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Money, Money, Money... Pocketbook Voting in Sweden

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Abstract: Using a new dataset with objective changes in personal income between two elections we explore potential pocketbook effects on voter behavior. In contrast to previous research, our study does not rely on subjective perceptions of changes in individuals' private economic situation. Using the new dataset we are able to track voters in two subsequent elections and look at changes in bloc choice and income. We apply two different theoretical frameworks: a classical punish-reward framework – the most common one in electoral research – and an income-based voter polarization framework. We find no evidence for retrospective pocketbook voting. Neither an increase nor a decrease in income will affect the probability of voting for or against the incumbent government. However, we find strongly significant results indicating that voters tend to switch political bloc in accordance with changes in their personal income. This is true for both increases and decreases in income. The results suggest that pocketbook effects do influence voter behavior to a certain degree.

Keywords: Economic Voting, Pocketbook Voting, Income Voting

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1 Introduction

On election day, all citizens are given the tool to express their will through voting, the most widespread direct political action in democratic societies. It is simple, performed by many and an indispensable part of a democratic society. In September 2014 more than 85 % of the Swedes eligible to vote (Swedish Election Authority, 2014), took a stand on which direction the country should take and cast their ballots in the national parliamentary elections.

A vote, however, is a noisy signal for a voter's opinions and wishes. The decisive factors that motivated the vote choice are not communicable directly to the responsible political bodies through the vote only. Firstly, the study of elections and voting behavior is therefore vital from a democratic point of view. Understanding why individuals vote as they do and thereby providing insight to why different parties did or did not garner support will increase politicians and elected decision makers' opportunities to channel the electorate's wills into policy formation. Delivering on what matters to the public will hopefully help candidates retain votes in the following elections and become re-elected. Secondly, it is also important to understand if voters actually hold the elected representatives responsible for their actions in power by opting for other alternatives if the parties did not deliver the results desired.

Given that elections and voting are fundamentals in free democracies, it is no wonder why the academic literature concerning voting is expansive. Politicians and researchers alike try to understand why people vote and why they vote in a certain way. What drives voters to go to action and vote? Is the process rational? Emotional? Psychological? Social scientist, sociologists and economists have all tried to answer this question.

There is no denying that a nation's economic condition influences citizens' lives. Price levels, employment status and interest rates all have an impact on how individuals lead their lives. It is therefore natural that the political debate often revolves around economic policy. Redistributive policies such as taxes, subsidies and contributions, measures to decrease unemployment, stimulate consumption, etc., are usually dominant discussion topics when party representatives battle it out on the political scene. Studies show that economic conditions do influence vote choice (Lewis-Beck & Stegmaier, 2013). However, it is not clear how economic conditions influence voter behavior. To what extent does economic performance affect a citizen's vote choice? Which factors matter and which do not?

Although the detailed relationship between the economy and vote choice is not clear, politicians believe that the economy matters to the voter and act accordingly. This is not only visible through the political parties' manifestos and slogans during election times. Incumbent governments have also been shown to engage in economy boosting activities during elections years, while similar initiatives are largely absent in non-election years (Tufte, 1978). Similarly, the Swedish government

under Göran Persson's leadership in 1998, engaged in tactical vote purchasing behavior by using a temporary municipal grant program to win votes (Dahlberg & Johansson, 2002).

Many economic theories are modeled around the assumption of an economic man, who is rational, self-interested and utility-maximizing. This model of human reasoning has been successful in predicting behavior on competitive capital markets, but less so in other domains such as social dilemmas (Ostrom, 1998). Experimental economists have found that people consider factors such as fairness and reciprocity rather than material self-interest when making decisions (Fehr & Schmidt, 2001).

Our question is then, is there an economic voter who lets his or her own material self-interest guide the vote decision? In most studies, this theory has found little empirical support. Voters pay more attention to how the nation's finances are faring rather than their personal finances (Kinder & Kiewiet, 1981). Still, recent studies in Sweden have found that citizens do care about their own economic interests when stepping up to the ballot box (Elinder et al., 2015; Jordahl, 2006).

