



LUND UNIVERSITY
School of Economics and Management

High Speed Internet Access and Voting Behaviour

Bachelor Thesis VT 2016

Author: Viktor Mark-Almqvist

Supervisor: Alessandro Martinello

NEKH01, Bachelor Thesis, 15HP

Abstract

The expansion of the internet has increased steadily since its introduction in the early 1990's. Whilst having many positive effects on many different areas of society, one area that has not been thoroughly analysed is the political. Being a source for information and communication the potential for the internet to have political implications is large. This essay analyses the possible effects high speed internet has on voting participation and behaviour. This is done by running statistical regressions on data gathered on fiber-connection data and vote results covering the last two general elections in Sweden in 2010 and 2014.

There seem to be an effect on voting behaviour caused by high speed internet access. But the effect is not conclusive due to a limited data set, and further studies would be required to get a conclusive result.

Keywords: Internet, Fiber, Voting Behaviour, Sweden.

Table of Contents

1.0 Introduction	3
2.0 Background	3
2.1 Definition of a high speed internet connection.....	3
2.2 Internet Setting in Sweden.....	4
2.3 Impact of internet	5
2.4 High Speed Internet as an externality.....	6
3.0 Data.....	7
3.1 Election Data	7
3.2 Internet Data	9
3.3 Other Data	10
3.4 Variables.....	10
4.0 Statistical Specifications	11
4.1 Simple Regression.....	11
4.2 Multiple Regression	11
4.3 Fixed Effects Regression.....	12
5.0 Results.....	12
5.1 General Results.....	14
5.2 Narrowness of the Standard Error	14
5.3 Effects on Voter Participation	15
5.4 Effects on Parties and Blocks	15
6.0 Discussion.....	17
6.1 Externality and Political Agendas	17
6.2 Problems.....	18
7.0 Conclusion.....	19
References.....	20

1.0 Introduction

The internet has since its introduction in the early 1990's as an increasingly global information and communication channel continued to expand rapidly. In 1990 approximately 0,05 percent of the world's population was using the internet, a number that by 2014 had increased to 40,7 percent (World Bank, 2016). The internet provides lots of information- and communication channels, and are being used in for example businesses, for leisure and in governmental affairs.

There seems to be a concurrence that internet has had positive effects on most of these areas. While the internet does offer a political arena the effect that the internet has had on voter participation and voting behaviour is not as well documented.

Based on the fact that the internet is often used to spread political information and is a way for political parties to reach more people I think that there should be a discernible effect caused by the availability of internet on voting behaviour. This essay aims to analyse if there is an effect on voting participation and voting behaviour from the expansion of the high speed internet coverage in Sweden.

In section 2 a brief explanation of the background information about high speed internet and the internet setting in Sweden necessary to conduct the analysis is made. In section 3 the data used is explained and I lay out the basis for the regressions in section 4. The results are presented and discussed in section 5 and 6.

2.0 Background

2.1 Definition of a high speed internet connection

The definition of a fast internet connection differs. One of the reasons is the wide range of definitions for broadband, which is usually considered to be a must for a high speed internet connection. Generally speaking broadband is a collection of technologies that allow the user access to the internet at a high data rate access. The data rate access is the capacity, or speed, by which data can be downloaded and uploaded via an internet connection. The capacity used

to be measured in kilobits per second (kbit/s) and, with the development of faster technologies, in megabits per second (mbits/s)¹.

In 2006 OECD defined broadband access as internet connections with a download speed of at least 256 kbit/s (OECD, 2006). The Swedish Post and Telecom Agency currently defines broadband as an access technology with a download rate of at least 1 mbit/s (PTS, 2016a). In the beginning of February in 2015 the American press reported that the American Federal Communications Commission (FCC) were considering to raise the definition of broadband access to a download speed of 25 mbits/s from the previous 4 mbits/s (Singelton, 2015).

The disparity in definition of high speed internet access and the fast development of new technologies proves a bit of a problem. This essay focuses on the impact of a high speed internet access, and so I have made some assumptions and limitations about what I will be considered a high speed internet connection in this essay.

I will look at the access to a fiber connection. Fiber is short for fiberoptic, and is one of the aforementioned access technologies that fit under the description of broadband. I will not go into detail about how a fiber connection works. It is generally considered more reliable than traditional copper-wire technology, and it has a higher theoretical data rate access than other access technologies. In 2014 the most commonly available fiber subscription from suppliers in Sweden had a mean data rate access speed of 82 mbits/s. This can be considered a fast internet connection, but it is not uncommon for a fiber connection to reach speeds of 1000mb/s (PTS, 2014, pg.23).

