. There exist no (official) statistics on the diffusion of local TV in Switzerland. The data have therefore been compiled using information from the BAKOM, the TV channels themselves and several newspaper archives. In 1994 *TeleZürich* was the first local TV station starting to broadcast daily up-to-date news programs.¹⁰ During the 1991 federal elections voters were therefore restricted to information from newspapers, radio and the national TV programs. In 2007, when the last federal elections took place voters in 23 of 26 cantons were able to receive local television, whereby voters in 9 cantons had access to cantonal TV and in 14 cantons to regional TV.

[Table 1 about here]

However, as local TV channels can only be received through cable, diffusion is not uniform within cantons. Depending on the share of households connected to cable and on the cable operator serving a community diffusion varies considerably within cantons. Some communities do not have access to local TV at all, either because the cable operator does not distribute the channel or because some channels are only licensed to distribute their program within a specific part of a canton.

For the year 2007, detailed data on the diffusion of local TV in Swiss communities have been compiled using information from *SuissImage*, the Swiss Authors' Rights Cooperative for Audiovisual Works¹¹. Table 2 presents data on the diffusion of local TV in 2007 for each of the 26 cantons separately. TV stations are again classified as either “cantonal” or “regional”. In the cantons with cantonal TV the diffusion is lowest in the canton of Vaud where 35.5% and highest in the canton of Aargau where 90.8% of communities receive local TV. Among the cantons with regional TV Basel Stadt has the highest diffusion rate with 100% of communities receiving local TV and the canton of Graubünden the lowest diffusion rate with

¹⁰ Before that, several stations existed which, however, did not broadcast daily news. In my empirical analysis I consider only those programs that offer news at least Monday to Friday.

¹¹ Cable operators have to report to *SuissImage* the number of their subscribers and the TV channels they distribute in order for *SuissImage* to calculate the tariffs for the use and distribution of protected audiovisual works.

only 20% of communities receiving it. In the three cantons Fribourg, Jura and Solothurn there is neither cantonal nor regional TV available¹².

[Table 2 about here]

5. *The Effects of Local Television on Voters and Politicians*

a) *Local TV and Voters*

This section presents the empirical analysis of the effect of local TV news on voters. The analysis is based on the 2007 community-level, cross-sectional data on the distribution of local TV in Switzerland and on individual level data from *Selects 2007*. In *Selects 2007* 4392 people were interviewed in October and November 2007 shortly after the federal parliamentary elections. The survey includes questions on participation and voting behavior, opinion formation and many socio-demographic variables. The dependent variables used are news consumption and participation in federal elections. Respondents are asked on how many days a week they usually watch the news on TV, read the politics section in their newspaper and listen to the news on the radio. The survey reveals that TV is the most commonly used source of news with respondents watching TV news on average 4.7 days a week (standard deviation 2.5). TV is followed by radio (average 4.5, standard deviation 2.9) and newspapers (average 3.7, standard deviation 2.7). Respondents are also asked if they voted in the previous federal election. 68.9 percent of respondents gave an affirmative answer. This is more than the actual voter turnout of 48.3 percent. A correction for this over-sampling does not change the general results. The individual control variables used in the analysis are age, age squared, sex, education, household income, household size (square root), marital status, employment status, time of residency in the respective canton, participation in the last federal election in 2003, and interest in politics as measured on a scale from 1 (not at all interested) to 4 (very interested). Table 3 presents the descriptive statistics.

[Table 3 about here]

¹² In some communities of these and other cantons people receive local TV stations that focus their news programs on other cantons and regions. These communities are coded as not receiving any local TV news.

This individual level data are combined with the data on local TV distribution on community level described above. Two different measures are used. First, I use dummy variables indicating if cantonal or regional TV is distributed in a community. The reference group are respondents in communities without local TV news. The second measure additionally takes into account that the share of households having access to local TV stations via cable varies over communities. The combination of the *Selects 2007* data with data on local TV results in data being available for 4162 to 4230 individuals in 1135 communities¹³.

