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Who Listens to a Stock Index?

(A Study on Class Biased Economic Voting)

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Abstract

Previous findings on the subject of Class Biased Economic Voting (CBEV) suggests that voters who are not among the wealthiest elite respond positively, in terms of probability of voting for the incumbent party or president, to income growth among the wealthiest 5% of households, and more so than to mean income growth. The aim of this paper is to explore if this type of bias voting is due to voters paying attention to macroeconomic variables that are correlated with economic fortunes of the wealthiest elites. It sets out to answer two questions: 1. Does stock index performance during election year effect CBEV? 2. Does stock index performance increase the probability of voting for the incumbent party or president? The study employs an individual level cross-sectional probit model using two measurements of income-growth alongside figures of stock index performance. Results indicate that stock index has an impact on probability of voting for the incumbent party/ president in France and Sweden but not in the United Kingdom (U.K.) Whether or not the stock index causes CBEV is difficult to infer, mainly due to the U.K's responses to the stock market are statistically insignificant, as well insignificant results from the French electorate to income-growth.

Key words: Class Biased Economic voting, Economic Voting, Stock Market Participation.

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1. Introduction

Do democratic elections contribute to more equal economic outcomes? This question was asked by Hicks et. al. (2016) when they sought to see if voters were prepared to defend their own distributional interest when voting for which party or candidate should rule over the coming years. Even though people have unequal abilities to influence the market place, they are equal in the sense that everyone in a democracy can cast the same number of votes for whomever they believe should govern. One could therefore assume that voters ought to elect governments that contribute to more equal economic outcomes. However, reports from the World Top Income Database (WTID) tell a different story.

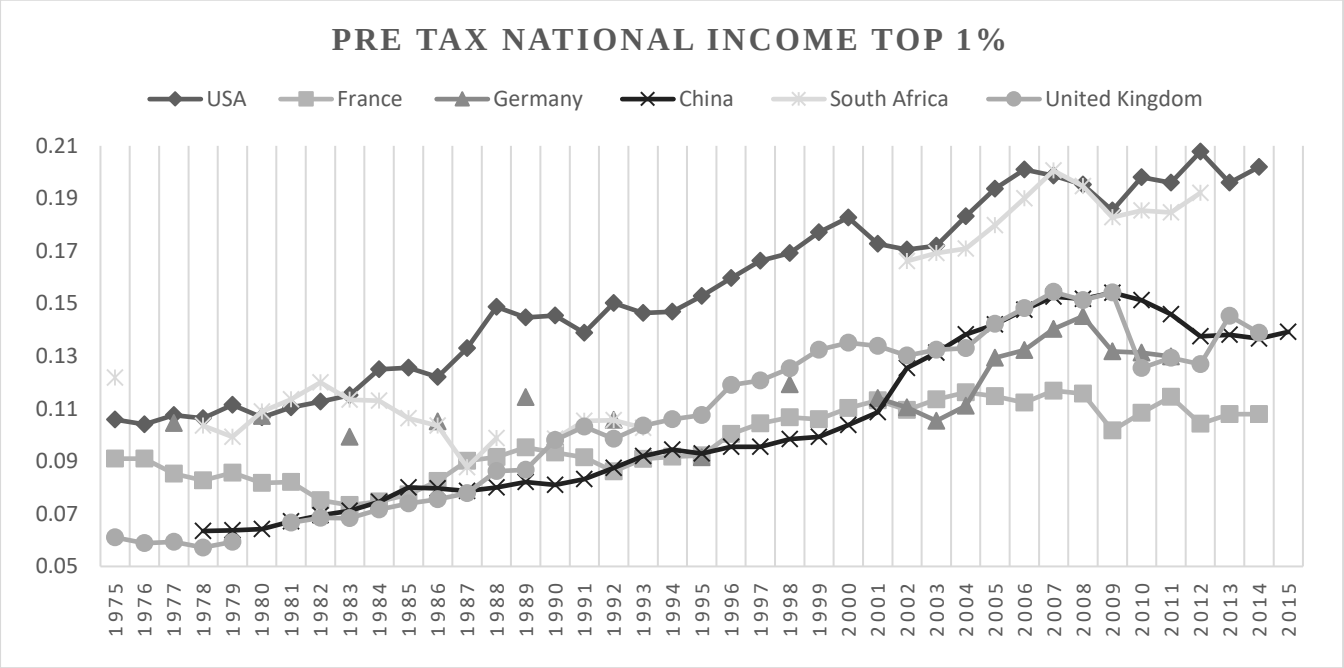

Figure 1. Income share of wealthiest 1 % between years 1975 – 2015 (income share shown in decimals) (Source; WTID, 2017)

What we can see from the above figure is that from 1975 until 2015, the national income share of the wealthiest one percent in the United States, France, Germany, China, South Africa and the United Kingdom, has steadily increased at the expense of the remaining 99 percent. This means that voters in these countries have done the opposite of what we might expect, namely elected governments that have done a poor job of evening income shares. The trend is not unique for these countries, and has been observed in most advanced democracies over the past three decades (Hicks et.al. 2016). Also, as pointed out by Piketty and Saez (2013), most of the rise in inequality is a result of increasing income shares at the very top of the distribution. This leads to the problem of interest for this study: whose income growth is it that matters the most

for voters? Bartels (2008) asked the same questions when looking at elections in the U.S, and contrary to what one might expect, U.S. voters seem to respond strongly and positively to income growth at the top of the income distribution (more so than to mean income growth). This is an interesting paradox, which Bartels calls Class Biased Economic Voting[1], and one that has not been predicted by previous literature.

The literature on economic voting is large and has been subject of study for many researchers. From early stages one of the most robust relationships that was (consistently) found was the positive correlation between an area's economic performance and the performance of the incumbent party or president[2] (see for example Kramer 1971; Kinder and Kiewiet 1981). Although these findings were theoretically sound, Bartels' findings showed proof of the exact opposite, and thus inspired researchers to look at the micro foundations of how individuals potentially interpret the state of the economy. In more recent years, focus has been to see how and if rising income inequalities effects vote choice where the theoretical emphasis is put towards how different groups might perceive aggregate economic indicators[3]. Acknowledging Bartels' findings, Hopkins (2012) aggregates the U.S economy among low, middle and high-income earners to see if these groups differ in their assessment of the economy. Even though the wealthiest Americans have seen a much faster income growth than the rest, all groups have similar views of the national state of the economy and their assessments have varied around the same mean for decades[4]. Hopkin's results further show that low income earners did not seem to care about the fact that income gains have been centred at the very top. In light of these findings it may seem tempting to explain Bartels' finding by the fact that American voters seem indifferent towards income growth unproportionately favouring the wealthiest elite. It is not that simple however.

Firstly, Hopkins analysis measures people's assessments of the state of the economy, not vote choice, to which he at the end of his article states that these need not be correlated. Secondly, depending on how we aggregate the population, i.e. divide them not only by income but also by employment status or location, we may find different results. This is shown by Ansolabehere et.al. (2014) who hypothesize that people are influenced by so called *mecro*[5]-economies. These

[1] Throughout the paper I will refer to Class Biased Economic Voting as CBEV.
[2] Put simply this means that people tend to approve of the incumbent party or president when the economy is in a good state.
[3] This stems from theory of sociotropic perception/ voting and will be covered further down.
[4] Contrary to Bartels findings that income measure seemed to matter most for individuals' *assessment* of the national economy, income growth at the 20:th percentile, not the 95:th
[5] Mecro is a combination between micro and macro economy.

are members of groups (consisting of gender, age, location etc.) that are expected to be similarly affected by economic shocks and, as voters, they are expected to tick their ballots homogenously. Their analysis shows that people who are members of groups who are more likely to be unemployed report higher levels of national unemployment rates than people who are not. Also, people from states with a higher unemployment rate show worse retrospective evaluation of the economy on the aggregate. The point they make is that any model on economic voting that does not account for individuals' mecro-economic conditions is necessarily incomplete.

As earlier introduced, Bartels (2008) discovered Class Biased Economic Voting (CBEV) while observing voters in the U.S. His findings suggest that voters who are not at the top of the income distribution respond positively and strongly to income growth at the very top of the distribution, a finding that departs in every way from earlier studies on economic voting. While Bartels' research only covers U.S. elections, Hicks et.al. (2016) analyse other major economies in cohesion with Bartels' method, and find that CBEV occurs in many European economies as well. At the end of their paper, Hicks et.al state that an important avenue for further research is to identify mechanisms that give rise to CBEV. They specifically note that fundamental limits to voter cognition might make oversimplified views of the economy appealing, but at the same time offer no knowledge of distributional effects.

Departing from Hicks et al, the aim of this paper is to explore if CBEV is due to voters paying attention to macroeconomic variables which are correlated with economic fortunes of the wealthiest elites. The macroeconomic variable I have chosen is stock indexes since it is a frequently reported macroeconomic variable whose benefits are most likely to favour the wealthiest. The paper builds upon previous literature on CBEV by Hicks et.al. (2016), and also utilizes theory of Ansolabehere et.al. (2014) of mecro economies (people of different income and education). It sets out to answer two questions: 1. Does stock index performance during election year effect CBEV? 2. Does stock index performance increase the probability of voting for the incumbent party or president?

To answer these questions, I employ an individual level cross-sectional probit model where I include measures of household mean income growth as well as income growth of the wealthiest 5 % and 10 %. Doing so will tell us which variable of economic growth matters for different

types of voters[6]. I will then include figures of countries' stock indexes to see if it has any effect on CBEV. The countries analysed are France, Sweden and the United Kingdom. The model I have chosen is inspired from the works of Hicks et. al. (2016) since their purpose was to look at CBEV outside of the U.S.