In the following study we use a new dataset with actual changes in personal income during a government's term of office to explore whether voters are driven by economic self-interest (their pocketbooks). In doing so we will apply two different frameworks. The first is a classical punish-reward framework, the most common one in electoral research, in which we investigate whether a person whose income has increased during the government's term of office will reward the incumbent government with their vote and if the contrary is true for a person whose income has decreased during the same period. The second framework builds on the theory of income-based voter polarization. As there is evidence that people with different income prefer different parties, we will explore if this is true for persons whose income has changed. Will voters vote differently when their incomes have changed? To our knowledge, this is the first time these frameworks have been applied to panel data on objective income changes and vote preferences.

The next section reviews previous literature regarding the link between the economy, income and voting. Based on this, we then define our research questions and the theoretical framework. Subsequently the data and the empirical method used is described in more detail. The results of our regressions are then presented and discussed before we end the paper with some general conclusions.

2 Previous Research

As we hinted in the introduction, many researchers have tried to understand the decision mechanism behind vote choice and determine the relative importance of economic, political and social factors. Research has even been done on the importance of beauty in electoral competition (Berggren et al., 2010).

In Sweden, voting behavior is strongly correlated to socioeconomic structures (Oscarsson & Holmberg, 2013). This effect on voter behavior is stable and resistant to change as it is formed and kept stable by social groups such as class, ethnicity, religion, etc. (Berelson et al., 1954; Lazarsfeld et al., 1944). While class is still a strong predictor of vote choice (Oskarson, 2005), the effect has almost halved in the last 60 years (Oscarsson & Holmberg, 2013). Age also seem to influence voting behavior, as Holmberg (2003) finds that people tend to move right on the political scale when they grow older. Apart from class and age, research suggest that vote choice is also influenced by factors such as economic indicators, level of education, religion, ideology and income (for a more expansive review of voting theories, please see Oscarsson & Holmberg (2013)).

In the following section we will look closer how specific economic factors influence vote choice. The review is divided into two subsections. The first reviews the academic literature concerning the link between government support and the state of the national and personal economy, which we refer to as “incumbent government voting”. The second subsection reviews the academic literature regarding personal income and vote choice, which we refer to as “income voting”. In the reviews, we first discuss general findings for each aspect of voting and then proceed to focus on Swedish evidence of the same.

2.1 Incumbent Government Voting

In the last decades over 500 articles and books have been published on the topic of economic voting (Lewis-Beck & Stegmaier, 2013). Over time, the standard classical punish-reward model of economic voting (formalized by Fiorina (1981)), in which the electorate punishes or rewards the incumbent government depending on past economic performance has gained considerable support (Paldam, 2004; Lewis-Beck & Paldam, 2000; Lewis-Beck & Stegmaier, 2007, 2013).

The studies of economic voting can be divided into macro and micro level studies. Macro level studies focus on aggregate results (e.g. the re-election of the incumbent government) and micro level studies deal with an individual's vote choice (e.g. voting for the incumbent government or not). Macro level studies usually focus on so called VP-functions (vote/popularity-functions) in which data on national election outcomes or party popularity are combined with timeseries data with macroeconomic indicators of objective (based on facts) or subjective (based on people's perceptions) nature. Overall, these studies show a strong support of the economic vote and single nation macro

models usually have high explanatory power (high R-squareds) (Lewis-Beck & Stegmaier, 2013). Changes in economic performance explain about 30 % of the change in vote (Lewis-Beck & Paldam, 2000).

So which economic factors matter for election outcomes? Examining 19 industrialized nations in a cross-national study, Powell & Whitten (1993) find unemployment and economic growth to be the most influential factors governing election outcomes in the period 1969-1988. In another multinational study, economic growth is found to be a prime driver of electoral outcomes (Dassonneville & Lewis-Beck, 2012). On the contrary, in Sweden, Jonung & Wadensjö (1979) found that changes in unemployment rates and inflation affected the popularity of the governing Social Democratic Party in the period of 1967-1978 more strongly than GDP growth. Similar conclusions were reached by Håkansson (1988). Other studies reinforce that unemployment has a strong impact on government popularity in Sweden, but do not find any conclusive results regarding neither inflation nor growth (Hibbs & Madsen, 1981). In a more recent study covering the period between 1970-2002, Martinsson (2009) finds that unemployment influences election outcomes while inflation does not.

