

Is Internet Voting a Way how to Improve Cost-efficiency of the Czech Electoral System?

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Abstract. Modern society in developed countries is increasingly using information and communication technologies (ICT). In many areas, people cannot imagine life without ICT because they make it easier and faster to decide, manage or evaluate projects and activities, but they have not yet fully succeeded in some areas. One of these forgotten areas is the election and introduction of an electronic way of voting. Politicians debate whether an internet or correspondent form of voting could increase the voter turnout, and at the same time reduce the cost of holding elections. The paper analyzes the use of internet voting in Estonia, which this method of voting allows. Furthermore, the paper analyzes the data on access of Czech households to the Internet and also the share of households using the internet for financial transactions that are comparable in terms of sensitivity of electoral data. Based on this analysis, it was found that internet voting method which uses the Internet cannot completely replace the traditional method of voting. In the case of the Czech Republic, there would probably be no increase in voter turnout or reduction of election costs.

Keywords: Internet, Internet Banking, e-Voting, Internet Voting, Election.

1 Introduction

Before 1989, the elections were used as a confirmation of power by the ruling Communist Party, and the free competition of other political parties virtually did not exist. The breakthrough came after this year. Then, the voters could freely decide which political party (on the basis of the electoral program and the vision of the future direction of the country) would support the election. [6]

However, the initial enthusiasm for free elections soon ceased. While the turnout in 1990 was 97%, electoral participation declined over the next few years, regardless of the type of election. At present, only 65% of the votes in the Chamber of Deputies of the Parliament of the Czech Republic, which is generally considered the most important, are elected.

The electoral system of the Czech Republic, from the point of view of citizens, consists in coming to the polling station and giving a paper vote to the ballot box. In the Czech Republic unlike most European Union countries there is no alternative form of voting (e.g. correspondence or electronic) allowed. [11]

In addition, holding an election is relatively expensive, every election costs the state treasury of approximately CZK 500 million, which represents almost CZK 40 per eligible voter [7] and the election costs in the coming years may be expected to rise. Professionals and politicians are therefore again starting to discuss how the way in which voting could be adjusted to increase voter turnout and, at the same time, that any adjustment to the voting method would not cause an extreme increase in the cost of the election. Besides the requirements for the possibility of correspondence voting, the supporters of the Internet voting method are also invited. [1, 10]

It is very difficult to determine the influence of the turnout on voting. It is not possible to obtain any empirical data, all the presented data come from surveys and their relevance can be very controversial. One way to identify potential impacts on voter turnout or election costs is to use data from abroad, for example, Estonia, which allows electronic voting on the Internet. Even though the data on participation and costs from another state cannot be fully taken into account as different countries differ from each other, basic analysis of Internet usage and Internet voting can contribute to the basic idea of the impact of Internet voting in the Czech Republic.

2 Literature Review and Methodology

Article 18 of Act No. 1/1993 Coll., The Constitution of the Czech Republic, provides that every citizen who has reached the age of at least 18 years has the right to vote. Decision-making of citizens - eligible voters whether or not to participate in the election depends, in addition, to political conviction or awareness on the importance of the election process also on the circumstances related to their personal life.

The goal of the government is to provide public goods and services for citizens (including preparation and holding of elections) in the most efficient way [2] and there are many articles about analyses and possibilities how to improve it. [3] The efficiency of provided public goods can be understood as providing the greatest possible comfort for citizens with a minimum amount or quantity of waste, expense or unnecessary effort. By analogy, in the case of the electoral system, the government should hold elections as a public service in such a way that citizens are actively involved in voting (vote) as cheaply as possible but as efficiently as possible.

However, the electoral system of the Czech Republic cannot be considered as cost-efficient. [9] In order to save money, there is, therefore, a growing debate about the introduction of electronic voting methods and different political parties, and experts suggest that some changes be made in the current electoral system, the most common of which is the introduction of a voting option using the Internet or at least a correspondent vote. [1, 10]

Correspondent voting would not, however, be allowed by everyone as an internet vote, according to current proposals. Therefore, it can be assumed that the introduction of a corresponding form of voting would not reduce the cost of holding elections. In the case of voting using the Internet, such a conclusion cannot be made without further examination. It is necessary to take into account how many citizens have an internet connection and actively uses this connection. Based on this analysis and other

similarities, it is then possible to estimate what impact the voting on the Internet could have.