Ordinary least squares (OLS) regressions are estimated for news consumption and probit regressions for election participation. Standard errors are clustered on community level. As availability of and access to local TV news varies within cantons canton dummies are included in the analysis. Therefore individuals within the same canton but in communities with different access to local TV are compared to each other. This approach avoids most problems present in normal cross-sectional analyses in which TV viewers are compared to non-viewers. It might nevertheless be possible that communities with more or less access to local TV differ in other respects from each other. For example, there is less diffusion of cable and therefore of local TV in small rural communities. We therefore control as well for communities being urban or rural, community size and other community characteristics (22 point scale by the *Swiss Federal Statistical Office* capturing many aspects such as population dynamics, economic structure or prosperity). It should be noted that the analysis is also based on the differentiation between different education groups and the distinction between cantonal and regional TV stations. This again strengthens a causal interpretation of the results.

Table 4 presents the results on the effects of the presence of local TV on TV news consumption.

[Table 4 about here]

Column (A) reveals that there is no statistically significant effect of the availability of local TV on respondents' TV news consumption when not differentiating between the different

¹³ The total number of observations in *Selects 2007* is 4392. 159 respondents could not unambiguously be assigned to a community and are therefore missing data on local TV. 8 more respondents are missing data on the consumption of TV news, 37 on newspaper and 18 on radio consumption. 3 Respondents did not answer the question on election participation. The sample is further reduced when including interaction effects due to missing education data for 35 respondents and when using the share of households receiving local TV due to this information not being available for 28 respondents.

types of TV stations and between education groups. When looking at cantonal and regional channels separately (column (B)) the coefficient for cantonal TV is positive and the coefficient for regional TV negative but both effects are still not statistically significant on conventional levels. However, when interacting the availability of local TV with individuals' education cantonal TV has a statistically significant effect on TV news consumption (column (C)). People with low education watch significantly more TV news when cantonal TV is available. As the interaction effect is negative, the marginal effect of local TV becomes smaller the higher the education of the respondent. Interestingly, there is no statistical significant effect of regional TV on news consumption, not even for people with low education. Only when local TV markets match well with jurisdictions people use local TV as a daily information source.

Including additional control variables on community level in column (D) does not change the general picture. The coefficients, however, become somewhat smaller in size and statistical significance. In column (E) the share of households having access to local TV is used instead of a dummy variable. Again, the general results stay the same. Although the interaction effect is not statistically significant anymore the marginal effect of cantonal TV on TV News consumption is statistically significant for low levels of education (see Brambor, Clark and Golder 2006 for a discussion on the interpretation and presentation of interaction models). Figure 1 graphically shows the marginal effect of cantonal TV on TV news consumption for all nine education categories of regression (C) to (E)¹⁴. Dependent on the exact specification, the marginal effect is positive and significant for education categories one to four, i.e. for people having vocational education or less, and then drops below statistical significance for people with higher education. The marginal effect is sizeable. People with only primary school education watch on average half a day more the news when there is cantonal TV.

[Figure 1 about here]

Table 5 presents the results on how people adjust their newspaper and radio consumption to the availability of local TV news. No statistically significant effects are found whether when distinguishing between cantonal and regional TV or when interacting local TV with

¹⁴ It should be noted that to simplify the analysis education has been included as linear variable into the analysis. Including each education category as a separate dummy variable does not change the general picture, individual marginal effects are however not significant on conventional levels anymore.

education. People seem not to substitute away from other news media when local TV is available. Rather they increase their total news consumption by consuming more TV news.

[Table 5 about here]

Now, the question arises if this increased news consumption due to local TV further affects behavior. Better information should decrease the probability of making a wrong voting decision, increase interest in politics and political participation (see also Leeson 2008). It is therefore analyzed if the presence or absence of local TV affects the participation in federal elections. As cantons correspond to electoral districts, it is hypothesized that especially cantonal TV news positively affects turnout. We again distinguish between different levels of education. Table 6 presents the results of the probit regressions.

[Table 6 about here]

Columns (A) and (B) reveal that there is again no statistically significant effect of local TV on voter participation on average, neither when looking at local TV overall nor when distinguishing between cantonal and regional television. Yet, when interacting the level of respondents' education with the availability of cantonal and regional TV coefficients become statistically significant (column C). Cantonal TV increases the probability of participating in elections for people with low levels of education and the effect becomes smaller and finally insignificant for higher levels of education. There is again no statistically significant effect of regional TV on voting in federal elections. The coefficients remain stable when including controls on community level and using the share of households having access to local TV in a community instead of a dummy variable.

a) Local TV and Election Campaigns

Not only voters but also politicians might react to the availability of different media and to different media market structures. The hypothesis that TV being more person-oriented than newspapers or radio leads to changed incentives of and reactions by politicians is tested using

again data on Swiss federal elections. Federal elections take place every four years. Both chambers of parliament, the *National Council* consisting of 200 members (number of members are proportional to the population of the electoral districts), and the *Council of States* consisting of 46 members (2 from each full canton and 1 from each of the 6 half cantons), are elected on the same day. Election campaigns of political parties cover therefore both elections simultaneously. Each of the 26 cantons forms an electoral district. Members of the *National Council* are elected by proportional representation and members of the *Council of States* by majority rule (except in the canton of Jura). Due to the different election rule and the much smaller number candidates *Council of States* candidates are much more present in the election campaigns.