Macroeconomic indicators such as inflation and unemployment hide real people who live and experience the reality of increasing price levels and employment cuts. Moving from the macro to the micro level, will economic conditions also affect the vote choice of individual voters as they make their way to the ballots? Given that there is a general consensus regarding the effect of economic performance on election outcomes, the same pattern should be found on an individual level with the same variables affecting individual vote choice. If the result of micro level studies do not match those of macro level studies, the latter may just be a result of a coincidence.

Since the 1980's, economic voting research has mainly focused on micro level studies trying to understand factors influencing individual voter behavior rather than election outcomes and so will we in this study. Lewis-Beck & Stegmaier (2013) hold that the economic vote can take several forms, with two divisive dimensions: time horizon and target. Time horizon relates to whether voters look to the past (retrospective), the future (prospective) or both in their vote calculus while target relates to whether personal (egotropic) or national (sociotropic) economic conditions influence vote choice. The influence of each dimension is usually tested using models that compares the different effects on the individual vote controlled for factors such as class, ideology, etc.

The following subsections will explore these two strands of economic voting research.

2.1.1 Retrospective vs. Prospective

The classic punish-reward model which is used to test the presence of economic voting assumes that voters are retrospective (Fiorina, 1981). When stepping up to the ballot, voters consider the economic track record of the incumbent government and depending on whether they deem the

government to have succeeded or failed, they choose to vote for or against. Hibbs (2006) compares this to a principal-agent relationship between the government and the electoral body.

The logic of retrospective voting can be explained in two ways: pure or mediated retrospective voting. Key (1966) viewed economic voting as a mechanism of democratic accountability, arguing that the rational voter is purely retrospective in the vote calculus as the voter can not know anything about the future. Elected officials, keeping in mind future elections, anticipate the judgment of the voters and will then act according to the voters' interest. Downs (1957b), on the other hand, argues that because the rational voter seeks to maximize his or her utility in the future, he or she has a prospective outlook when making the vote choice. To formulate expectations on the potential of future governments, however, the rational voter disregards campaign promises and uses the alternatives' past performance as a base for evaluation. The government's track record is thus used as a basis for evaluation of future performance, constituting a sort of mediated prospective voting. In both types of retrospective voting, the opposition is viewed as a passive bystander.

A large share of the economic voting research has focused on retrospective voting and the model appears to have empirical support (see Lewis-Beck & Stegmaier (2013) for an overview of current state of knowledge). Studies of prospective voting are not as common as the classic retrospective set up, however studies in the UK (Sanders & Price, 1995) and US (Lockerbie, 1992) have found that voters do behave in a prospective manner as well. Lewis-Beck (1988) find support for both retrospective and prospective outlooks.

In Sweden, there is also evidence of both retrospective and prospective voting. Martinsson (2013) applies the classical reward/punish model with macroeconomic variables to the period 1985-2010 and finds significant retrospective effects. Subjective evaluations of the national economy have substantial effects on government support in all elections except for 2006. A strong reward effect was observed in 2010 when the incumbent right-wing government was reelected. Also Jordahl (2006), studying the period 1985-1994, find retrospective effects from both objective and subjective macro and subjective micro factors.

In practice, however, it is very difficult to empirically test the time horizon used by voters in the classic punish-reward framework due to its abstract nature and the inherent difficulty in trying to isolate the effect. In a different approach, Elinder et al. (2015) base their test of prospective voting on past policy implementation and campaign promises, and find that Swedish voters respond to electoral promises rather than past performance. These findings are more in line with the Swedish electoral context, since Swedish elections have been found to be forward-looking rather than retrospective (Esaiasson & Håkansson, 2002; Petersson et al., 2002); the political debate during elections tends to focus on promises rather than the past performance of the incumbent government.