Results indicate that stock index has an impact on probability of voting for the incumbent party/ president in France and Sweden but not in the U.K. This holds true even after we aggregate individuals after education level rather than income. When the stock index is added to the model, Sweden and the U.K show evidence for the whole electorate and among middle and high-income voters of indifference to economic gains going to the wealthiest (inequality). France shows weak evidence of demand for this sort of inequality. Signs of stock indexes acting as a potential source of CBEV are hinted, but it is difficult to state causality. The main reason for this is that the U.K's responses to the stock market are statistically insignificant, as well insignificant results from the French electorate to income-growth.

The remainder of the paper is laid out as follows. Section 2 reviews previous literature and theories on economic voting, and gives a closer look at the works of Hicks et.al. (2016) where we go into how CBEV is defined. We will also consider variables that determine stock market participation. Section 3 describes the countries to be analysed while section 4 outlines the method of how they are to be analysed. Section 5 describes the data and variable predictions. Section 6 presents the results and section 7 concludes the paper.

2. Literature review and Theory

Earlier studies of economic impacts on vote choice, as explained by Conover et.al. (1986), assumed the general population to be "pocket-book" voters, meaning that the party or candidate people voted for was the one that best reflected their economic interests. Researchers, however, struggled to find empirical evidence of this theory on the aggregate level, and instead started pointing to the fact that economic conditions impact on voting choice might better be explained by sociotropic voting (Kinder and Kiewiet 1979, 1981). Sociotropic voting sought to explain voting choice as a result of individuals voting after the state of the national economy which, contrary to pocket – book voting, can be argued to have a less egocentric motivation. This theory later found good support by the work of Lau and Sears (1981), among others, who

[6] Before the findings of Bartels (2008) theory would suggest that low and middle-income voters have a greater possibility of voting for the incumbent president or party when they see growth in mean income, and the opposite if income disproportionately benefits the wealthiest. But, as has been told, this is not the case.

showed that voters' political evaluations (their belief of how well the economy is doing) is based on simple retrospective judgements of the national economy.

As the research in retrospective voting gained popularity, Conover et.al. argued in their paper that even though researchers made good efforts in showing that vote choice indeed was influenced by retrospective judgements, more attention had to be given to sources of variation in perception of the economy. The reason for this was twofold: firstly, people's understanding of and ability to assess the (state of the) economy varies greatly. This will influence their retrospective judgment in different ways. Secondly, there may be serious biases in how information is used depending on peoples' background and knowledge. Using panel data, Conover et.al. analysed the above concerns on peoples' retrospective evaluation on two economic factors, inflation and unemployment. Their findings suggest, firstly, that retrospective evaluation was influenced by personal economic circumstances and knowledge about national economic conditions. Secondly, that people react more quickly to knowledge of unemployment than of inflation.

Previous research shows us that people evaluate the economy retrospectively and that the information used varies between individuals depending on their background. But if the sociotropic theory holds, then why do we see rising income inequalities when, in theory, most people who are not at the top of the income distribution should vote for politicians who countervail this trend?

Research on a possible relationship between vote choice and stock market is scarce but not absent. Fauvelle – Aymar et.al. (2013) investigate the relationship between U.S presidential approval ratings and the performance of stock market index. They make a couple arguments for why the stock market should influence presidential approval ratings. Among these is the fact that market figures are one of the most frequently reported macroeconomic indicators and often interpreted by media as signs of the nation's economic health[7]. Their analysis cover elections from 1960 – 2011 and shows that presidential approval ratings are positively correlated with accelerations and decelerations of the stock market index. Even though their results are only for the American economy, since Hicks et.al showed that Bartels' findings were present in European economies, the findings of Fauvelle – Aymar might very well be found in approval ratings of European leaders. Further, stock ownership and stock-market

[7] It should be noted that the authors are referring to the American media, not international. Given the influence the U.S financial market has on the rest of the world, most modern economies follow this standard.

movement shapes policies as well as voting behaviour. This was shown by Nadeau et.al. (2010) who introduced the concept of "patrimonial economic voting". The authors point out that people who are holders of high risk assets, such as stocks, place them at a point in society where they favour political parties to the right of the political spectrum. Seeing as stock ownership has increased over past years, this view should prevail for more and more voters.

Put together, previous research suggests that voters should retrospectively interpret the stock-market when deciding what party to vote for. Although it is true that a well preforming market will deliver greater returns for the people who hold stock, the market will disproportionally increase the income share among the very wealthiest (those who hold the largest assets) (Poterba, 2000). Add to this the trends shown by Nadeau et.al. where policies to the right are increasingly favoured among the electorate which, contrary to more left sided policies, do not prioritize redistribution. A model on economic voting that analyses the stock-market could therefore possibly shed light on the global trend of class biased economic voting.

In the next section I will explain more in depth the method and results of Hicks et.al. (2016) as it is their method that has been the main inspiration in my own analysis.

2.1 Returning to Hicks et.al. (2016)

This paper adopts the method used by Hicks et.al. (2016) which in turn was inspired by Bartels (2008). Since my analysis focuses on European countries I have chosen to take inspiration from Hicks et.al. as their goal was to find evidence of CBEV outside of the U.S. Hicks et.al.'s definition of CBEV is the electorate's response to the distribution of income gains between high-income households compared to low and middle-income. The question Hicks and co-authors examine is: for a given amount of aggregate growth, how do low and middle-income respond to differing allocations of income between the rich and the rest? Their data on income is drawn from tax records of each country and has been ordered into percentiles. The two main income variables are thus mean income (for the whole population measured as household disposable income) and mean income growth of the top 5% households[8]. Households are then aggregated into approximate terciles to distinguish low, middle and high-income households.

Hicks et.al.'s analysis is divided into two parts and the one relevant for this paper is centred around a micro level cross-sectional probit model. To see if CBEV is present in their model,

[8] The richness of their data has allowed the authors to create different measures of income outside of mean income and top 5%. For controls they created, among others, bottom 40%, 20:th percentile, 50:th percentile and so on. Mean income and top 5% are however their two main variables and consequentially the ones I have included in my analysis.

they look at the coefficients of the growth variables. Their dependent variable is a dummy which is coded 1 if the individual has voted for the incumbent and 0 if they have not. A positive sign on the coefficient of growth at the top 5% indicates what they call *demand for inequality* since this suggests that growth for the richest 5% (at the expense of the remaining 95%) increases the likelihood of voting for the incumbent. This is true if the individual is not among the top 5% of the income distribution. If the opposite shows, that is if the variable for top 5% income growth shows a negative sign, it can be interpreted as *inequality aversion*. Similarly, a negative coefficient for mean income growth indicates *demand for inequality* as this would show that income growth that serves to even the income distribution does not increase the likelihood of that individual voting for the incumbent. The opposite is true if the coefficient is negative. In cases where the authors observe that both coefficients are either positive or negative their interpretation is that of *indifference to inequality.*

Their results are summarized in table 1 and are reported as shown in their paper.

Table 1. Summary of responses to rising income inequality across four countries (Results presented as in Hicks et.al (2016) table 7).

Countries	*All Voters*	*Low Income*	*Middle income*
United States	Demand	Demand	Demand
Sweden	Demand	Demand	Demand/indifference
United Kingdom	Demand	Demand/indifference	Demand
Canada	Indifference	Indifference	Indifference

As told in section 1, all countries analysed (apart from Canada) display patterns of CBEV which is shown from the demand of inequality from Low and middle-income households. Canada´s electorate may only display indifference to inequality, but it is still safe to conclude that none of the countries observed have punished governments for rising income gains among the wealthiest. This is because all four countries under the years 1952 – 2004 have had governments who have disproportionally delivered income gains for the wealthiest 5% as well as gains to the lower 95%. This means that both income groups have seen periods when income growth has worked to their advantage, on the aggregate, both low and middle-income voters are still more likely to vote for the incumbent party or president in elections years when income growth disproportionately favours the wealthiest.

Adopting the method by Hicks et.al, I am going to add data on countries' largest stock index to see if any further conclusion can be drawn on CBEV. The basis for doing this is to explore the possibility Hicks et.al. put forth at the end of their paper that voters may consider easy to interpret macroeconomic indicators (a stock index) to gain information of the state of the economy, that at the same time are more likely to increase the income of the wealthiest rather than mean income. Before I do so it is necessary to go through some theoretical basis concerning what group of people are more or less likely to participate in the stock market. To put it differently, in the absence of information on stock holding, what variables can we include in a model that likely captures individuals who hold stock?

2.2 What Determines Stock Market Participation?

Since the 1990s, the overall trend for European countries has been that of an increase in stock market participation. For this reason, when analysing if stock-market has any effect on CBEV, we should consider what type of people are more likely to participate in the stock-market and consequentially are more likely to hold stock. By controlling for variables that capture these people we can get a cleaner estimate of the stock-index's effect on CBEV.

Guiso et. al. (2003) set out to cover the current state (as of 2003) of household stockownership in major European countries[9]. Across all countries they find that income, education and financial wealth are variables that increase the probability of stock market participation. The positive effect from wealth and income has a straight forward interpretation according to the authors in terms of participation cost. The participation cost will be lower for individuals with greater wealth and labour income as they are more likely to have "cash on hand", as the authors put it, making any cost of entering the market less of an obstacle. This effect also tends to have self-enforcing mechanisms as larger investors are often offered better terms from the financial service sector than smaller ones. The authors also point to the possibility of peer effects, as more affluent households are most likely to have peers in the stock market, which may create further incentives among households who have not invested in stocks. The existence of peer effects on investment decision has been documented by Duflo et.al. (2002) who show that individuals who choose to enrol in a retirement plan are affected by peers in the same department.