Most members of the *Council of States* belong to one of the four big parties represented in the federal government¹⁵. In most cantons, members of small parties have a negligible chance of being elected. Usually, there are therefore only a few candidates competing for a seat in the *Council of States*. Yet, this seems to have changed during the last few years. In 2007, there were, for example, 12 official candidates for the two seats of the canton of *Zurich* compared to 7 candidates in 1991. Table 7 lists the average number of candidate in a canton for all election years since 1990, both in total and of small parties only. Small parties are defined as parties not represented in the federal government (independent candidates are not included). The total number of candidates increased from an average of 4.3 in 1991 to 5.3 in 2007 and the number of candidates from small parties from 1.0 to 1.4.

[Table 7 about here]

The *Neue Zürcher Zeitung* (2007) attributes this change to local TV and writes that some small parties admit openly that their candidates run only to increase the parties' presence in the media. This supposition is a nice example how changes in the media environment change the behavior of politicians visibly and it is empirically tested using data on the number and the parties of candidates for the *Council of States* from the *Swiss Federal Statistical Office*.

¹⁵ These parties are the SP, CVP, FDP, and SVP. Since 1959 the *Swiss Federal Council*, which counts seven members, always consisted only of members of all of these parties. The *Council of States* includes usually none or very few members from other than these four parties. In the period 1991-2007 there were on average two.

Table 8 shows the results for a cross-section over 25 cantons for the year 2007¹⁶. Ordinary least squares regressions are estimated. Control variables include the number of free seats, i.e. how many incumbents run for re-election, if any candidates are voted out, if candidates are elected at a citizens' assembly or not, and variables for number of inhabitants and size of cantons, as well as for the local economic situation (unemployment rate).

[Table 8 about here]

Column (A) shows that the average number of candidates from small parties with a negligible chance of being elected into the *Council of States* is higher when local TV is available in a canton. The effect is sizeable (1.6) and statistically significant on the 90 percent level. Column (B) takes a closer look at the effects of local TV and differentiates between TV stations covering only one canton and TV stations covering several cantons. The effects should be more pronounced for cantonal TV channels as candidates in these cantons get more attention from local TV. The empirical results support this hypothesis. It is revealed that only cantonal TV is statistically significantly associated with the number of candidates from small parties. The coefficient is considerable in size (2.8, $p < 0.01$). The effect is robust when using the share of households having access to local TV in a canton instead of a dummy variable (column (C)). Column (D) reveals that the coefficient is also statistically significant when looking at the total number of candidates.

The results, however, have to be interpreted with caution. Cantons with cantonal TV differ also in other respects from cantons with regional or no local TV. They are usually bigger and more urban etc. Although we control for such aspects an omitted variable bias could occur nevertheless as the analysis can be done on cantonal level only and canton dummies cannot be included in the regression as can be done when looking at the effects on voters. The study is therefore supplemented with a panel data analysis for the years 1991 to 2007. Ordinary least squares fixed-effects estimators are applied controlling for time-invariant canton specific effects. Year dummies are included as well to control for time-fixed effects that affect all cantons equally. The results stay robust, although the coefficients become somewhat smaller.

¹⁶ The canton of Jura is excluded from the analysis because it is the only canton with proportional representation.

[Table 9 about here]

Column (A) in table 9 shows that the introduction of local television leads on average to an increase of the number of candidates by 0.5 ($p < 0.1$). Column (B) reveals that the effect is due to cantonal TV only. When cantonal TV becomes available the number of candidates from small parties increase by more than one. The coefficient is highly significant ($p < 0.01$). In contrast, the introduction of regional TV doesn't affect the number of candidates at all. The effect stays robust when including canton-specific time trends into the analysis (column (C)). No corresponding effects are found when looking at the total number of candidates (column (D)). Running for the Council States seems to be increasingly promotional when local TV comes into play.