In connection to discussions regarding retrospective voting, it is also appropriate to address why retrospective effects could be diluted or non-observable. No matter if the elected officials succeed or

fail in the management of the economy, the punish-reward dynamic of the relationship will run into trouble if it is difficult to pinpoint the responsible for the state of the economy. When diffusion of responsibility is high, the wrongdoers will escape punishment and the heroes will not be able to reap the rewards of their efforts, as the disciplinary effects of the vote are diminished. Powell & Whitten (1993) list several factors that diffuse the clarity of responsibility. Minority governments have a negative effect on the attribution of responsibility as the party in government can claim that they did their best but the other parties in parliament were unwilling to cooperate. Minority governments are less likely to lose votes than majority governments Powell & Whitten (1993). A supported minority (with explicit support from one or several parties in parliament) government falls somewhere in between a majority and a pure minority government. Multiparty coalitions and a participatory and inclusive committee system in the legislature also diffuse responsibility while a strong party discipline and cohesion has the opposite effect.

In the context of our study, there are several aspects that speak for and against diffusion of responsibility. All governments during the studied period have been either minority governments or multiparty coalitions. Further weakening the clarity of responsibility is the presence of the inclusive parliamentary committee system. Party cohesion in the Swedish parliament is however very strong (Esaiasson & Holmberg, 1996) meaning that the elected representatives vote along the party line in an absolute majority of questions. The effect of “rouge” representatives is very small and voters can demand accountability from the party and not only the representatives.

In brief, the evidence for retrospective and prospective voting is mixed and is troubled by the difficulty in empirically determining the time horizon used by the voter when evaluating the different alternatives. In the next section, we will explore current knowledge regarding whether voters act with their own or society’s economic interests close to heart.

2.1.2 Sociotropic vs. Egotropic

Sociotropic and egotropic voting, whether the individual looks to the national economy or her own financial situation when evaluating economic performance, has been widely studied. In the words of Kinder & Kiewiet (1981, pg. 274) pocketbook voters “support candidates and parties that have advanced their own economic interests and oppose candidates and parties that appear to threaten them”. Similarly, for the purpose of this study, we define egotropic voters as individuals who react to personal economic factors with selfish motives. We use the terms egotropic and pocketbook voter interchangeably. We define sociotropic voters as individuals who react to macroeconomic factors with altruistic motives.

In an expansive review including all major studies, Lewis-Beck & Stegmaier (2013) concludes that sociotropic effects usually trump egotropic effects but that egotropic effects, although restricted,

still exist. In Sweden, both sociotropic and egotropic effects have been found. Oscarsson & Holmberg (2013) find strong explanatory power in sociotropic factors as well as some explanatory power from egotropic factors. Jordahl (2006) tests sociotropic and egotropic factors' influence on the individual vote. He finds that the personal economic situation matter about as much as the national economic situation. He performs his analysis using both cross-sectional and panel data and finds that the results from panel data better explain voter behavior.

Elinder et al. (2015) find evidence of pocketbook voting in Sweden as they study the relative response of parents with young children between implemented reforms and promises that specifically affected parents with young children. Although Swedes in general think it is unethical to vote for a party out of self-interest (Carlsson & Johansson-Stenman, 2010), this study seems to indicate they do so anyways.

In short, it is difficult to draw any general conclusions regarding the extent of egotropic voting in Sweden. In most international studies egotropic effects are usually trumped by sociotropic effects. Oscarsson & Holmberg (2013) find limited pocketbook effects, while Jordahl (2006) finds a relatively strong effect. These studies all have in common that they use subjective assessments of the personal economic situation.¹ While objective measures of macroeconomic indicators have been used (see Jordahl, 2006), we have not seen any empirical study in which objective changes in a person's financial conditions have been used.

An additional advantage to using an objective measurement of change in personal finances is the avoidance of any potential biases due to endogeneity in the explanatory variable or the causal relationship between partisanship and assessment of the economic conditions.²

2.2 Income Voting

The following section will focus on differences in voting due to income differences, also called income-based "voting polarization" (Huber & Stanig, 2009). Political scientists and economists alike have attached great importance to the notion that voters on the lower end of the income scale will support parties with leftist redistributive economic policies (Lipset et al., 1954). Romer (1975) and Meltzer & Richard (1981) use relative income position as determinant for demand in redistribution.