Education on the other hand increases the likelihood of participating in the stock market by reducing the perceived entry cost i.e. information barriers. As the authors point out, investing

[9] These are France, Italy, Netherlands, Sweden, U.K.

through a fund either directly or indirectly involves substantial amounts of delegation as well as monitoring by the investor. Since their analysis showed that more highly educated individuals have a greater probability of participating in the stock market, it points towards the fact that this type of information is more at hand, or to put it differently, more educated individuals face lower information barriers. This theory is to some extent corroborated by Beyer et. al. (2009) who looks at how education influences financial decision-making skills. Specifically, they study people who during the 1990s were exposed to programmes of financial education by their employers. They find that both participation in and contribution to voluntary saving plans are much higher for individuals whose employer offered financial education[10].

The last variable we are going to account for as a predictor of stock market participation is where people stand in the political spectrum. People who are on the right side of the political spectrum are also more likely to be participants in the stock market. The theoretical basis for this was covered in section 2 where I refer to the work of Nadeau et.al. who states that people who hold high risk assets, such as stocks, are at a point in society where they favour political parties to the right of the political spectrum.

So how are controlling for these variables going to help us understand CBEV since they are predictor only for participation in the stock market? The first reason is to compensate for the fact that this study does not utilize data on individual's stock holdings as it is not easy to come by. I instead control for the variables described above to determine individuals who are likely to hold stock. This is by no means as good a method as it would be to include data on actual stock holding. However, if we include information of these variables and find that, for example, low-income voters or voters without a college education respond positively, in terms of voting for the incumbent, when a stock index is preforming well, this could be interpreted as a sign of CBEV as this individual has less to gain from a well preforming stock-index than would a high-income or college educated voter.

3. Describing the sample; France, Sweden and the United Kingdom. What can we expect?

In this chapter I am going to present statistics of the countries to be analysed in terms of variables covered in previous section. The information relates to variables analysed in the model (income, education and left-right scale) and are meant to provide an overview of how

[10] This effect was found to be greater for non-highly compensated workers than highly compensated.

these are represented in each country. I will also, briefly, relate them to the theory as predictors of stock market participation and CBEV.

Firstly, are we likely to find evidence of CBEV in France, Sweden and the U.K? For Sweden and the U.K, that answer should be yes given that Hicks et.al. already gave proof for this in their study. France should be no exception and as we can see in figure 1, the income share of the wealthiest 1% since 1975 has been increasing (even though the wealthy elite in France has the smallest share of the six countries). Including France in our analysis will then tell us how the electorate has responded to this uneven income growth.

What about each countries stock market participation? We shall look at this for the three countries after the variables Income, education and left-right scale.

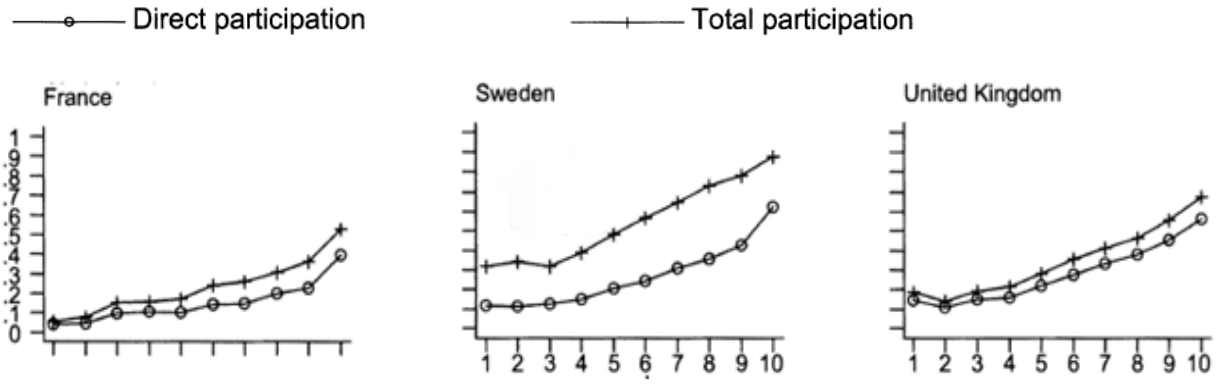

Figure 2. Stock market participation by income decile. (Figure as shown by Guise et.al. 2003 for France, Sweden and the United Kingdom) Y-axis shows Participation share, X-axis shows income decile.

Income

Starting with income, from the figure above we can see the positive effect income has on probability of stock market participation. The theory behind this relationship was covered in section 2.2 and as we can see it seems to hold true for the three countries. Next, we shall look at actual self-reported income. The data is collected from a survey held by the European Social Survey (ESS)[11]. As we can see from the figures (displayed in appendix 1.) the income is more evenly spread amongst France and the U.K. as the density is more even over the deciles. Sweden, on the other hand, has most respondents with self-reported income within the 9:th decile and fever within the 1:st to 3:rd decile. What this tells us then, is that we can expect to

[11]I will cover the data used in section 4. For now, it should be noted that I have chosen to display figures on income (as well as education and left-right scale) from the actual samples that I have analysed and that this data I collected from the ESS.

have groups of people in all countries who are likely to be participants in the stock market, and that Sweden has the largest (relative) group of potential stock market participants.

Education

Moving on to education (see appendix 1.2). The three countries show some variation in terms of most represented education level with "Less Than Primary" being the most common level for respondents in the U.K, "Primary" in Sweden and "Undergrad" for France. Relating to the theory in section 2.2, higher education increases the likelihood of stock market participation. Looking at what country has the largest group of respondents with an education level above primary, France should have the most respondents who are more likely to participate in the stock market (with Undergraduate and Master adding up to 53.11% of the sample compared to 27.59% for Sweden and 31.5% for the U.K). It should be noted that the survey does not specify what type of degree the respondent has, only at what level they have obtained their degree. It is reasonable to assume that an undergraduate in finance is more likely to hold stock than an undergraduate in, say, medicine. That said, a person with an academic degree could have an easier time gathering the information necessary to participate in the stock market (regardless of subject/ major in the degree) which would lower the information barrier explained by Guiso et. al. (2003) and thus increase the likelihood of partaking in the stock market.

Left-right scale

Finally, we move on to left-right scale (appendix 1.3). Similar for all countries is that most respondents report to be in the middle of the left right spectrum. As theory predicts, people further to the right of the political spectrum are more likely to hold stock. The U.K. has the largest share of voters in the middle of the spectrum (over 40%). Sweden is the country with the largest share of voters above 5 on the political spectrum with 42.01% compared to 32.66% for France and 29.96 for the U.K.

4. Method

In this chapter I am going to specify the model used to analyse if stock-market index can help explain Class Biased Economic Voting.

The model is an individual level cross sectional probit model with a dependent variable *Vote_Inc* coded 1 if the respondent has voted for the sitting president or party, 0 otherwise. For France and the U.K the coding is simple as the former is after the sitting president and the latter since there are only two major parties (Labour or Conservatives). For Sweden whose

government usually governs as a coalition, I have coded votes for the largest party within the coalition as 1 (during the timespan analysed this has been either Socialdemokraterna or Moderaterna). The core specification of the model is as follows;

$$Vote\_Incumbent_{\,i,y} = \beta_0 + \beta_1 \cdot Controls_t + \beta_2 \cdot StockIndex_{y,t} + \beta_3 \cdot Growth^{M}_{y,t} + \beta_4 \cdot Growth^{Top5}_{y,t} + \epsilon_{i,t}$$

where the primary variables to determine CBEV is $Growth^{Top5}_{y,t}$ and $Growth^{M}_{y,t}$ each measuring income growth of the wealthiest 5% as well as mean income growth during election year respectively. Sub-indexes *i,y,t* stand for individual, country and year respectively. The theory on how CBEV is defined and measured has been covered in section 2.1 and is the same method that I will use. As Hicks et.al. were able to construct the variables $Growth^{Top5}_{y,t}$ and $Growth^{M}_{y,t}$ from tax records of each individual, I have had to rely on external data sources to create the variables. These will be covered in the section below. Initially I will run the same specification as Hicks et.al. (which I name my primary specification) thus, only testing for CBEV in each of the three countries. This will be done by first running the regression for the whole sample and then by income terciles to see how low, middle and high-income voters respond to the two measures of income growth. It will differ from Hicks et.al. in two ways. Firstly, as Hicks et.al only aggregate between low and middle income I will be aggregating for high income voters as well. I do this since once we add the stock-index to the model it should be of interest to look at how high-income voters respond to the index given that they are more likely to participate/ hold stock. Also, the income data I have for respondents is self-reported after income placement in decile with the upper bound (10:th decile) being defined in the survey as any income equal to or greater than £50000[12]. Given the upper limit in the survey is set at £50000 there are potential respondents who self-report into the highest decile but are not among top 5% of income earners. In the U.K according to the Office of National Statistics (ONS, 2017) households in the highest decile have over £107000 annual disposable income. For this reason, it makes sense to see how people in the top decile responds to $Growth^{Top5}_{y,t}$ in the sample.

In this primary specification, I am going to use two controls in accordance with previous research. Firstly, I will control for Tenure of incumbent (logTenure) which is the number of years they have held office. I use log of years of tenure rather than years of tenure since, like Hicks et.al. suggests, there is likely to be a diminishing cost of governing the longer a party or president is in power. Secondly, I will control for whether or not the respondent identifies with incumbent of party (prtclose). According to both Hicks et.al. and Bartels (2008), this variable

[12]Each country has its own currency listed in the survey but the amount is equal to £50000.

is a strong predictor for vote choice and will provide a cleaner estimate on election year income changes.