2.2 Internet Setting in Sweden

Sweden has had, and still has, a well working internet infrastructure. But there is room for improvement. Policy makers set a goal in 2009 that Sweden should have top of the line broadband capabilities, and that all households and companies should have good possibilities to use social services via broadband. This was decided in accord with a proposition that passed in parliament in 2009 (Näringsdepartementet, 2009). The proposition also states that electronic communications should be effective, secure and robust. The policy makers also say that the communication infrastructure should be provided by a well-functioning market, but that the state should be responsible when the needs cannot be fulfilled by the market.

¹ 1 megabit = 125 kilobits.

According to my data the goals set by the policy makers seems to be achievable. Table 2.1.1 shows that the access to internet has been at almost 100 percent since 2010, the year after the goals were set. The fiber coverage rate is not as high but has still seen a significant rise in the last 5 years, with an increased coverage rate of nearly 28 percentage units.

Table 2.1.1

Internet access in Sweden, percentage of population				
Year	Wired Access	Wireless Access	Wired or Wireless	Fiber
2010	98,43	99,98	99,98	33,04
2011	98,52	99,98	99,99	39,59
2012	98,63	99,99	99,99	44,03
2013	98,73	99,99	99,99	49,3
2014	99	99,99	100	54,21
2015	98,98	100	100	60,81

(Source: PTS 2016)

Between the years 2001 and 2007 the Swedish government spent around five billion Swedish kronor (SEK) in subsidies to municipalities for broadband development. A big part of these subsidies were used to incorporate internet fiber-connections into the municipal infrastructure (PTS, 2007). The subsidies today are not as large as the initial investments, but the government is still investing in the development of rural broadband. As of the 1: st of July in 2016 the government set aside 3, 25 billion SEK (approx. 395, 2 million USD) within its rural development program earmarked to further broaden the expansion of broadband access in rural areas. This is a part of the efforts to reach a goal that 90 percent of the population should have access to an internet connection with a data access rate of at least 100 mbits/s by the year 2020 (PTS, 2016b).

2.3 Impact of internet

The commitment from the Swedish government to the expansion of the high speed internet infrastructure suggests that it should generate positive effects. The Swedish government is not alone in this belief, policy makers across the globe is committing to the expansion of the digital infrastructure. This commitment is usually rooted in claims that a high speed internet connection has beneficial effects on education and growth. The United States government, under the Obama administration, has commented on the effect a well-developed high speed internet infrastructure can have on education, and a need for said infrastructure to be able to fully utilize the educational gains the internet provides (The White House, 2013).

The European Union (EU) also seems to see the benefits of a well-functioning internet infrastructure, and has created guidelines and strategies to help policy makers design a policy network that makes full use of digital growth (Sörvik & Kleibrink, 2014).

The policy makers seems to be concurrent in the belief that high speed internet has positive effects on some areas of society, and that there is some sort of social gain from investing in it. The expansion of the internet infrastructure has led to an increase in communication channels and the availability of information. In literature about mass media, it is often argued that additional information channels affects voting behaviour (e.g. Strömberg 2004). But whereas the literature largely agrees that there is an effect, the nature of the effect is not as clear. While the effects in the aforementioned areas of society are often regarded as positive, the effect on voting behaviour are often seen as negative.

While it intuitively might seem like the increase in communication channels should have positive effects on voting behaviour due to an increase in political information and political interconnectivity, the expansion of the internet has also led to an influx of new ways to spend our leisure time. These new ways can crowd out the more “practical” uses of the internet. Economist Matthew Gentzkow looked at a case similar to the one in this essay, he looked at how the introduction of commercial broadcasting via television in America affected voter turnout (Gentzkow, 2006). He found that while the television did provide a new channel for political information, the introduction of commercial broadcasting actually had a negative impact on voter turnout. Gentzkow attributes this to just such a crowding out effect where the increase in leisure activities the television provides causes the interest in political engagements to decline.

2.4 High Speed Internet as an externality

The political effects of the internet might not be directly associated to the main purpose of the internet, and the effects this essay aims to analyse is not generally considered as a part of the beneficial or disadvantageous effects. Due to this, the effects can be considered as a sort of an externality.