¹The respondents are asked whether they think their economic situation has improved, stayed the same och become worse in the past 12 months.

²Several scholars of economic voting hold that subjective perceptions of the economy are flawed and heavily influenced by partisanship (see for example Anderson et al. 2004; Evans and Andersen 2006). If this is the case then the variable is endogenous and affected by the individual's opinion on the party being evaluated, and any correlation observed between the state of the economy and the vote could be deemed spurious. The prominence of economic factors' influence on political behavior should in that case be reconsidered. Evans and Andersen (2006) claim that the causal relationship between economic perception and political orientation is the opposite. Economic perception does not influence political orientation, but rather the opposite. If this is true, the variation in economic conditions may be based on partisan feelings, and not real differences in the assessment of the economy.

A relatively poor person benefits more from redistributive policies and should hence demand more of the same and vice versa for a relatively rich person. As income increases people have less to gain, in pocketbook terms, from redistributive policies. If they vote with their pocketbooks, we would expect people with a high income to vote for the less redistributive policies associated with the right wing parties.

This has also found support in empirics, although the extent of income-based redistributive voting vary according to country and election specific contexts (Huber & Stanig, 2009). In the American context, income has a strong effect on vote choice and this effect seems to be increasing over time (Brooks & Brady, 1999; McCarty et al., 2003). Oscarsson & Holmberg (2013) investigated income and voting in Sweden and found a connection between higher income and a tendency to vote for parties with less redistributive policies.³

Further evidence of income voting is found in Karadja et al. (2014) in which they find that Swedes tend to underestimate their relative position on the income distribution. In general, Swedes think that they earn less compared to others. However, when they are informed about their real position on the income scale, which is higher than they expected, those with right-of-center political preferences tend to increase their support for the Moderate Party, while those with left-of-center preferences do not change their party preferences.

To our knowledge, no studies have examined whether objective changes in income affect preferences for political bloc and the redistributive policies associated with the same. Our research will therefore fill a void in voting research.

2.3 Concluding Remarks on Previous Research

In the previous subsections we have explored different aspects of economic voting and income voting on a general level as well as in a Swedish context. There is empirical support for both phenomena in Sweden and internationally. In the context of economic voting, factors such as socioeconomic background, education, as well as both sociotropic and egotropic economic factors have been shown to influence how individuals cast their ballot. There are ambiguous results regarding whether voters use past, future or both time horizons in their evaluation of the economic alternatives. One of the reasons for this confusion is the inherent difficulty in separating retrospective from prospective voting empirically (see Hibbs, 2006).

Drawing on previous research we find a gap in the current state of knowledge regarding the impact of objective changes in personal finances on voting behavior, both in terms of incumbent government voting and income voting. This will be developed in the following section.

³Our own data show a similar pattern. Please see appendix B.

3 Specification of Research Questions

Many theories in the domain of political economy, including the median voter theorem by Meltzer & Richard (1981) and the political business cycle theory by Nordhaus (1975), build on the assumption of the rational pocketbook voter. As shown in the previous section however, electoral research has found little support for this and in most cases the effect of egotropic voting is low compared to that of sociotropic voting. However, both Elinder et al. (2015) and Jordahl (2006) do find evidence of pocketbook voting in Sweden. Karadja et al. (2014) find evidence of vote switching induced by new information on relative income position. This seems to indicate that voters do care about their pocketbook when stepping up to the ballot box on election day.

To investigate the presence of pocketbook voting among Swedish voters we choose to look at both types of voting outlined above: incumbent government voting and income voting. More specifically we want to look at the following questions:

1. Will voters whose financial situation has improved during the government's term of office reward the incumbent government?
2. Will voters whose financial situation has deteriorated during the government's term of office punish the incumbent government?
3. Will voters switch political bloc in accordance with changes in their personal financial situation?

In the next section we will define the theoretical foundation on which we will base our analysis.