The aim of this paper is to analyze the situation of households in the Czech Republic in connection with the internet connection and Internet use and to assess the potential impact of introducing the possibility of the electronic voting method using the Internet. Because of the sensitivity of data input and security, the Internet voting is similar to Internet banking (authorization, authentication, management of personal or sensitive data, etc.), the analysis focuses on using the Internet for the purpose of financial transactions (Internet banking). It is first established how large the population has Internet connections and then how much of this Internet connection population is using for Internet banking. These data are, in the last step, compared to similar data from Estonia, which allows citizens to vote on the Internet.

The paper uses freely accessible data published by official state institutions - statistical offices or directly government institutions.

3 Results

Internet access in Europe is quite common and the Czech Republic is not an exception. While in 2010 access to the internet or the Internet was used by almost 70% of the European Union (EU) citizens, it was more than 80% in 2017. Most citizens with access to the Internet live in Luxembourg, Denmark, and Sweden for over a year (over 96%). Estonia and the Czech Republic are lagging behind only a few percents, both countries being rated above the EU average in terms of Internet access. [4]

However, the above statistics also include citizens who have access to the Internet at work, but not in their own household. The total number of households with Internet access is, therefore, several percentage points lower, but it does not differ significantly. In the Czech Republic, 80.475% of citizens have access to the Internet from home, i.e. only 4% less than the Internet usage statistics.

In terms of household income, there are significant differences in the Czech Republic. While almost all citizens with the highest income (Q4) have access to the Internet in their home, more than half of the least income (Q1) citizens do not have Internet access:

Table 1. Internet in households 2013 – 2018 (%) [4].

Income group	2013	2014	2015	2016	2017	2018
Q1	29.0	32.4	33.8	38.6	42.6	47.1
Q2	50.5	56.5	57.2	59.4	70.7	78.8
Q3	86.4	87.0	85.8	88.1	93.9	96.5
Q4	94.9	97.4	96.8	98.0	99.3	99.5

A positive correlation can be found between the household income group, age, economic activity, and education. In general, Internet access is more likely to be young people or middle-aged, university-educated people or women on parental leave. On the other hand, elderly people, with lower education, do not usually have access to the Internet:

Table 2. Internet in households 2013 – 2018 (%) [4].

Economic activity (16+)	2013	2014	2015	2016	2017	2018
Employed	88.7	90.7	92.0	92.6	95.1	95.4
Unemployed	66.3	75.7	73.7	68.7	72.3	80.2
Women on parental leave	89.4	94.6	93.9	94.1	94.7	97.9
Students	98.9	99.7	99.0	98.6	99.7	99.8
Old retirees	24.2	31.1	33.1	35.0	37.0	40.8
Disabled retirees	43.8	55.7	50.4	56.9	62.8	66.9

It is interesting to see what services these people use. Most (especially young people) use the Internet to communicate on social networks and to search for the necessary information. About the knowledge, a smaller proportion of people used the internet to order some goods: About 80% of people connected to the Internet used the Internet to buy goods in 2017, but only 65.3% of all Czech citizens. Even though this figure may appear to be high at first glance, it is relatively low in terms of the usability of the Internet for voting purposes in the elections. In the case of Internet banking, this percentage is much lower:

Table 3. Internet banking usage in households 2013 – 2018 (%) [4]

Economic activity (16+)	2013	2014	2015	2016	2017	2018
Employed	55.5	59.7	63.1	65.9	71.8	76.5
Unemployed	30.0	28.9	32.2	29.9	37.5	43.2
Women on parental leave	57.9	69.0	61.8	68.5	73.4	85.9
Students	24.9	34.0	31.6	33.6	37.4	47.0
Old retirees	7.7	10.7	11.9	12.9	14.5	17.4
Disabled retirees	16.0	19.1	18.5	18.2	24.9	30.8

While Internet access in the Czech Republic accounts for more than 95% of employed people, internet banking uses only 76.5%. Given that banks are no longer charging for Internet banking, this low share of Internet banking cannot be influenced by monetary factors. The explanation must, therefore, be rather non-financial, for the most part, probably in confidence in this service. The most significant difference is in the use of the Internet and the use of internet banking in the elderly where Internet banking is not

used by half of those seniors who have access to the Internet. Therefore, it is not easy to assume that in the case of the introduction of electronic elections (Internet voting), those people who have been distrustful in online banking over the Internet would vote. On the contrary, the proportion of citizens who would use the option to vote over the Internet would probably be even lower.