An externality can traditionally be defined as “*a cost or benefit that occurs when the activity of one entity directly affects the welfare of another in a way that is outside the market mechanism*” (Rosen & Gayer, 2014, pg. 73). If there is an effect on voting behaviour, the political parties stand to benefit or lose. Since internet is provided by private suppliers and

subsidies are paid with taxpayers' money, the main cost of internet in Sweden is paid by private consumers. By the above given definition this would mean that the effects of an internet connection on voting behaviour can be considered an externality.

The concept of externalities is often used in the interaction between firms and individuals. A common example is that of pollution, for example how factory emissions affect the environment. The case in this essay is a bit more complex. Since the benefactors or losers due to this externality are the political parties, the way to handle the externality becomes more complicated.

When confronted with externalities markets cannot always obtain an efficient outcome or quantity. If that is the case there are a few options available to reach a more publically optimal solution. The government is often the intermediary that via taxes or subsidies can intervene to try and reach a more preferable outcome (Rosen & Gayer, 2014).

In this case the benefactors or losers in the case of an externality are the political parties, and by extension the government, that usually are the ones to intervene. This can cause a problem depending on the effect and political self-interest. If there are differing effects the political parties will have different incentives to expand or decrease the internet coverage.

3.0 Data

I have constructed a panel data set covering the last 2 general elections in Sweden in 2009 and 2014. This is made on a municipal level. The selection to conduct the study on an aggregated municipal level is mostly due to the low availability of data on an individual level. The data on the municipal level in Sweden is well documented and detailed thus providing a solid base for the study.

3.1 Election Data

The data on voter participation and party specific vote percentages is collected from the Swedish Election authority (Valmyndigheten), which is the Swedish governmental institution that regulates and administrates all general elections in Sweden. The data is based on the actual election outcome in all 290 Swedish municipalities, found in official rappers released after each election.

In the result table (table 5.0.1) the nine biggest parties by percentage of votes represented in the last two general elections (in 2010 and 2014) are individually presented, with the remaining parties aggregated under the post of “Other”. According to the general election outcome in the 290 municipalities, as presented in table 3.1.1 below, the two biggest parties in Sweden were Socialdemokraterna (S) and Moderaterna (M) in both elections. While Socialdemokraterna has had a similar result in both elections, Moderaterna saw a significant decrease in the 2014 election. Sweden has a four percentage threshold to get into parliament, so the feminist party (Fi) while being among the nine biggest parties did not have sufficient votes to be elected in either election.

Table 3.1.1

Election outcome percentage of votes by party										
Year	M	C	FP	KD	S	V	MP	SD	Fi	Other
2010	30,06 (27,04)	6,56 (7,99)	7,06 (5,94)	5,6 (5,66)	30,66 (35)	5,6 (5,38)	7,34 (5,47)	5,7 (6,34)	*	1,43 (0,93)
2014	23,33 (20,3)	6,11 (7,61)	5,42 (4,16)	4,57 (4,57)	31,01 (35,03)	5,72 (5,22)	6,89 (4,95)	12,86 (15,34)	3,12 (1,94)	0,97 (0,87)

Actual election outcome in the last two elections, mean percentage of votes in all 290 municipalities within parentheses.

* : Fi did not get enough votes to be calculated in 2010 and is aggregated into the post Other.

In the Swedish political system the majority of the parties are affiliated in coalitions or blocks. These can be loosely divided by the classical political dichotomy of left- and right wing. The classical Swedish coalitions are “Alliansen” and the “Red greens”. Alliansen consists of the right block parties: Kristdemokraterna (KD), Folkpartiet (FP), Moderaterna (M) and Centerpartiet (C). The Red green coalition consist of the parties that are considered left block: Miljöpartiet (MP), Socialdemokraterna (S) and Vänsterpartiet (V). Vänsterpartiet was only in the coalition for the election in 2010 and was not part of the cooperation in 2014. In the results they are still calculated in the left block. This is because of the coalition in 2010 and the similarities in political ideologies. There are also parties that are not affiliated with any of the 2 big coalitions or blocks.

Using table 3.1.2 we can see that the right block had more votes in the 2010 election, and became the ruling coalition. In the 2014 election the left block only had a majority of the votes if Vänsterpartiet is considered part of the coalition. It was the left block parties that were offered the role as ruling coalition in the 2014 election.