4 Theoretical Foundation

To determine the existence and potential dynamics of pocketbook voting, we will use two different frameworks in our study - incumbent government voting and income voting - keeping the notion of pocketbook voting intact between the two.

We build on the Downsian view of the voter as a rational decision maker that makes informed decisions: "each citizen casts his vote for the party he believes will provide him with the more benefits than any other." (Downs, 1957a, pg. 36). Policies take the form of instruments as voters are more concerned about their outcomes and their corresponding utility than the policies in themselves. The voter compares and contrasts different alternatives to arrive at a voting decision that he or she then acts on. In the vote calculation, citizens are expected to take their personal economic situation into consideration.

As stated in previous sections, we define a pocketbook voter as a person who is self-interested and evaluates the economy based on his or her own economic situation.

We use official data from the Swedish Tax Authority on income as a measure of the individual's economic situation. We will then use the change in income during the studied period to assess whether the individual is better or worse off.

4.1 Incumbent Government Voting

We will build on the traditional reward-punishment theory of economic voting, in which voters reward the incumbent government for good economic performance and punish it for bad economic performance (Key, 1966; Fiorina, 1981). The theory states that if voters are rational and self-interested, they will vote for the incumbent government if they deem that the government has done a good job. If voters vote by their own pocketbooks the question becomes how the policies of the incumbent government has affected each voter's personal finances.

We extend earlier research on retrospective economic voting by using an unbiased measurement of economic situation. By using income data collected from the Swedish Tax Authority we have an objective and quantifiable measure for each individual's economic situation. To our knowledge there are no earlier studies using income, or any objective measures at all, to quantify an individual's economic situation. We want to examine whether voters reward the incumbent government for improvements in their economic situation (i.e. increased income) and whether they punish them for declines. Since we use panel data we can look at the effect of income change in isolation.

4.2 Income Voting

Moving on from the punish-reward behavior of voters we then examine pocketbook effects on income-based voter polarization. As shown in previous sections, voters with different income prefer different parties. We will explore if this is true for persons whose income has changed. Will people change their voting behavior after their income has increased or decreased?

As before, we assume that the voter is self-interested and aims to maximize his or her own utility. We use a left-to-right scale where the parties are positioned according to their tax-and-transfers policies. This corresponds well to the findings of Benoit & Laver (2006) that the main dimension of political divergence in Sweden concerns economic issues and that the political space in the country is fairly one-dimensional. We assume that voters have an understanding of the left-right scale and that they perceive a difference in redistributive policies between the left and the right wing parties with the right wing parties preferring less redistribution and lower taxes than the left wing parties.

We seek to investigate the connection between income and party choice by looking at how people change their votes as their income changes. If people base their choice on their financial situation we should be able to find a pattern where people switch to vote for a right wing party as their income increases. There should also be a reverse effect where people who see a decrease in their income move towards left wing parties as they benefit from more redistributive policies. Even if the income both before and after the decrease are relatively high the voter enjoys an increase in benefit from more redistributive policies.⁴

To further test the idea that voters change their vote to benefit their personal situation we will also investigate whether the threshold for central government in the Swedish tax system has any effect on party choice. Individuals whose income surpasses this threshold see a sudden change in their marginal tax level and may therefore change their political preferences.

To our knowledge, we are the first to explore the dynamics of income-based voter polarization using actual income changes between two elections to see whether this affects voting behavior.

⁴The tax they pay decreases and their cost for public services is thereby lower.