Having done the primary specification, I will move on to add figures of election year stock index performance for each country[13] for the whole sample as well as aggregating for low, middle and high-income earners (plus controls specified earlier). I will also control for where voters stand in the political left-right spectrum (variable named *lrscale*). Using the same method of identifying CBEV, we are going to look at the coefficients of $Growth^{Top5}{}_t$ and $Growth^{M}{}_t$ to find any potential changes after adding the stock-index. For the last part of the analysis I am going to add the variables of education. Here I will aggregate, in that same manner as for income, after voter with less than a primary education, primary, undergraduate and master education to see how different groups vote choice is affected by movements of the stock market.

5. Data and Variable Predictions

In this chapter I will be covering the data used, how the variables are constructed as well as their interpretations and how they, in the theory, should affect vote choice.

Data on voting, income, education, placement on political left-right scale and party identification are collected from the European Social Survey (ESS) and span between the years 2002 – 2014. The ESS is an academically driven cross national survey that takes places every second year across multiple countries in Europe utilizing face to face interviews with the main goal of measuring behavioural patterns, believes and attitudes for a diverse population. Finding sources with detailed individual level data is somewhat difficult and for a paper such as this one, where the method builds upon previous research on CBEV, the ESS is a good data source since all key variables are gathered in one database. All individuals in the survey are selected by strict random probability methods, and the only requirement is that the individual is at least 15 years old and a resident within a private household in each country regardless of citizenship, language or nationality.

Data on voting is the dependent variable for every specification of the model and has been coded as described in section 3. Since the data spans from the years 2002 – 2014, the number of elections held in each country differs. For France there has been a total of three elections, four in Sweden and two in the U.K. For each country the name of the variable is *voteinc*. Data

[13] For France I will use CAC40, Sweden OMXS30 and the U.K FTSE-100.

on income is self-reported for each individual household total net income (from all sources) and represents their placement in the income decile. As is the case for all self-reported data there may be some bias as individuals may over or underestimate their income. However, since data on income is only used to aggregate households into low, middle and high income the potential bias will not have an effect on the estimation as it is not included as an independent variable.

Data on placement on the political spectrum is the variable named *lrscale* and is ordered from 0 (left) to 10 (right). As was covered in the theory section people more to the right on the political spectrum are assumed to be more likely to hold stock. The predictive outcome this variable will have on vote choice will depend on what individual you look at. For an individual on the left its coefficient may be negative if the incumbent party or president is considered right-wing, and opposite for a left-wing party or president. Including *lrscale* in the regression however, will hopefully serve to give a cleaner estimate of the stock-index´s impact on individual vote choice as people to the right are more likely to hold stock.

Data on mean household disposable income (variable named *hhdinc* in regressions) are gathered from the Organization of Economic Co-Operation and Development (OECD) and are collected as growth rates corresponding to each countries' election years. The measure is defined by the OECD as the sum of household final consumption expenditures and savings, minus the change in net equity of households in pension funds. Data on top income growth (that is the wealthiest 5 and 10% of households) has been collected from the World Top Income Database (WTID). This is measured as pre-tax national income and had to be converted into growth rates of which I have, again, used the growth rate during election years. The variables are named *GrowthT5* and *GrowthT10* for top 5 and 10% respectively. As income growth among the top 5% was unavailable for Sweden at WTID I had to rely on income growth at the top 10% which I have gathered from Statistics Sweden (SCB), a government agency that produces official statistics for Sweden. As previous research has shown the coefficient of *GrowthT5* has been shown to have a positive impact on probability of voting for the incumbent and is expected to have the same effect here for France and the U.K. As Sweden has a different growth measurement for top income (*GrowthT10*) it is not with certainty that we observe the same relationship as for *GrowthT5*. However, the prediction is still that *GrowthT10* will have a positive impact on probability if voting for the incumbent. It should be noted that if we observe a positive coefficient of either *GrowthT5* or *GrowthT10* this does not have to be a sign of CBEV

if the person has high enough income as the income growth is in fact that which represents his own. For low and middle-income voters, it is a sign of CBEV.

Data on countries stock-indexes has been collected from *Macrotrends* a database containing long term figures in market indexes and are collected as days end closing values. These values have been constructed into growth rates to show yearly performance during election years. Coefficients of the stock market are expected to have a positive impact on voting for the incumbent.

For education each country lists over 20 different types of education. Respondents are coded after what corresponds to a primary level (high school degree) named (Primary in regression), undergraduate degree (Undergraduate), and a masters degree (Master). People without any of the three degrees are coded as No Primary.

6. Results

I will begin my analysis by replicating the method of Hicks et.al. (2016) to look for the presence of CBEV. After that I will add figures of each countries stock-index as well as left-right scale to see what effect it has on probability of voting for the incumbent. We then follow up by adding information of individuals' education. This section focuses mainly on presenting results, conclusions will be considered in section 7.

6.1 Hicks et.al. Model for CBEV (Primary Specification)

We begin with looking at probit estimates for France (Table 2). Model 1 estimates the full sample including all income deciles with the two income measures *hhdinc* for mean household disposable income and *GrowthT5* as income for the wealthiest 5% of households. The negative sign in front of *hhdinc* as well as the positive for *GrowthT5* indicates the presence of CBEV for the whole electorate. In model 2, using the same definitions as Hicks et.al, we can see that low-income voters display indifference to both mean and top income growth due to that fact that both coefficients are insignificant (but with the expected signs). Following along model 3 and four we can see that both middle and high-income voters show a tendency for CBEV which, again, can be seen from the negative sign in front of *hhdinc* and the positive sign of *GrowthT5*. Put together, aside from the estimations in model two France displays clear evidence of CBEV amongst the electorate.

The estimates for Sweden are found in table 3. The results for Sweden are not as clear cut as those for France. Starting off with the coefficients for *GrowthT10* which are negative across

all models. This is in accordance with earlier theories of economic voting and shows that the Swedish electorate is prepared to punish income growth that disproportionately benefits the wealthiest 10%[14]. These results are strengthened amongst low and middle-income voters (model 2 and 3 respectively) as the coefficients for *hhdinc* are positive and significant.

Table 2. Probit estimates for France on Predictors of Voting for the Incumbent President.

	(1)	*(2)*	*(3)*	*(4)*
VARIABLES	voteinc	voteinc	voteinc	voteinc
logtenure	-0.00525	0.0609	0.00486	-0.0245
	(0.0370)	(0.0816)	(0.0759)	(0.0518)
prtclose	1.636***	1.365***	1.468***	1.801***
	(0.0460)	(0.110)	(0.0879)	(0.0627)
hhdinc	-0.0941***	-0.0712	-0.0869**	-0.113***
	(0.0225)	(0.0836)	(0.0401)	(0.0306)
GrowthT5	0.0525***	0.0391	0.0471***	0.0595***
	(0.00854)	(0.0267)	(0.0153)	(0.0122)
Constant	-0.805***	-0.912***	-0.813***	-0.768***
	(0.0945)	(0.227)	(0.183)	(0.131)
Pseudo R^2	0.2380	0.1565	0.1891	0.2941
Deciles	All	Low	Middle	High
Observations	4,900	890	1,371	2,639

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Model 1 and 4 both have negative coefficients on *hhdinc* but is only significant in model 4. Following Hicks et.al, in model 1, this should be interpreted as inequality aversion since the coefficient for *GrowthT10* is significant and negative. For model 4, the coefficients have somewhat contradictive interpretations as the negative (significant) coefficient of *hhdinc* show a demand for inequality whilst that of *GrowthT10* indicates the opposite. Put together, regressing income growth amongst wealthiest 10% rather than 5%, the Swedish electorate displays inequality aversion.

Lastly, we shall look at regression results for the U.K in table 4. Evidence of CBEV can only be found among low-income voters where, between the two variables for income growth, only *GrowthT5* is positive and significant. In the remaining models the British electorate shows

[14] This might be somewhat surprising amongst high income voters given that some are within the 9:th decile. As a test I ran the regression separately for voters within the 9:th and the coefficient for *GrowthT10* remained significant and negative.

indifference to inequality as coefficients for both mean and top income growth are significant and positive.

Table 3. Probit estimates for Sweden on Predictors of Voting for the Incumbent Party.

	(1)	*(2)*	*(3)*	*(4)*
VARIABLES	voteinc	voteinc	voteinc	voteinc
logtenure	0.229***	0.0284	0.411***	0.174***
	(0.0387)	(0.148)	(0.0790)	(0.0476)
prtclose	2.416***	2.424***	2.363***	2.422***
	(0.0439)	(0.158)	(0.0837)	(0.0550)
hhdinc	-0.00406	0.195**	0.0762*	-0.108***
	(0.0222)	(0.0944)	(0.0434)	(0.0288)
GrowthT10	-0.0349***	-0.0564**	-0.0376***	-0.0308***
	(0.00347)	(0.0250)	(0.00610)	(0.00435)
Constant	-1.142***	-1.308***	-1.643***	-0.770***
	(0.0868)	(0.334)	(0.169)	(0.111)
Pseudo R^2	0.4138	0.3583	0.4077	0.4224
Deciles	All	Low	Middle	High
Observations	8,147	818	2,323	5,006

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 4. Probit estimates for the U.K on Predictors of Voting for the Incumbent Party.

	(1)	*(2)*	*(3)*	*(4)*
VARIABLES	voteinc	voteinc	voteinc	voteinc
logtenure	-0.108***	-0.170***	-0.0356	-0.0895**
	(0.0267)	(0.0483)	(0.0595)	(0.0384)
prtclose	1.055***	0.689***	1.176***	1.144***
	(0.0315)	(0.0697)	(0.0615)	(0.0437)
hhdinc	0.0535***	0.0473	0.107***	0.0521***
	(0.0143)	(0.0571)	(0.0263)	(0.0189)
GrowthT5	0.0148***	0.0159**	0.0175***	0.0158***
	(0.00277)	(0.00679)	(0.00567)	(0.00381)
Constant	-0.401***	0.00903	-0.683***	-0.532***
	(0.0732)	(0.171)	(0.158)	(0.102)
Pseudo R^2	0.1014	0.0459	0.1427	0.1148
Deciles	All	Low	Middle	High
Observations	9,820	1,926	2,596	5,298

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

The purpose of this section was to see if CBEV was present in the three countries analysed. So far, only the French electorate shows signs of CBEV as income growth among the wealthiest 5% has a positive impact on probability of voting for the president. Sweden on the other hand, where the specified model included income growth among wealthiest 10% (rather than 5%) showed evidence leaning more towards inequality aversion. Results for the U.K pointed towards indifference to inequality as both income growth among the wealthiest 5% and mean income growth had a positive impact on probability of voting for the incumbent government.