Table 3.1.2

Election Outcome percentage of votes by block			
Year	Right Block	Left Block	No Block
2010	49,28	43,6	7,13
2014	39,43	43,62 (37,9)*	16,95 (22,67)*

* outcome if Vänsterpartiet is considered a no block party

The no block parties can be allocated on the same left- to right wing political scale as the other parties. Sverigedemokraterna (SD) can be considered significantly right wing, and Feministiskt initiativ (FI) is generally considered left wing. While there is usually a high rate of cooperation within the classical coalitions the same is not true for the no block group.

Due to the presence of block politics in Sweden the effects for the right block, the left block and no block groups are also analysed in the results. I do this by aggregating the votes for each individual parties in each block and conducting the same regressions as the individual parties (see section 4).

3.2 Internet Data

The data internet data concerns the percentage of the population in the municipality that has access to an internet connection thru a fiber optic access technology (see section 2.3). The data is gathered from the Swedish Post- and Telecom Agency (Post- och Telestyrelsen - PTS). PTS is a governmental institution tasked with supervision of post and telecom related matters in Sweden by the government. The Swedish government is often considered clean and free of corruption (Transparency International, 2015). The corrupt free nature of the Swedish government, and PTS by extension, means that the data from PTS can be considered reliable.

The data on general broadband coverage dates back to 2002, but the coverage rate have been at a similar level for a long time (see table 2.1.1). Most municipalities has had a coverage rate of between 90-100% since 2007 with very little change. This is one of the reasons I have chosen to look at fiber connection. This data only dates back to 2007, but has a bigger disparity and makes for a more interesting analysis. Unfortunately the data on a municipal level is not complete for 2007 which would lead to an unbalanced panel (Dougherty, 2011, pg. 515). Thus I am constricted by the availability of data to the last 2 general elections in 2010 and 2014.

3.3 Other Data

Population and income data is gathered from Statistics Sweden (SCB). Statistics Sweden is a private operator, with strong ties to the Swedish government, and the government frequently uses SCB as its source for statistical needs. This close cooperation and oversight by the government gives SCB credibility and the data can be considered reliable.

The population count is the number of permanent residents in the municipality at the 31: st of December at the specified year. The data is gathered by SCB thru a close cooperation with the Swedish tax office, which sends information from its administrative national registration records to SCB five times a week (SCB, 2016b)

The income data is the total income from employment and business per year for people over 20 years of age in thousands of Swedish kronor. Like the population data the dataset SCB has compiled consists of raw data from the tax office, but also information from the official institutions for social insurance, student aid and pensions, as well as the national defence force, the national board of health and welfare and the national board of education (SCB, 2016c).

3.4 Variables

Below the all the variables explained in section 3.1 – 3.3 and that are used in the regressions are briefly summarized in table 3.4.1

Table 3.4.1.

Variable	Abbreviation	Description	Source
Voterparticipation	VP	Percentage unit of eligible population that voted in the general election	Swedish election authority
Fiber connection	Fiber	Percentage unit of population with access to a fiber connection	PTS
Income	Inc	Mean income in the municipality, in thousand kronor	SCB
Party votes	X_proc	Percentage unit of votes for party X in the general election	Swedish election authority
Population	Pop	Number of residents in the municipality	SCB
Block votes	X_block	Percentage unit of votes for block X in the general election	Swedish election authority

4.0 Statistical Specifications

Using the panel data I make two types of OLS regression. These are a simple regression and a multiple regression. These two regressions are then further expanded to include fixed effects to look at individual- (municipal) and time specific effects.

4.1 Simple Regression

The first regression is the simplest of the OLS-regressions I will make in this essay. This model is based on the following general estimated equation.

$$\text{Dependant Variable} = \beta_0 + \beta_1 \text{Fiber} + u$$

Where the dependant variables are the voter participation (*VP*), party votes (*X_proc*) and block votes (*X_block*). The explanatory variable is access to a fiber connection. The effects the high speed internet coverage has on voting behaviour is described by the parameter β_1 in the equation. It is this parameter that is the most interesting in our regressions, since it indicates the size of the effect. Since this is a statistical estimation the relationship between the dependant variable and explanatory variable will probably not be exact. Because of this a random factor, or a disturbance term is included. This is denoted by the u in the equation. In these equations β_0 is the constant or intercept in the model.