5 Data

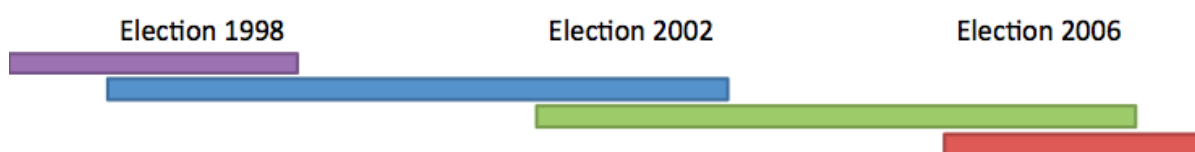
Due to its scarcity, panel data has only been employed in the economic voting research to a limited extent. We use panel data following an individual through two elections where data has been collected in connection to each election. The use of panel data makes it easier to identify causal relationships as it allows us to study the same voter in two elections. In contrast, when using the most common type of data used in studies on economic voting, cross-sectional data, proving causality can be difficult since these do not follow an individual through time. Using panel data reduces the chance of the results depending on non-identifiable factors affecting the individuals studied. Since we follow a person over two elections we can look at changes between the two elections in isolation. This means that we assume that factors such as for example social class remain constant over the four year period. Using panel data and the assumption that the variables we omit are either the same for all individuals or random allows us to better identify causal relationships.

5.1 Data Collection

We use survey data on national elections from the Swedish National Election Studies. The data is collected in the form of face-to-face interviews, carried out by Statistics Sweden⁵. The participants constitute a simple random sample of the Swedish population. Half of the participants in each survey are interviewed in the weeks leading up to election day and are then sent a short questionnaire by mail after the election. The remaining half of the sample is interviewed once after the elections have taken place.

Each individual is observed during two elections as they are organized into two-wave rolling panels. About half of the sample that participates in the first election will be invited to be interviewed in the next election. The other half of the sample is made up of new respondents that will receive the survey again in the election after that. In brief, half of the sample is replaced in each election.

Figure 1: The two-wave rolling panel used for data collection



The surveys have a high response rate, ranging between 69 % (2002, 2006) and 81 % (1998). A high response rate for a survey tends to make the dataset more reliable than if it had a low response rate (Groves & Peytcheva, 2008). Face-to-face interviews entail advantages such as making

⁵SCB, Statistiska Centralbyrån

sure that the respondent understands the questions, rendering higher quality of data. However, the interaction with the interviewer may also lead to less accurate responses compared to survey methods where the respondent interacts less directly with the interviewer (Rada, 2011). Given that personal voting behavior is of sensitive nature, it is possible that the personal setting of the interviews could influence the sincerity of the vote disclosure. Each participant is checked towards the voting registry, controlling whether the person actually voted. Naturally, we cannot control the accuracy of the claimed vote, but the incentives for a participant to provide a false response must be deemed to be very limited in spite of the intimate interview setting. The questions used can be found in appendix E.

Income data for the election years is collected from the Swedish Tax Authority⁶ and linked to each individual before the data is anonymized. Since Sweden has progressive taxation on labor and transfer income, we use taxable income for our income measure. As a person's labor income increases it becomes subject to higher taxation, both in absolute and relative terms. The individual only pays municipal tax of about 30 % until their income exceeds the threshold for central government income tax. Any income above this threshold is taxed with both the municipal tax of around 30 % and the central tax of 20 % for a combined 50 % tax. There is also a second threshold increasing the central tax from 20 % to 25 % (Swedish Tax Authority).

Capital income tax is not progressive, but the absolute amount of taxes paid increases when taxable income increases. Furthermore, social security benefits are calculated on the basis of taxable income. Taxable, rather than disposable income (for which taxes already have been deducted), is therefore a suitable measure of income as the individual can observe the increase in his or her income along with the change in tax paid.⁷ Using disposable income would only work if each individual paid the same share of taxes on their income, which is not the case.

5.2 The Swedish Political Landscape

During the period studied there have been nine parties represented in the parliament. Five of these have been present in the parliament through all five elections.⁸ The Green Party lost their seat in 1991 and made a comeback in 1994 and have been since been present in the parliament. New Democracy entered parliament in 1991 (6.7 % of votes) and lost their seat in 1994. The Christian Democratic Party have been present in the parliament since 1991. After a relatively tumultuous start of the 1990's it took until the 2010 elections, the last election in our data, until a new party entered parliament, the Sweden Democrats (5.7 % of votes).

⁶Skatteverket

⁷Implicitly, we assume that voters are aware of the taxes they pay. In practice, this means that they actually read their income statement and tax declaration.

⁸For the translation of party names, please see appendix A.