6. Conclusion

Not only the extent of free media, but also the way media markets are organized, can affect the political process. Different types of media differ not only in their technology but also in the way they present information. Different target groups are addressed and catered for by different styles and content. Due to the dominance of the picture, TV news focus much more on persons than on facts compared to newspapers and radio and present political information in a simpler manner. The presence of local TV therefore affects the behavior of voters and politicians systematically. Especially voters with low education react to the presence of local TV by increasing their news consumption and their participation in elections. Politicians and parties adjust to TV being person-oriented by increasingly focusing their election campaigns on individual politicians instead of party programs. They nominate candidates even if they have no actual chance of winning the election but solely to be present on TV. All effects are much more pronounced when TV markets match well with sub-national jurisdictions. The presence of these differentiated effects lends support to a causal interpretation of the effects of local TV on behavior.

Now, the question arises if and how these behavioral changes further affect the political process and political outcomes. Not all voter and interest groups will profit in the same way from a changing media environment. TV affects mainly people with low education. Will television also benefit them in the sense that they will be better able to enforce their

preferences in the political process? Further research should therefore also address the effects of television on political outcomes, like taxes and government spending.

Second, the findings have impacts for the regulation of local TV markets. In Switzerland, a new Radio and Television Law (RTVG) has been enacted in 2007. While local TV stations do generally not need a license anymore a few licensed channels get public subsidies. However, only one station per pre-defined territory gets such a subsidy. These pre-defined territories span usually over several cantons. The research presented here shows however that particularly TV stations covering only one canton produce meaningful information that is consumed by voters and leads them to increase their political participation. If local TV is to be subsidized efficiently more attention should be paid to the match between TV markets and sub-national jurisdictions.

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Table 1: Local Television in Switzerland 1991-2007

<i>Number of cantons receiving local TV</i>	Year				
	1991	1995	1999	2003	2007
No local TV	26	23	13	3	3
Cantonal TV	0	3	7	9	9
Regional TV	0	0	6	14	14

Data Source: Own compilation based on information from *BAKOM*, TV stations, and several newspaper archives.

Table 2: Local Television in Swiss Cantons 2007

<i>Canton</i>	Share of communities receiving local TV		
	No local TV	Cantonal TV	Regional TV
AG	9%	91%	0%
AI	17%	0.0%	83%
AR	15%	0.0%	85%
BE	33%	67%	0%
BL	9%	0.0%	91%
BS	0%	0%	100%
FR	100%	0%	0%
GE	58%	42%	0%
GL	64%	0%	36%
GR	80%	0%	20%
JU	100%	0%	0%
LU	19%	0%	81%
NE	19%	81%	0%
NW	0%	0%	100%
OW	14%	0%	86%
SG	8%	0%	92%
SH	28%	72%	0%
SO	100%	0%	0%
SZ	56.7%	0.0%	43.3%
TG	31.2%	0.0%	68.8%
TI	30%	71%	0%
UR	45%	0%	55%
VD	64%	35%	0%
VS	56%	44%	0%
ZG	0%	0%	100%
ZH	7.6%	92.4%	39.2%
	share of communities receiving local TV		
Switzerland	46%	40%	18%
	share of households receiving local TV		
Switzerland	21%	56%	28%

Note: Each TV channel is assigned to one or more cantons. Communities/households receiving TV from another canton are classified as receiving no local TV. 66 communities in the canton of Zurich receive cantonal as well as regional TV.

Data Source: Own compilation based on data from *SuissImage*.

Table 3: Descriptive Statistics *Selects* 2007

	Mean/share	Standard deviation
In a community with cantonal TV	54.2%	
In a community with regional TV	31.7%	
Participation in federal elections	68.9%	
Participation in last federal elections	74.9%	
Political interest [1-4]	2.8	0.85
Days a week watching news on TV	4.7	2.5
Days a week reading newspapers	3.7	2.7
Days a week listening to news on radio	4.5	2.9
Male	44.6	
Female	54.4	
Age	51.9	17.7
Household income (in 1000 CHF)	6.4	2.9
Household size	2.4	1.3
<i>Education:</i>		
No education / primary school	4.8%	
Compulsory education	7.2%	
Basic vocational training	2.3%	
Vocational education	39.0%	
Higher secondary school / vocational diploma	9.3%	
High school	5.8%	
High vocational education	9.4%	
High vocational college	8.3%	
University	13.7%	
<i>Employment status:</i>		
Working full-time	35.3%	
Working part-time	21.1%	
In training/formation	4.3%	
Working in family business	0.6%	
Working in household	8.1%	
Retired	25.8%	
Disabled	2.7%	
Unemployed	1.3%	
Doing other	1.0%	