4.2 Multiple Regression

In the multiple regression model I expand the equation from the simple regression to include two control variables. These two variables are population and income. By adding these variables to the estimated equation, I hope to get a more accurate estimation. Even thou the multiple regression model should give a more accurate result than the simple regression, there is still a disturbance term. In the multiple regression the equations looks as follows.

$$VP = \beta_0 + \beta_1 \text{Fiber} + \beta_2 \text{Pop} + \beta_3 \text{Inc} + u$$

$$X_Block = \beta_0 + \beta_1 \text{Fiber} + \beta_2 \text{Pop} + \beta_3 \text{Inc} + u$$

$$X_proc = \beta_0 + \beta_1 \text{Fiber} + \beta_2 \text{Pop} + \beta_3 \text{Inc} + u$$

Just like in the simple regression the explanatory side of the multiple regression is the same regardless of the dependant variable. This symmetry holds for all the estimated equations.

4.3 Fixed Effects Regression

I make one other change to the regressions, and that is to adjust for individual- and time specific effects. This is the effects of differing municipalities and differing election year. This is done by using a fixed effects regression. This can be done by adding two additional variables into our already existing estimated equation. The variable α_i is added for the individual- or the municipal effect, and the variable γ_t is added for the time specific effect. Using the estimated equation for the voter participation we end up with the following equation for the simple regression:

$$VP_{it} = \alpha_i + \gamma_t + \beta_1 Fiber_{it} + u_{it}$$

The similar equation for the multiple fixed effects regression look like this:

$$VP_{it} = \alpha_i + \gamma_t + \beta_1 Fiber_{it} + \beta_2 Pop_{it} + \beta_3 Inc_{it} + u_{it}$$

Due to the symmetry in the estimated equations, the equations for party votes and block votes are the same as the equation for voter participation.

5.0 Results

Below the results of the regressions are presented in table 5.0.1. The table is divided by dependant variable and by the different regressions. The results are denoted in percentage units, and is the effect of 1 extra percentage unit of high speed internet coverage rate. The statistical significance of the results is marked by asterisks behind the values, and results with a test value that are not significant at 10 percent or lower is depicted without asterisks. It is only the results that have significance that are of interest to us, since the results without a sufficient significance does not hold any explanatory power. The value within parentheses under the main value is the standard error.

Table 5.0.1

Fiber				
Dependant variable	OLS W_0	OLS W_C	FE W_0	FE W_C
Voterparticipation	0,018377 * (-0,005223)	0,005196 (0,005686)	-0,022143 (0,017409)	-0,007698 (0,016327)
Votes (%): Right block:	-0,10693 * (0,022128)	-0,251944 * (0,021319)	-0,000353 (0,012208)	-0,000893 (0,012403)
M	-0,04391 * (0,016468)	-0,167928 * (0,014802)	0,003893 (0,009936)	0,003975 (0,010081)
C	0,054457 * (0,006103)	-0,036808 * (0,006803)	-0,040492 (0,004283)	-0,004279 (0,004348)
FP (L)	0,006087 (0,004116)	0,007998 (0,003189)	-0,021679 * (0,004012)	0,006088 *** (0,003149)
KD	-0,014651 * (0,005272)	-0,007324 ** (0,003422)	-0,025529 * (0,005922)	-0,006677 *** (0,003437)
Left block:	0,055358 * (0,020126)	0,192667 * (0,018326)	0,028575 ** (0,012254)	0,017757 (0,011698)
S	0,000139 (0,018567)	0,010798 (-0,010301)	0,145842 * (0,016165)	0,004655 (0,01086)
V	0,027475 * (0,004416)	0,010585 * (0,003547)	0,043200 * (0,004694)	0,008868 (0,003544)
MP	0,027744 * (0,003545)	0,007192 ** (0,003261)	0,003625 (0,003461)	0,004234 (0,003005)
No Block:	0,051555 * (0,012371)	0,056265 * (0,014018)	-0,028214 * (0,010496)	-0,016862 *** (0,009613)
SD	0,024867 ** (0,011349)	-0,034639 * (0,011528)	0,040545 * (0,012789)	-0,017843 *** (0,009919)
FI	0,026412 * (0,00178)	0,006127 *** (0,003637)	0,018955 * (0,001926)	0,000455 (0,002829)
Other	0,000276 (0,000704)	0,000298 (0,001919)	-0,000235 (0,000795)	0,000526 (0,001947)
Fixed effects	X	X	V	V
Controls	X	V	X	V

*: Significant at 1 percent level

**: Significant at 5 percent level

***: Significant at 10 percent level

Standard error within paranteses

OLS W_0 : Regular OLS regression without controlsOLS W_C : Regular OLS regression with controlFE W_0 : Fixed effects regression without controlsFE W_C : Fixed effects regression with controls