For comparison, a comparison can be made with Estonia already mentioned:

Table 4. Internet banking and I-voting usage in 2012 – 2017 comparison [4, 12].

	2012	2013	2014	2015	2016	2017
Estonia						
Internet connection (%)	78.4	80.0	84.2	88.4	87.2	88.1
i-Banking (%)	68.1	72.2	76.6	80.7	78.6	79.2
i-Voting / el. voters (%)	-	12.3	11.4	19.6	-	16.9
i-voting (%)	-	17.0	14.9	24.3	-	21.3
The Czech Republic						
Internet connection (%)	73.4	74.1	79.7	81.3	82.2	84.6
i-Banking (%)	34.2	41.5	46.0	48.4	51.4	56.6
i-Voting / el. voters (%)	-	-	-	-	-	-
i-voting (%)	-	-	-	-	-	-

In Estonia, internet access in 2017 had a total of 88.1% of citizens, of which 80% of citizens (i.e. 90% of citizens with access to the internet) used internet banking. Internet voting in municipal councils, which took place in Estonia in 2017, was used by only 17% of the eligible voters. This is only 21% of citizens who used Internet banking this year and who can, therefore, assume elementary confidence in ICT and their security. The share of citizens who actively participated in the poll and voted through the Internet was approximately 21%. The proportion of citizens who have Internet access who use internet banking and who vote in the elections over the Internet is roughly the same over the last five years, so we cannot say that more caution and return to the traditional way of voting have taken place in recent years. On the basis of these data, it can be stated that the Estonian Internet voting method did not convince even 10 years after their release.

In the Czech Republic, 84.6% of citizens had an internet connection in 2017, Internet banking was used by just under 57% of citizens. Based on this data, when internet banking is used by only 67% of citizens who have access to the internet, it can be said that Czechs are not much more trustworthy to use the internet for private and sensitive activities with more cautious and modern technologies. If the proportion of citizens who would have voted in the Czech Republic using the Internet were the same or similar as in Estonia, about 12% of the eligible voters would vote in the Czech Republic over the internet. As the vote in the Czech Republic is the highest, as a rule, in elections to the Chamber of Deputies of the Parliament of the Czech Republic (about 65%) [7], it would mean that about 80% of eligible voters would vote in the traditional way. In

addition to the state investment in the information system that would allow Internet voting and the cost of running it, it would have to be the money spent on holding the elections in the traditional way.

Even though the findings of observing the behavior of citizens in one country and transferring it to the conditions of another country cannot be used, based on the above findings it can be assumed that the implementation of the possibility of internet voting in the Czech Republic would not bring benefits in the form of cost reductions and cost-efficiency improvements.

4 Discussion and Conclusion

At present, more and more researches are focusing on measuring and enhancing efficiency in both private and public administration. [8] However, public goods and services provided to their citizens are not always provided efficiently, economically and effectively, even in the case of elections and the electoral system. [7, 9]. One of the options that politicians in the Czech Republic are currently discussing is the introduction of an alternative way of voting - a corresponding vote or Internet voting. [1, 10]

However, Internet voting is available in several European countries only, of which Estonia or Switzerland is the best known. After the introduction of this voting option, scientists have begun to conduct research to determine whether this alternative method of voting has increased voter turnout. It was not in the case in Estonia or Switzerland. [5, 13]. In Estonia, after almost 10 years of Internet voting, over 25% of the eligible voters vote on the internet. In particular, they are middle-aged voters, young people and retirees are either not elected or elected in the traditional way. [13]

The arguments of Czech politicians that alternative voting methods would increase voter turnout are therefore unrelated to foreign examples. It is not only that election participation is not likely to increase, but also increase the cost of holding elections. Since elections have to be held for all citizens (no one has to be excluded from the use of this public service), besides the costs of the electoral information system, the government would still have to hold everything connected with the traditional way of voting. In that case, the cost of holding elections will surely increase. The cost-efficiency of the Czech electoral system would have declined in this case. When introducing modern technologies, it is therefore first necessary to convince citizens that these technologies are safe, technology that citizens can trust. This is the only way the company will accept the change of the electoral system and the introduction of a new method of voting that will use modern information technologies and the possibilities available in the 21st century.

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