6.2 Adding Stock-Index and lrscale

In this section we are going to add figures of each country's stock-market to above models as well as lrscale.

The results for France are shown in table 5. In all four models we can see that performance of the stock index (*cac40*) has a highly significant positive effect on probability of voting for the president. As we recall from previous sections, the purpose of adding stock market to the regression was to see if any further conclusion could be drawn upon CBEV, to do this we need to observe changes to the coefficients of *hhdinc* and *GrowthT5*. As we can see the coefficient of *GrowthT5* is no longer significant in any of the models and has further switched sign for low and middle-income voters (model 2 and 3 respectively). The coefficients of hhdinc have the same sign as in table 2 but are now significant only for the whole electorate and high-income voters (model 1 and 4 respectively). *Lrscale* is positive and significant in all models. The change in signs and the loss of significance in model 2 and 3 for the coefficients of *GrowthT5* may be due to possible multicollinearity between *cac40* and *GrowthT5*.

Table 5. Probit estimates for France on Predictors of Voting for the Incumbent President.

	(1)	*(2)*	*(3)*	*(4)*
VARIABLES	voteinc	voteinc	voteinc	voteinc
logtenure	-0.138***	-0.0943	-0.167*	-0.116*
	(0.0446)	(0.100)	(0.0911)	(0.0621)
prtclose	1.347***	1.185***	1.237***	1.448***
	(0.0555)	(0.137)	(0.106)	(0.0747)
hhdinc	-0.0749***	-0.0592	-0.0390	-0.114***
	(0.0276)	(0.100)	(0.0509)	(0.0371)
GrowthT5	0.00374	-0.0159	-0.0218	0.0224
	(0.0153)	(0.0407)	(0.0298)	(0.0212)
cac40	2.702***	2.924***	3.349***	2.376***
	(0.421)	(0.881)	(0.799)	(0.637)
lrscale	0.342***	0.339***	0.344***	0.343***
	(0.0116)	(0.0247)	(0.0216)	(0.0166)
Constant	-2.661***	-2.824***	-2.734***	-2.571***
	(0.130)	(0.309)	(0.254)	(0.180)
Pseudo R^2	0.4494	0.4142	0.4247	0.4772
Deciles	All	Low	Middle	High
Observations	4,875	883	1,369	2,623

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Results for Sweden are shown in table 6. The stock index (*omxs30*) is significant and positive in model 1,3 and 4. After adding *omxs30* to the model the coefficients of *GrowthT10* are still negative and significant across all models apart from low income voter (model 2) for which it is insignificant. The coefficients of *hhdinc* have now switched signs in model 3 and stays significant whilst the sign remains negative in model 1 (the whole electorate) and is now significant. *Omxs30* and *lrscale* are positive and significant across all models apart from mode 2 and 3, respectively, where they are positive but insignificant.

Table 6. Probit estimates for Sweden on Predictors of Voting for the Incumbent Party.

	(1)	*(2)*	*(3)*	*(4)*
VARIABLES	voteinc	voteinc	voteinc	voteinc
logtenure	0.269***	0.267	0.470***	0.199***
	(0.0414)	(0.226)	(0.0836)	(0.0506)
prtclose	2.398***	2.026***	2.348***	2.419***
	(0.0442)	(0.166)	(0.0844)	(0.0553)
hhdinc	-0.134***	0.121	-0.144*	-0.216***
	(0.0379)	(0.123)	(0.0766)	(0.0493)
GrowthT10	-0.179***	-0.169	-0.272***	-0.148***
	(0.0352)	(0.130)	(0.0711)	(0.0453)
omxs30	5.616***	4.978	9.189***	4.537***
	(1.367)	(5.231)	(2.760)	(1.760)
lrscale	0.0305***	0.206***	0.00476	0.0169*
	(0.00750)	(0.0282)	(0.0135)	(0.00991)
Constant	-0.652***	-2.288***	-0.582	-0.312
	(0.180)	(0.498)	(0.365)	(0.235)
Pseudo R^2	0.4191	0.4302	0.4119	0.4268
Deciles	All	Low	Middle	High
Observations	8,021	801	2,274	4,946

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Lastly, results for the U.K are presented in table 7. Contrary to both France and Sweden after adding the U. K's largest stock-index (*ftse100*) it's coefficients are insignificant across all models. Further we can see that the significance in coefficients of *GrowthT5* remained positive and significant in model 1,3 and four but is now insignificant and with switched sign in model 2 (low-income voters). Same changes can be observed for Coefficients of mean income growth (*hhdinc*) where only that of model 2 has switched sign and turned insignificant. *Lrscale* is significant across all models but, unlike France and Sweden, it´s coefficients are negative.

Table 7. Probit estimates for the U.K. on Predictors of Voting for the Incumbent Party.

	(1)	*(2)*	*(3)*	*(4)*
VARIABLES	voteinc	voteinc	voteinc	voteinc
logtenure	-0.123***	-0.176***	-0.0206	-0.121***
	(0.0298)	(0.0534)	(0.0653)	(0.0435)
prtclose	1.112***	0.778***	1.208***	1.188***
	(0.0347)	(0.0766)	(0.0671)	(0.0487)
hhdinc	0.0758*	-0.0443	0.241***	0.131**
	(0.0406)	(0.123)	(0.0817)	(0.0574)
GrowthT5	0.0175***	-0.00321	0.0303***	0.0263***
	(0.00552)	(0.0232)	(0.0108)	(0.00711)
ftse100	0.552	-5.018	5.099	2.926
	(1.568)	(5.462)	(3.136)	(2.138)
lrscale	-0.250***	-0.207***	-0.235***	-0.276***
	(0.00824)	(0.0164)	(0.0164)	(0.0119)
Constant	0.788***	1.330***	0.0137	0.614***
	(0.163)	(0.423)	(0.337)	(0.232)
Pseudo R^2	0.1893	0.1166	0.2147	0.2163
Deciles	All	Low	Middle	High
Observations	9,091	1,753	2,408	4,930

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Because there may be possible multicollinearity between stock-market index and that of income growth of the wealthiest 5% I have run a control regression for France and the U.K using income growth of top 10% rather than 5%. The reason for doing this is to see we get more robust estimates of both income variables (in terms of signs and significance) seeing as income growth of top 10% may be less correlated with the stock-index. The results of these regressions are presented in appendix 1.4. While no noticeable changes can be observed for the U.K, for France the coefficient of *GrowthT10* now has a positive sign in model 3 and 4 and is now significant in model 4.

6.3 Adding Education.

In this section we are adding data on respondents' education. Similarly, to previous sections, for each country and in each model we are going to aggregate the electorate for different education levels to see if the stock index has any effect in CBEV.

We start with France, results of which are found in table 8[15].

Table 8. Probit Estimates for France on Predictors of Voting for the Incumbent President.

	(1)	*(2)*	*(3)*
VARIABLES	voteinc	voteinc	voteinc
logtenure	-0.141*	-0.188***	0.100
	(0.0808)	(0.0653)	(0.122)
prtclose	1.612***	1.067***	1.234***
	(0.0985)	(0.0935)	(0.144)
hhdinc	-0.0445	-0.116**	-0.0386
	(0.0491)	(0.0529)	(0.0724)
GrowthT5	-0.0519*	0.0449	0.00116
	(0.0279)	(0.0367)	(0.0379)
lrscale	0.268***	0.381***	0.516***
	(0.0195)	(0.0186)	(0.0374)
cac40	4.493***	1.742**	1.354
	(0.789)	(0.870)	(1.110)
Constant	-2.490***	-2.585***	-3.887***
	(0.239)	(0.234)	(0.365)
Pseudo R^2	0.4436	0.4175	0.5413
Education	No Primary	Undergraduate	Master
Observations	1,460	1,913	880

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

The coefficient for left-right scale (*lrscale*) is positive and significant across all education levels. Coefficient of *GrowthT5* is significant and negative for individuals with less than a primary education and positive but insignificant for those with an undergraduate or maser level education. Like in table 6 the stock-index coefficient (*cac40*) remains positive across all models but is only significant for no primary and undergraduate level education. The coefficient for mean income growth (*hhdinc*) remains negative but is only significant in model 2 (undergraduate education).

In table 9 we can see the results for Sweden. As was the case for France the coefficient for *lrscale* is positive across all education levels but for Sweden it is only significant for individuals with less than primary and undergraduate education (model 1 and 3 respectively). Looking at *GrowthT10* we can see that it´s coefficients remain negative compared to table 7 for all education levels and is only insignificant for master educated individuals. *Omxs30* remains positive as in table 7 and is in table 10 significant for no primary, primary and undergraduate education (model 1,2 and 3 respectively). Coefficients for mean-income growth (*hhdinc*) are

[15] For France respondents with only primary education had to be excluded due to *cac40* being omitted.

negative and significant for primary, undergraduate and master education (model 2,3 and 4 respectively).

Table 9 Probit Estimates for Sweden on Predictors of Voting for the Incumbent Party.