5.1 General Results

By the large amount of significant results in the regressions, it seems that there is an externality affecting the political parties caused by high speed internet. By studying table 5.0.1 there are a few general results that are easily spotted. The first is that the effects of a high speed internet connection is greatly differing. The largest statistically significant effect, regardless of the direction of the effect, is around - 0, 25 percentage units per 1 percent of fiber coverage, and the smallest is around 0,006. For the largest effect that would mean that a 100 percent coverage rate would result in a decrease of roughly 25 percentage units of votes. This seems a bit too large if compared to the other results and I will discuss this later, but some of the difference can be explained by the fact that some effects are for individual parties while others are aggregated by blocks.

Another thing visible in the table is that the number of results that are statistically significant is lower for the more complex regressions. This is to be expected, since the more complex regressions include more variables, and should be more accurate. In the regular OLS regression without any controls (the leftmost column in table 5.0.1) almost all results are significant at either a 1 or 5 percent level. While only 4 out of 14 results in the fixed effects regression with controls (rightmost column in table 5.0.1) have any significance, and then only at the 10 percent level.

5.2 Narrowness of the Standard Error

Before I go any further into the results of my regressions, I will take a short moment to comment on the standard errors of the regression coefficients. The standard error gives an inclination of the narrowness or width of the probability density function. Constant low values on the standard errors indicates a narrow function and a higher probability for a more accurate result. Bear in mind that the standard error does not tell if the estimations come from the middle or the tails of the probability density function, thus it only gives a general idea of the accuracy of the regressions (Dougherty, 2011, pg.132).

The results presented all have a seemingly low standard deviation. This would indicate that the accuracy of the regression should be relatively high. While the standard errors are in the hundredths or thousands of a percent, it is on results that are themselves between tenths or hundredths of a percent, meaning that the standard error could actually be bigger than it

initially seems in relation to the actual results. Despite this the low standard errors and good significances indicates estimations close to a true value.

5.3 Effects on Voter Participation

One of the dependant variables I set out to analyse was the voter participation and how it is affected by access to high speed internet. Only one of the regressions for the effects on voter participation is significant. That is for the simple regression without any controls, and it is significant at a 1 percent level. While the significant effect is positive, it is small. With an effect of an increase of only 0,018377 percentage units higher voter participation per 1 percent of fiber coverage, in the least robust of the regressions. Due to this result I will focus on the effects on individual parties and blocks.

5.4 Effects on Parties and Blocks

The results for individual parties are interesting. One thing that is noticeable is that the effect of the fiber coverage rate seems to affect larger parties to a higher degree than the smaller ones. The actual cause of this is hard to discern in this study. It is the two biggest parties in both coalitions that are affected the most. One possible explanation to this is that these parties that are often the forerunners of the coalitions. It is possible that this extra attention, in an information and opinionated communication channel, can explain the larger effect high speed internet access seems to have on bigger parties.

Another visible effect is the differing effect high speed internet coverage has on parties in the different blocks. For the parties in the left block the significant results are primarily positive. That is to say that an increase in the fiber coverage rate leads to an increase in their percentage of votes. The opposite is true for the parties in the right block. There the increase in fiber coverage leads to a decrease in votes. This still holds for the aggregated results, and the right block shows statistically significant negative results and the left block shows positive results.

While the results between the classic coalitions are very differing, the effects on the no block parties are not as conclusive. Let us disregard the post “*other*”, since none of these results hold any significance, and the parties aggregated under the post are often too small be competitive on the political arena.

The two other parties in the no block group are more interesting. Feministiskt Initiativ (FI) and Sverigedemokraterna (SD), are both parties that are often the centre of attention in political discussions. FI with a strong feminist agenda, and SD that are most often in focus for their stance on immigration politics. For these parties who often aims to raise awareness and start political discussions, the internet can be a useful tool. These parties are often active on social media and the online debates often run hot. The internet provides a big anonymous ² arena for these type of political discursions and thusly there should be a visible effect in this study.

As explained in section 3.1.1. the two big parties in the no block group can be allocated on a left- to right wing political scale. With SD on the far right on the scale, and FI being on the left hand side. The effect on the right block was primarily negative, and the left block had a primarily positive effect. If the difference in the direction of the effect is due to left- and right wing politics the two no block parties should present effects similar to that of the closest situated block or parties on the political scale. This is not the case.