To be continued

Continuation of Table 3

Marital status:

Married	52.8%
Single	24.7%
Divorced or separated	11.9%
Widowed	10.5%

Resident in canton for:

Up to 1 year	1.1%
1 to 3 years	2.1%
3 to 5 years	2.3%
5 to 10 years	5.7%
More than 10 years	88.7%

Data Source: Selects 2007, and own compilation based on data from SwissImage.

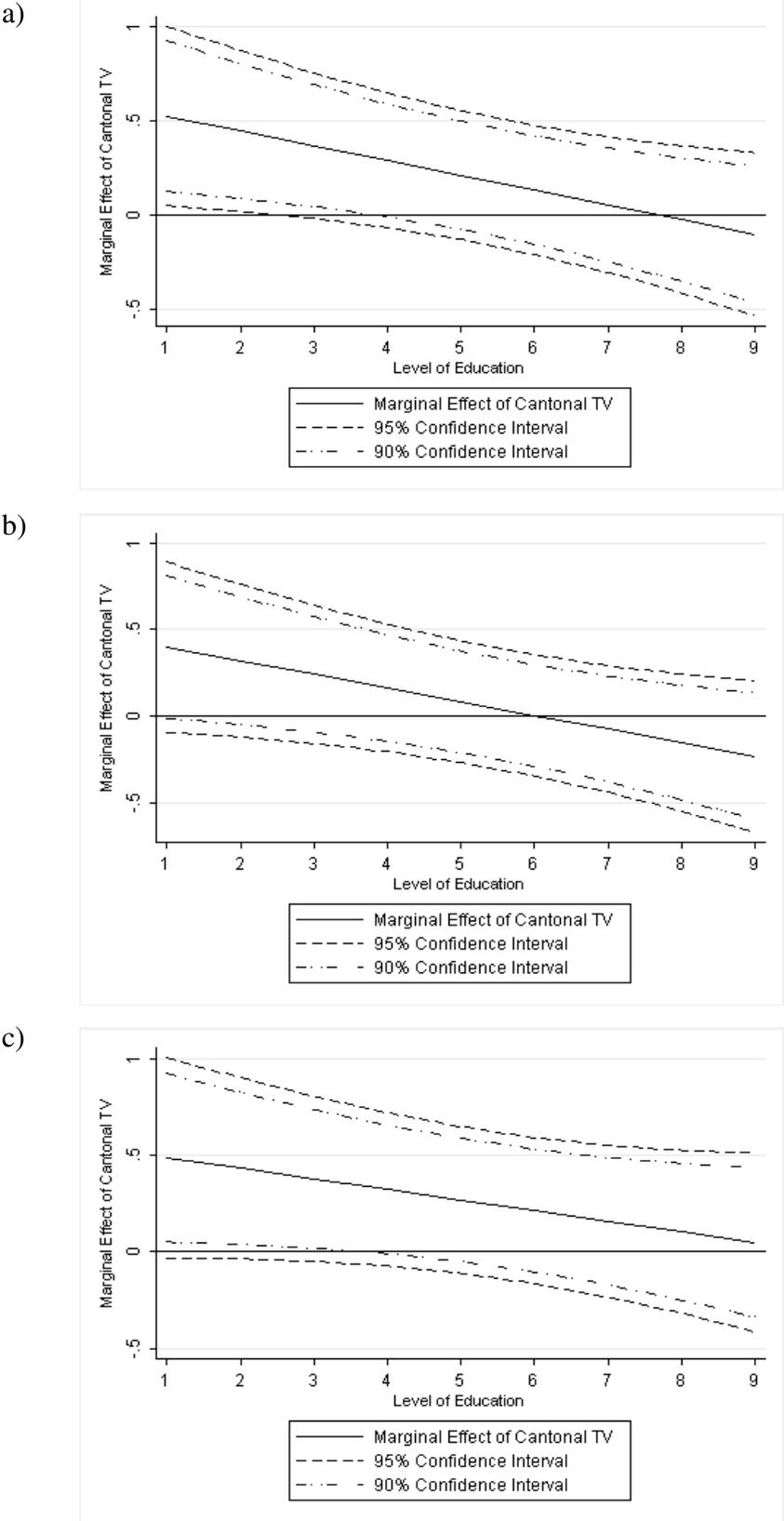
Table 4: Local TV and TV News Consumption