	(1)	*(2)*	*(3)*	*(4)*
VARIABLES	voteinc	voteinc	voteinc	voteinc
logtenure	0.356***	0.324***	0.187	0.0469
	(0.0800)	(0.0629)	(0.135)	(0.0966)
prtclose	2.268***	2.425***	2.459***	2.359***
	(0.0806)	(0.0732)	(0.124)	(0.103)
hhdinc	0.00455	-0.158**	-0.244***	-0.271***
	(0.0668)	(0.0683)	(0.0888)	(0.101)
GrowthT10	-0.177***	-0.186***	-0.166**	-0.135
	(0.0612)	(0.0640)	(0.0829)	(0.0945)
lrscale	0.0391***	0.0103	0.0973***	0.0158
	(0.0130)	(0.0120)	(0.0225)	(0.0200)
omxs30	5.027**	6.015**	5.480*	4.381
	(2.378)	(2.481)	(3.226)	(3.671)
Constant	-1.044***	-0.541	-0.816**	-0.125
	(0.311)	(0.330)	(0.399)	(0.488)
Pseudo R^2	0.4137	0.4171	0.4657	0.4234
Education	No Primary	Primary	Undergraduate	Master
Observations	2,423	3,003	1,236	1,335

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Lastly, we move on to results for the U.K in table 10. The coefficient of *lrscale* is significant across all models but, contrary to France and Sweden, has a negative sign. Comparing *GrowthT5* to table 8, after aggregating for education rather that income deciles the coefficients still have a positive sign although now it is only significant for undergraduate education (model 3). *Ftse100* has positive coefficients for undergraduate and master (model 3 and 4 respectively) and negative for no primary and primary (model 1 and 2 respectively) but remain insignificant across all models. Apart from primary education *hhdinc´s* coefficients have a positive sign in all models but are now insignificant.

Table 10. Probit Estimates for the U.K on Predictors of Voting for the Incumbent Party.

	(1)	*(2)*	*(3)*	*(4)*
VARIABLES	voteinc	voteinc	voteinc	voteinc
logtenure	-0.160***	-0.120***	-0.113	0.00558
	(0.0587)	(0.0415)	(0.0852)	(0.0972)
prtclose	1.425***	0.581***	1.463***	0.617***
	(0.0598)	(0.0625)	(0.0715)	(0.163)
hhdinc	0.0270	-0.0289	0.0627	0.221
	(0.0649)	(0.116)	(0.0678)	(0.327)
GrowthT5	0.0121	0.0219	0.0194**	0.0321
	(0.00869)	(0.0157)	(0.00969)	(0.0402)
lrscale	-0.221***	-0.261***	-0.250***	-0.358***
	(0.0138)	(0.0149)	(0.0171)	(0.0367)
ftse100	-0.0940	-2.199	0.377	6.547
	(2.462)	(4.636)	(2.471)	(12.03)
Constant	0.956***	1.332***	0.523	0.527
	(0.280)	(0.418)	(0.328)	(1.105)
Pseudo R^2	0.2245	0.1319	0.2601	0.1786
Education	No Primary	Primary	Undergraduate	Master
Observations	3,280	2,799	2,470	529

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

6.4 Analysis of Result

In this section we will conclude the results and from the above regressions. As the main interest is to see how CBEV patterns change after adding the stock-index to the primary specifications, I will where ever possible look at changes in common to all countries and then individual changes.

We start of by summarizing the results from table 2 – 4, where we examined if the three countries displayed any patterns of CBEV. We can see from the positive coefficient of *GrowthT5* and negative on *hhdinc*, that France is the only country that shows clear evidence of demand for inequality across the whole electorate as income groups are more likely to vote for the incumbent when income growth benefits the wealthiest 5%. The U.K has robust results for indifference to inequality as both coefficients of *GrowthT5* and *hhdinc* are positive across all income groups. Only mean income growth is insignificant for low-income voters. I interpret these results as indifference to inequality since all income groups respond in a positive way (in terms of voting for the incumbent) when income growth favours either the wealthiest 5% or

mean income households. Sweden's results are not as robust across the four models as for France and the U.K. While the coefficients of *GrowthT10* are negative across all models, on its own this does indicate aversion to inequality, but we need also address the coefficient of mean income growth (*hhdinc*). For the whole electorate (model 1) we see weak evidence of indifference to inequality as the coefficient of *hhdinc* is insignificant and *GrowthT10* is not. For low and middle-income voters, however, the evidence of inequality aversion is clear as mean income increases the probability of voting for the incumbent and income growth among wealthiest 90% has the opposite effect. For high-income voters the negative coefficients on both income variables indicate that these voters are indifferent to inequality. Summarizing Sweden, we see evidence of both indifference and aversion to inequality.

When we add the stock indexes (table 5 – 7) we can see for France and Sweden that there is a clear tendency among all income groups (apart from low income voters in Sweden where the coefficient is insignificant) of voters being more likely to vote for the incumbent party or president during election years when the stock index has a positive performance (in accordance with predictions). This is shown by the positive and significant coefficients of the respective stock indexes. The same can be said of voters in the U.K (apart from low-income voters) but this effect is not statistically significant. A noticeable, statistically significant, change can be found among middle-income voters in Sweden who now display clear signs of indifference to inequality as the sign of *hhdinc* is now negative and significant at the 10% level (sign and significance of *GrowthT5* stays the same). The positive and significant coefficient on *omxs30* could be interpreted as evidence of the stock index acting as a bias information source among middle-income voters. It suggests that voters are more likely to reward the incumbent party when the index is doing well rather than when mean income earners (their own economic group) see economic growth. This is solely based on the fact that the coefficient of *hhdinc* changed from positive to negative whilst remaining statistically significant. A similar effect can be seen among middle-income voters in France where the coefficient of *cac40* is positive and significant whilst that of *hhdinc* is negative but insignificant. Other evidence that points to the possibility of stock indexes acting as a bias information source can be found for low-income voters in France and the U.K. In both countries we can see that the sign of the coefficient of top income growth is now negative but insignificant. If it was in fact the stock index that caused low-income voters to reward the incumbent for income growth at the top in the primary specification, this effect has now been accounted for when we add it as an explanatory variable.

The signs now show what previous theory suggests and predicts, that low income voters will punish the incumbent for unfair economic growth.

I do interpret these results with caution, however. Firstly, the effect of middle-income voters identified in Sweden only finds similar results in France that are not statistically significant. No such evidence can be seen in the U.K. Secondly, the effect described among low-income voters in France and the U.K are both based on statistically insignificant results. These results are further based on observing coefficients of individual growth variables, if we are to draw any conclusions about CBEV we need to evaluate both coefficients of *hhdinc* and *GrowthT5/T10*.

In this regard we can only see a clear change among the Swedish electorate where, after adding the stock index, *omxs30*, model 1,3 and 4 show that these voters are indifferent to inequality. Results for France remain the least robust after adding the stock index, *cac40,* and only has significant coefficients of *hhdinc* for model 1 and 4. Just as for the primary specification, this still indicates demand for inequality but is now weaker as the coefficients of *GrowthT5* are insignificant. Results for U.K are the most robust as we only observe a statistically insignificant change in coefficients amongst low-income voters. After adding, *ftse100,* to the regression the U.K still displays indifference to inequality.

Lastly, we analyse the result when we aggregate voters within each country after their educational level (tables 8-10). As we could see, the stock indexes for France and Sweden had positive signs across all education levels, where they were only insignificant for people with a master degree. Same was true for master and undergraduate voters in the U.K only with insignificant coefficients. This is in accordance with theory as we predicted that higher education would increase the probability of stock market participation. It therefore makes sense that more educated people would be more likely to vote for the incumbent when the stock market is doing well. So, what about the positive signs for people with, or less than, a primary education? Since these voters are less likely to hold stock the positive effect of the stock-index could yet again be a possible bias information source as they reward the incumbent after a variable which will likely not affect their economic gains. Only in the U.K. do we see that less educated voters respond in a different way compared to more educated (although with statistically insignificant results). Looking at the ways different education levels respond to inequality; Swedish primary and undergraduate level voters show statistically significant indifference to inequality and master educated voters show weaker evidence of the same. For

the U.K, only the coefficient of *GrowthT5* shows a significant (positive) sign so results are not very strong in terms of statistical significance. Judging only by the signs, model 1,3 and 4 show signs if indifference to inequality, whilst model 2 show that primary educated voters demand inequality. In France we see weak evidence of indifference to inequality among voters with less than a primary education and demand for inequality for undergraduate voters.

To summarize the results of all three specifications, it is clear that the stock index has an impact on probability of voting for the incumbent party/ president in France and Sweden, not in the U.K. This holds true even after we aggregate individuals after education level rather than income. It is however difficult to draw any further conclusions of whether or not the stock index acts as a potential source for CBEV, even though we find that people who are less likely to hold stock do react positively to index performance. The reason for this is the lack of statistical significance in the coefficients the British stock index for voters in the U.K, and due to the mostly insignificant results of mean and top income growth in France.

7. Conclusion

The aim of this paper was to explore the possibility if CBEV is due to voters paying attention to macroeconomic variables which are correlated with economic fortunes of the wealthiest elites. The macroeconomic variable chosen was stock indexes since it is a frequently reported macroeconomic variable whose benefits are most likely to favour the wealthiest. The two questions to be answered were; 1. Does stock index performance during election year effect CBEV? 2. Does stock index performance increase the probability of voting for the incumbent party or president? This was done by looking at if people who are unlikely to hold stock have an increased probability of voting for the incumbent party or president during election year when the stock index is preforming well. Of equal importance, we looked at if people responded differently to mean and top income-growth after we included the stock index in the analysis. We could see that the stock index had a positive effect on probability of voting for incumbent party/ president in France and Sweden, but no significant effect in the U.K. Any evidence of the stock index effecting CBEV was difficult to prove given that the stock index had no significant effect in the U.K, and due to the mostly insignificant results of mean and top income growth in France.