FI does show similar results to that of the left block, but the results for SD are different. Depending on which regression we choose to look at, the direction of the effect differs. The regressions without control shows a positive effect and the regressions with controls shows a negative effect. For there to be an effect due to left- and right-wing policies, SD that is positioned on the far right on the scale should suffer from a negative externality.

As the direction of the results for SD are going in different directions it is hard to draw any definitive conclusion on the actual effect. That left- and right-wing policies affect voting behaviour is very probable, but it seems that the effect that high speed internet provides is not very dependent on this factor.

So why do I find this relatively large effect on some parties. I believe this is the effect of already existing political trends, and this proves a bit of a problem for this essay.

There was a shift in power between the coalitions in Sweden between the last two elections. That this change is largely due to the effect of high speed internet coverage is improbable. Most likely it is an effect of multiple variables, not necessarily included in this analysis. The

² The internet provides an environment where it is possible to maintain a high degree of anonymity, which can encourage and make it easier for supporters of these often criticised parties to connect. I will not go into this further in this essay, but this anonymity can help explain some of the reasons behind the positive effects both no block parties show.

change in party sympathies over time are probably visible in the effects since the data only covers the last 2 general elections, and its presence might have skewed the results of the regressions.

To show this over-time effect let us have a look at table 5.4.1. below. This table shows the change in percentage of votes between the elections in 2010 and 2014 for each party as well as the direction of the estimated result of the regressions. With a few exceptions the direction of the change in votes is consistent with the direction of the regression results. There seems to be a strong influence of an over-time effect caused by underlying change in political sympathies affecting the results of the regressions.

Table 5.4.1

Change in election results 2010 - 2014										
Party	M	C	FP	KD	S	V	MP	SD	Fi	Other
ΔVotePercentage	-6,73	-0,45	-1,64	-1,03	0,35	0,12	-0,45	7,16	3,12	-0,46
Direction of significant regression results	Negative	Both	Negative	Negative	Positive	Positive	Positive	Both	Positive	n/a

This over time effect leads me to believe that the effect of high speed internet connection and the new information channels it provides works as an amplifier of already existing political trends. This theory is enforced by the fact that the parties that are the forerunners in each block seems to be affected more than the “smaller” parties. That the internet itself would have a large direct negative or positive effect on voting behaviour seems unlikely, but that it helps amplify already shifting trends and political sympathies is more probable.

It is possible that the results are presented in this analysis gives a representation of what effect high speed internet had between the last two election years, and it is probable that the result would give a better guideline on what an overall effect looks like if more election years were included. But for this to be analysed more data must be gathered.

6.0 Discussion

6.1 Externality and Political Agendas

As there is an effect, regardless if it is amplificatory or more direct in nature, it can be described as a form of an externality (see section 2.4). As mentioned before when it is

political players that are affected the externality becomes harder to handle. The classical solutions to the problem, like taxes, subsidies and internalizing the problem are not applicable to this case. For the private consumers there is also little incentive to take precautions to reach a different solution unless they stand to gain from it. This is because the private consumers bear the majority of the cost, and are not affected by the externality unless they are politically engaged.

Since there is both negative and positive effects from an increased high speed internet coverage on voting behaviour, different parties have different incentives to either diminish or expand the internet infrastructure. Parties from the right block has been negatively affected and should be incentivised to decrease the funds, while the opposite is true for parties that have seen a positive effect.

The fact remains that the broadband expansion has been subsidised for a few years, and probably will continue to be. This can mean that the effect is not as big as some of the results suggests, since all parties seems to agree that an expanded internet infrastructure is desirable.

This lends further credibility to my theory that the internet works as an amplifier of other variables on voting behaviour, and the actual effect might be smaller than the results show. It could also be the case that all the positive effects and externalities that the internet provides in other areas of society outweighs any possible negative effects.

6.2 Problems

The biggest problem in this essay is the limited size of the data set and the fact that I am limited to two general elections. The shift in political trends is visible in the results and I believe that the results would be different if the data set would include more election years. Especially if the included years included trends going not only in one direction.

Unfortunately I am restricted by the availability of high speed internet data. If the same analysis is made in a couple of years when this data is better documented, the results would most likely be much different.

Another way to improve the essay would be to conduct it on an individual level, instead of on a municipal level as I have done. This would require a tremendous amount of data gathering on a scale much higher than I have conducted in this essay. It still comes down to the same problem, a data set that is too limited.