<i>Dependent variable: TV news consumption [0-7]</i>	(A)	(B)	(C)	(D)	(E)
	Coef. (Std. err.)				
Local TV (any kind)	0.077 (0.136)				
Cantonal TV		0.150 (0.178)	0.605* (0.272)	0.478* (0.280)	0.543* (0.294)
Cantonal TV * education			-0.079* (0.038)	-0.079* (0.038)	-0.055 (0.040)
Regional TV		-0.146 (0.148)	0.104 (0.255)	0.081 (0.267)	0.061 (0.274)
Regional TV * education			-0.045 (0.042)	-0.048 (0.043)	-0.038 (0.044)
Education	yes	yes	-0.088* (-2.44)	-0.086* (0.037)	-0.107** (0.035)
Socio-demographic controls	yes	yes	yes	yes	yes
Political interest and participation	yes	yes	yes	yes	yes
Community type and size	no	no	no	yes	yes
Canton-fixed effects	yes	yes	yes	yes	yes
No. of observations	4225	4225	4190	4190	4162
R-squared	0.17	0.17	0.17	0.18	0.18

Notes: OLS regression with robust standard errors clustered on community level. The dependent variable is the number of days a week respondents watch TV news. In columns (A) to (D) local TV is a dummy variable taking the value 1 if a cantonal or regional channel is distributed in the community. In column (E) local TV is measured as the share of households in a community having access to a cantonal or regional channel. Socio-demographic controls include sex, age, employment status, marital status, household income, household size, and for how many years respondents have been living in the canton.

Data Sources: Selects 2007, and own compilation based on data from SuissImage.

Figure 1: Marginal Effect of Cantonal TV on TV News Consumption by Level of Education



Notes: For specification and data sources see table 4, regression (C) to (E).

Table 5: Local TV and Newspaper and Radio News Consumption

<i>Dependent variable:</i>	<i>Newspaper news [0-7]</i>		<i>Radio news [0-7]</i>	
	(A)	(B)	(C)	(D)
	Coef. (Std. err.)	Coef. (Std. err.)	Coef. (Std. err.)	Coef. (Std. err.)
Cantonal TV	0.000 (0.153)	0.382 (0.278)	-0.118 (0.220)	-0.111 (0.311)
Cantonal TV * education		-0.062 (0.042)		0.001 (0.051)
Regional TV	-0.119 (0.167)	0.070 (0.311)	-0.014 (0.191)	0.118 (0.332)
Regional TV * education		-0.038 (0.053)		-0.022 (0.052)
Education	yes	0.155** (0.035)	yes	-0.008 (0.047)
Socio-demographic controls	yes	yes	yes	yes
Political interest and participation	yes	yes	yes	yes
Community type and size	yes	yes	yes	yes
Canton-fixed effects	yes	yes	yes	yes
No. of observations	4168	4133	4215	4180
R-squared	0.33	0.33	0.07	0.07

Notes: OLS regression with robust standard errors clustered on community level. The dependent variable is in columns (A) and (B) the number of days a week respondents read news in newspapers and in columns (C) and (D) the number of days a week respondents listen to the news on radio. Local TV is a dummy variable taking the value 1 if a cantonal or regional channel is distributed in the community. Socio-demographic controls include sex, age, employment status, marital status, household income, household size, and for how many years respondents have been living in the canton.

Data Sources: Selects 2007, and own compilation based on data from SwissImage.

Table 6: Local TV and Voter Participation

<i>Dependent variable: participation in federal elections</i>	(A)	(B)	(C)	(D)	(E)
	Coef. (Std. err.)				
Local TV (any kind)	0.062 (0.085)				
Cantonal TV		0.148 (0.111)	0.450** (0.173)	0.516** (0.175)	0.517** (0.185)
Cantonal TV * education			-0.059* (0.025)	-0.062* (0.025)	-0.055* (0.028)
Regional TV		0.013 (0.106)	0.090 (0.170)	0.122 (0.177)	0.010 (0.192)
Regional TV * education			-0.017 (0.029)	-0.025 (0.030)	0.000 (0.032)
Education	yes	yes	0.079** (0.024)	0.083** (0.024)	0.066** (0.024)
Socio-demographic controls	yes	yes	yes	yes	yes
Political interest and participation in last federal elections	yes	yes	yes	yes	yes
Community type and size	no	no	no	yes	yes
Canton-fixed effects	yes	yes	yes	yes	yes
No. of observations	4230	4230	4195	4195	4167
Pseudo R-squared	0.35	0.35	0.35	0.35	0.35