These results should, however, not discredit the theory of the stock market being a source for CBEV. The stock market is still an important macro-economic variable to analyse and its potential influence over vote choice deserves more attention in the literature. The two most

compelling arguments for this is the fact that active participation in the stock market is becoming more common who, in previous years, do not fit the profile of the regular investor Guiso et.al. (2003). The authors characterise the individuals as poorer and less sophisticated. Secondly, as Nadeau et.al. (2010) point out, people who are holders of high risk assets, such as stocks, place them at a point in society where they favour political parties to the right of the political spectrum. If these voters are less concerned about potential uneven distributional effect it further points to the importance of looking at if the stock market has any effect on vote choice.

For future researchers I would like to point out that results perhaps would have turned out more conclusive if the data analysed were even more complete and covered a longer time span. For a model such as the one employed in this study that analyses individual vote choice, the results are dependent the quality of the survey that provides the individual level data. Although the ESS is a great database for those who want to look at European countries, the fact that it is only available in seven rounds (2002 – 2014) has limited the number of elections covered in each country. A more comprehensive approach, such as Bartels (2008) and Hicks et.al. (2016), would have meant individual data over a longer period and could have led to better, more significant results.

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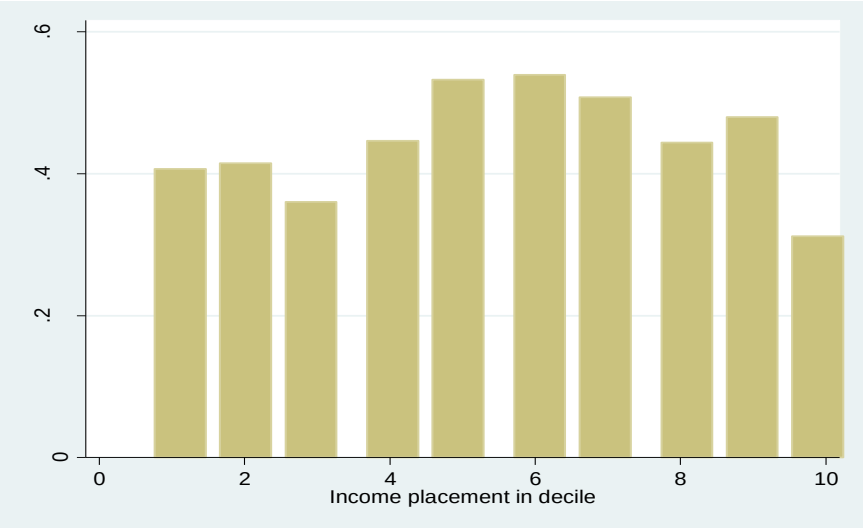
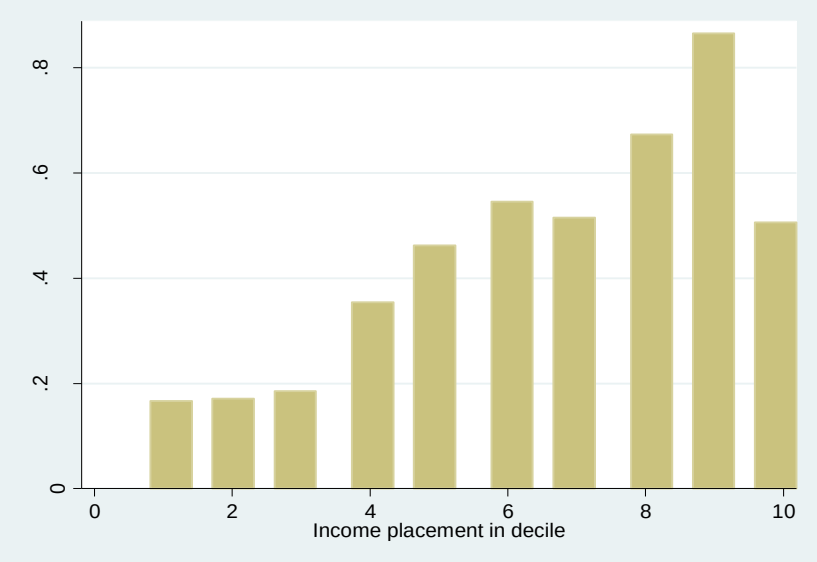
Appendix 1.

Histograms: Income Decile

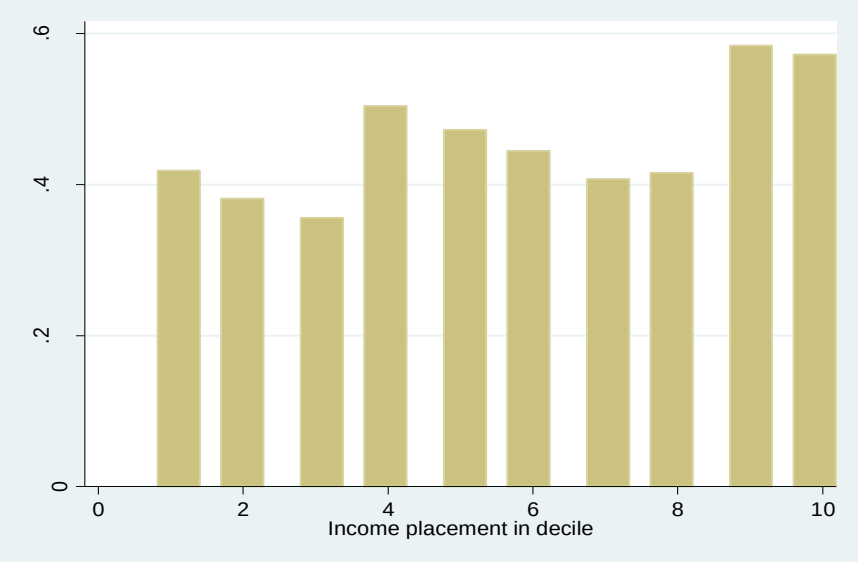
Below are histograms for France, Sweden and the United Kingdom showing the density (frequency) of each income decile (self-reported after respondent). X-axis shows the decile and Y-axis density/ frequency.