7.0 Conclusion

The regressions shows significant results and there seems to be an effect on voting behaviour as a result from effects caused by high speed internet. The effect on voting participation is not big enough to be conclusive, but the results concerning individual effect on political parties and blocks hold more significance. The direction of the effect seems to differ depending on which political block the party belongs to but the political side of a right- to left wing scale the affected party belongs to seems to hold less significance.

The size of the party also seems to play a significant role on the size of the effect, and larger parties seem to be more affected.

Limited by the relatively small data set, and short timeframe for the gathered data there is a possibility for there to be an over-time effect affecting the results in the regressions. This means that there is a small problem with a final conclusion on the nature of the effect without further broadening the dataset.

I find evidence of an effect, but due to the possible problems with the regressions I draw the conclusion that any direct effect on voting behaviour is small. I find it more likely that access to high speed internet has an amplificatory effect on already existing political trends.

References

Dougherty, Christopher. 2011, "*Introduction to Econometrics*". 4th Edition. Oxford University Press Inc, New York.

Gentzkow, Matthew. 2006, "*Television and Voter Turnout*". Quarterly Journal of Economics. Available online: <http://qje.oxfordjournals.org/content/121/3/931.abstract> . Accessed: 2016-05-22.

Näringsdepartementet. 2009. "*Mål för IT-politik*". Available online: <http://www.regeringen.se/regeringens-politik/it-politik/mal-for-it-politik/> . Accessed: 2016-07-14.

OECD. 2006. "*OECD Broadband Statistics to December 2006*". Available online: <http://www.oecd.org/internet/broadband/oecdbroadbandstatisticstodecember2006.htm> . Accessed: 2016-05-16.

PTS. 2014. "*PTS bredbandskartläggning 2014*". Available online: http://statistik.pts.se/bredband/pdf/bredbandskartl%C3%A4ggning_2014.pdf Accessed: 2016-05-10.

PTS. 2016a. "*Definitioner*". Available online: <http://bredbandskartan.pts.se/Om-bredbandskartan/Definitioner/> . Accessed: 2016-05-10.

PTS. 2016b. "*Bredbandsutbyggnad*". Available online: <http://www.pts.se/bredbandsutbyggnad> . Accessed: 2016-05-11.

Singelton, Micah. 2015. "The FCC has changed the definition of broadband". The Verge. Available online: <http://www.theverge.com/2015/1/29/7932653/fcc-changed-definition-broadband-25mbps> . Accessed: 2016-05-30.

Rosen, Harvey S & Gayer, Ted. 2014 "Public Finance". 10th Edition. McGraw-Hill Education. Berkshire.

SCB - Statistics Sweden. 2016a. Available online.

http://www.statistikdatabasen.scb.se/pxweb/sv/ssd/START_ME_ME0105_ME0105C/ME0105T01/?rxid=d1781e77-49ed-497a-ad53-21a715cf335d . Accessed: 2016-06-13

SCB - Statistics Sweden. 2016b. "Statistikens framtagning 2016". Available online: <http://www.scb.se/BE0101/?tab=dokumentation#>. Accessed: 2016-06-13

SCB – Statistics Sweden. 2016c. "Inkomster och skatter 2014". Available online: http://www.scb.se/sv/_Hitta-statistik/Statistik-efter-amne/Hushallens-ekonomi/Inkomster-och-inkomstfordelning/Inkomster-och-skatter/Produktrelaterat-standard/Dokumentationer/Inkomster-och-skatter/2014/. Accessed: 2016-06-13

Strömberg, David. 2004. "Mass Media Competition, Political Competition, and Public Policy". Review of Economic Studies. Available online: <http://restud.oxfordjournals.org/content/71/1/265.short> Accessed 2016-05-21.

Jens Sörvik and Alexander Kleibrink. 2014. "The Digital Agenda Toolbox". JRC-IPTS Working Essays, JRC88896, Institute for Prospective and Technological Studies, Joint Research Centre.

The White House. Four Years of Broadband Growth. Technical report, Office of Science and Technology Policy and the National Economic Council, June 2013.

Transparency International. 2015. "*Corruptions Perceptions index 2015*". Available online: <http://www.transparency.org/cpi2015> .Accessed: 2016-06-13

World Bank. 2016. "*Internet users (per 100 people)*". Available online: <http://data.worldbank.org/indicator/IT.NET.USER.P2> . Accessed: 2016-08-14