Notes: Probit regressions with robust standard errors clustered on community level. The dependent variable is the participation in federal elections (National Council). In columns (A) to (D) local TV is a dummy variable taking the value 1 if a cantonal or regional channel is distributed in the community. In column (E) local TV is measured as the share of households in a community having access to a cantonal or regional channel. Socio-demographic controls include sex, age, employment status, marital status, household income, household size, and for how many years respondents have been living in the canton.

Data Sources: Selects 2007, and own compilation based on data from SwissImage.

Table 7: Candidates for Council of States Elections 1991-2007

<i>Average number of candidates in cantons</i>	Year				
	1991	1995	1999	2003	2007
No. of candidates	4.3	4.4	4.9	4.6	5.3
No. of candidates of small parties	1.0	1.1	1.2	1.0	1.4

Data Source: Federal Statistical Office.

**Table 8: Local TV and the number of candidates for State Council
Elections 2007**

	(A)	(B)	(C)	(D)
	Coef. (Std. err.)	Coef. (Std. err.)	Coef. (Std. err.)	Coef. (Std. err.)
Local TV (any kind)	1.616(*) (0.938)			
Cantonal TV		2.814** (0.931)	3.070** (1.059)	4.565* (1.929)
Regional TV		0.914 (0.855)	1.067 (1.070)	0.390 (1.772)
Non-incumbent seats	0.440 (0.483)	-0.489 (0.419)	-0.527 (0.431)	-0.521 (0.868)
Citizens' assembly	0.240 (1.300)	0.021 (1.130)	0.323 (1.162)	-1.552 (2.340)
Number of inhabitants (1000)	(0.004)** (0.001)	0.003** (0.001)	0.003** (0.001)	0.003 (0.002)
Size of canton	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)
Unemployment rate	0.548* (0.248)	0.148 (0.263)	0.220 (0.254)	0.277 (0.544)
No. of observations	25	25	25	25
R-squared	0.67	0.76	0.76	0.72

Notes: OLS regressions. The dependent variable in columns (A) to (C) is the number of Council of States candidates from small parties not represented in the Federal Council (without independent candidates) and in column (D) the number of all Council of States candidates. Local TV is in columns (A), (B) and (D) a dummy variable indicating if cantonal or regional TV is available in a canton and in column (C) the share of households in a canton receiving cantonal or regional TV.

Data Sources: Federal statistical office and own compilation based on information from BAKOM, TV stations, and several newspaper archives.

**Table 9: Local TV and the number of candidates for State Council
Elections 1991-2007**

	(A)	(B)	(C)	(D)
	Coef. (Std. err.)	Coef. (Std. err.)	Coef. (Std. err.)	Coef. (Std. err.)
Local TV (any kind)	0.539(*) (0.294)			
Cantonal TV		1.256** (0.337)	0.871(*) (0.442)	0.830 (0.637)
Regional TV		0.079 (0.302)	-0.095 (0.399)	-0.782 (0.571)
Free seats	0.299* (0.124)	0.270* (0.116)	0.153 (0.125)	0.951** (0.219)
Vote-out	-0.225 (0.308)	-0.152 (0.289)	-0.480 (0.335)	-0.300 (0.546)
Citizens' assembly	0.009 (0.543)	-0.363 (0.519)	-0.332 (0.960)	-0.294 (0.982)
Year dummies	Yes	Yes	Yes	Yes
Canton-specific time-trends	No	No	Yes	No
No. of observations	125	125	125	125
No. of groups	25	25	25	25
Observations per group	5	5	5	5
R-squared (within)	0.11	0.23	0.47	0.28

Notes: Canton-fixed effects regressions (OLS). The dependent variable in columns (A) to (C) is the number of Council of States candidates from small parties not represented in the Federal Council (without independent candidates) and in column (D) the number of all Council of States candidates.

Data Sources: Federal statistical office and own compilation based on information from BAKOM, TV stations, and several newspaper archives.