France



Sweden

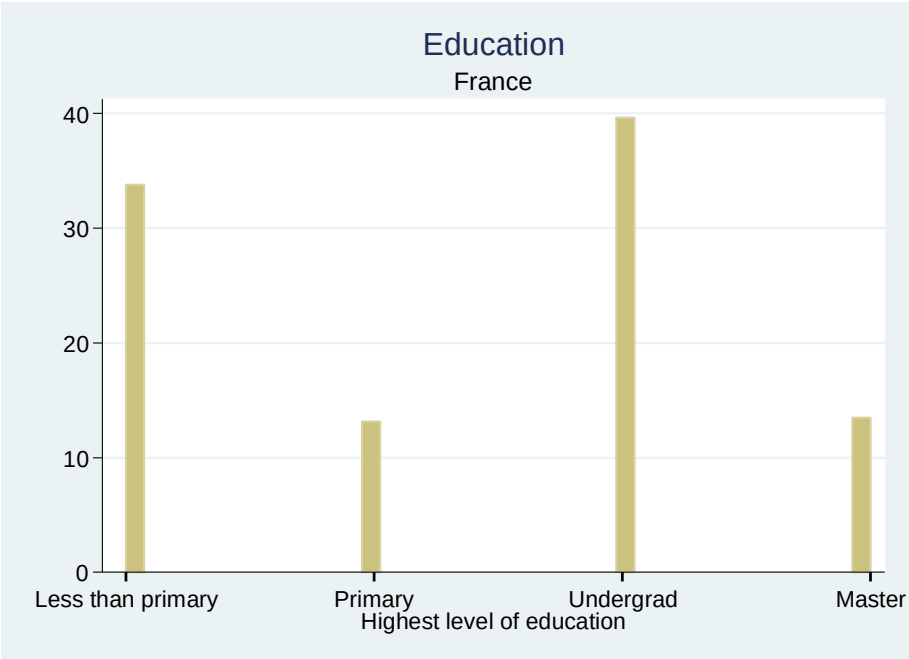


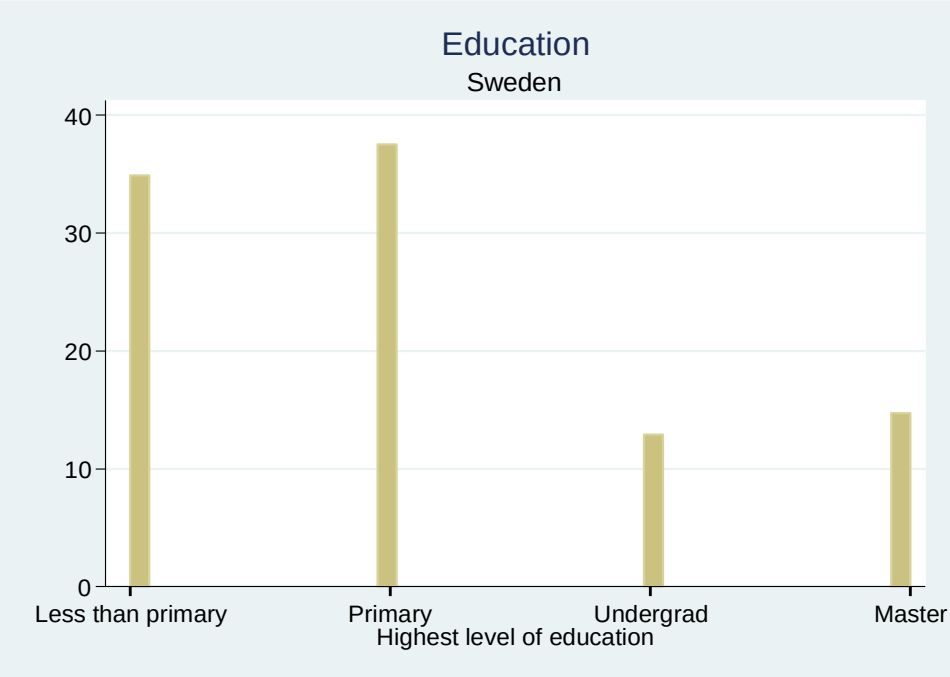
United Kingdom

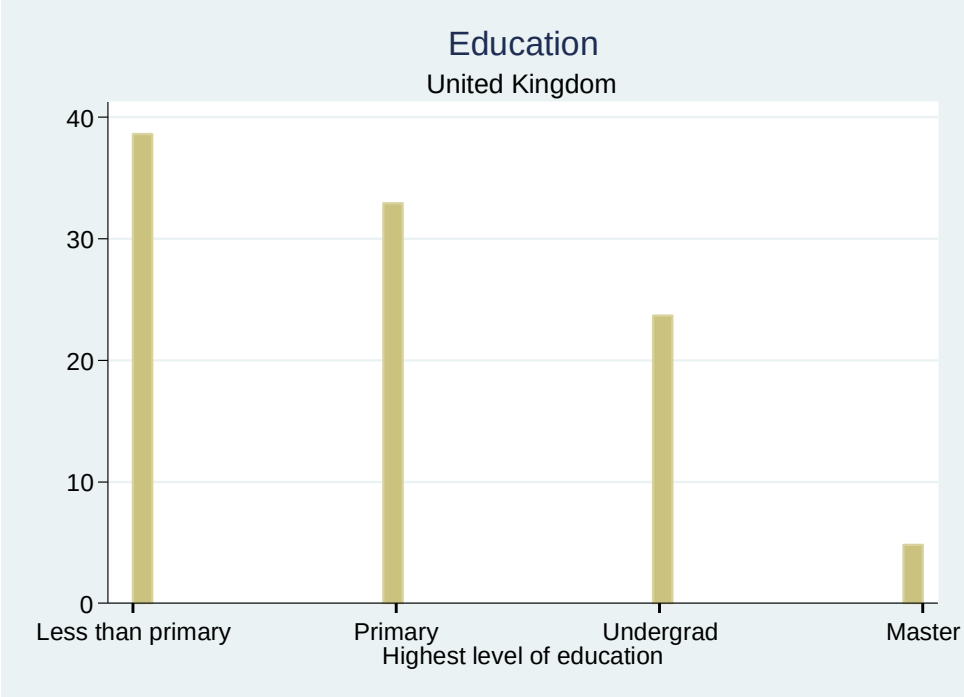
Appendix 1.2

Histograms: Education

Below figures show the highest level of education for each country. Each country lists over 20 different types of education. Respondents are coded after what corresponds to a primary level (high school degree), undergraduate degree, and a masters degree.



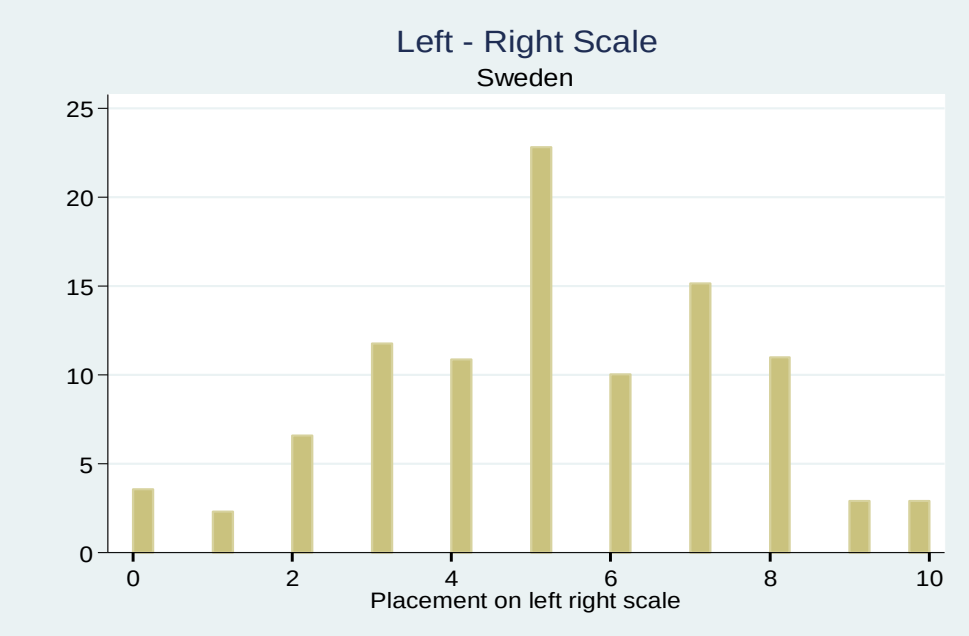


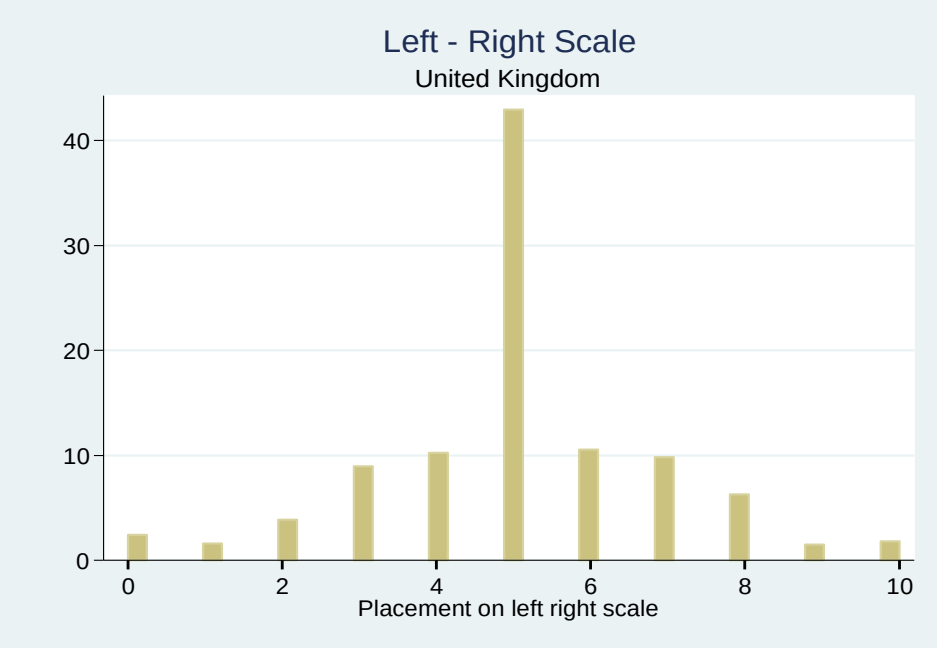


Appendix 1.3

Histograms: Left – Right Scale


Left - Right Scale
France
30
20
10
0
0
2
4
6
8
10
Placement on left right scale


Left - Right Scale
Sweden
25
20
15
10
5
0
0
2
4
6
8
10
Placement on left right scale



Appendix 1.4

Control regressions using GrowthT10, France and U.K

	(1)	*(2)*	*(3)*	*(4)*
VARIABLES	voteinc	voteinc	voteinc	voteinc
France				
ltenure	-0.177***	-0.0848	-0.185*	-0.209***
	(0.0507)	(0.101)	(0.0983)	(0.0771)
idwinc	1.343***	1.187***	1.225***	1.450***
	(0.0551)	(0.137)	(0.105)	(0.0742)
hhdinc	-0.106***	-0.0157	-0.0696	-0.159***
	(0.0299)	(0.117)	(0.0548)	(0.0409)
GrowthT10	0.0182	-0.0275	0.00158	0.0378**
	(0.0116)	(0.0373)	(0.0213)	(0.0165)
cac40	3.140***	2.051*	2.928***	3.653***
	(0.368)	(1.126)	(0.651)	(0.559)
lrscale	0.343***	0.339***	0.345***	0.345***
	(0.0116)	(0.0247)	(0.0216)	(0.0167)
Constant	-2.537***	-2.908***	-2.606***	-2.372***
	(0.136)	(0.321)	(0.255)	(0.195)
Pseudo R^2	0.4498	0.4146	0.4243	0.4785
Deciles	All	Low	Middle	High
Observations	4,875	883	1,369	2,623

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

	(1)	*(2)*	*(3)*	*(4)*
VARIABLES	voteinc	voteinc	voteinc	voteinc
U.K				
ltenure	-0.123***	-0.176***	-0.0206	-0.121***
	(0.0298)	(0.0534)	(0.0653)	(0.0435)
idwinc	1.112***	0.778***	1.208***	1.188***
	(0.0347)	(0.0766)	(0.0671)	(0.0487)
hhdinc	0.0667*	-0.0426	0.225***	0.118**
	(0.0389)	(0.115)	(0.0783)	(0.0553)
GrowthT10	0.0235***	-0.00430	0.0406***	0.0352***
	(0.00739)	(0.0311)	(0.0145)	(0.00952)
ftse100	0.552	-5.018	5.099	2.926
	(1.568)	(5.462)	(3.136)	(2.138)
lrscale	-0.250***	-0.207***	-0.235***	-0.276***
	(0.00824)	(0.0164)	(0.0164)	(0.0119)
Constant	0.807***	1.326***	0.0475	0.643***
	(0.160)	(0.405)	(0.332)	(0.228)
Pseudo R^2	0.1893	0.1166	0.2147	0.2163
Deciles	All	Low	Middle	High
Observations	9,091	1,753	2,408	4,930

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1