When looking at support for incumbent government we define the main ruling party along with any supporting parties as incumbent and any other parties as opposition. There is a strong case for including the supporting parties since a vote for them would be a vote to keep the incumbent government. Would the voter want another government they would have to vote for a party not supporting the incumbent government, thus changing blocks.

During the period studied, the incumbent governments have either been Social Democratic minority governments or center-right multiparty coalitions. In three elections (1998, 2002 and 2006) the incumbent government consisted of a minority government by the Social Democrats with support of the Left Party and the Green Party. The other two elections (1994 and 2010), the incumbent government was formed by a coalition of four right-wing parties: the Moderate Party, the Liberal Party, the Center party and the Christian Democrats. We define the Social Democratic Party together with the Left Party and Green Party as the left -wing bloc and the Moderate Party, the Liberal Party, the Center party and the Christian Democrats as the right-wing bloc. Other parties (New Democracy and the Sweden Democrats) are not considered part of any bloc.

In line with the findings of Benoit & Laver (2006) we use a one-dimensional left-right scale for our classification of the Swedish political parties. The left-right scale is closely linked to economic policies and the amount of redistribution desired by the different parties. The parties' positions on the scale have not moved significantly during the period studied. This is supported by the results of Oscarsson & Holmberg (2013, pg. 225), where voters themselves have placed the different parties on a left-right ideological scale. In these results, none of the nine parties included have moved from the left respective right-wing bloc during the time studied. With regards to the one-dimensional scale and the focus on economic questions it does not seem implausible to assume that part of this positioning is connected to the economic policies of the parties.

5.3 Dataset and Variables

The panel data is pooled together into one dataset as this allows us to approximate the effect of pocketbook voting over a longer time period. On the other hand, using pooled data will make it difficult to detect trends over time in pocketbook voting. We look at five national elections between 1991-2010 forming five panels of two elections. We are using all available data to be able to draw as general conclusions as possible and increase the size of our sample.

Significant work has been put into normalizing the data from different surveys to be able to use the pooled dataset. Most of this work stems from variables being named or coded differently during different years and not from differences in question design. We have obtained income data at a more detailed level than the default included in the data and merged it with the rest of our dataset.

Individuals with missing values for vote for either of the two surveys they participated in are

Table 1: Incumbent and opposition parties at the time of each election

Election Year	Incumbent	Government parties (incl. supporting parties)	Opposition
1994	Right-wing Minority	Moderate Party, Liberal Party, Center Party, Christian Democratic Party	Social Democratic Party, Left Party, Green Party*, New Democracy
1998	Left-wing Minority	Social Democratic Party, Left Party, Green Party	Moderate Party, Liberal Party, Center Party, Christian Democratic Party
2002	Left-wing Minority	Social Democratic Party, Left Party, Green Party	Moderate Party, Liberal Party, Center Party, Christian Democratic Party
2006	Left-wing Minority	Social Democratic Party, Left Party, Green Party	Moderate Party, Liberal Party, Center Party, Christian Democratic Party
2010	Right-wing Majority	Moderate Party, Liberal Party, Center Party, Christian Democratic Party	Social Democratic Party, Left Party, Green Party, Sweden Democrats*

* Entered the parliament in this election

excluded as well as individuals where income data is missing from either of the two periods. In order to isolate the effect of income changes we have chosen to only include individuals who were employed at both elections. We thereby exclude effects in income due to lifecycle events such as becoming employed or unemployed, retirement, etc. The final dataset consists of 2,102 individuals.

Table 2: Distribution of observations

Panel	Freq.	Percent	Cum.
1991-1994	512	24.36	24.36
1994-1998	445	21.17	45.53
1998-2002	327	15.56	61.08
2002-2006	467	22.22	83.30
2006-2010	351	16.70	100.00
Total	2,102	100.00	

Party voted for is recorded in one variable for each election and the value is corrected to include public information that they did in fact vote. From these two variables on vote a number of other variables are derived. A variable (vote_incumbent) is boolean variable indicating whether the voter voted for the incumbent government. As noted above votes for parties supporting a minority governments are classified as voting for the incumbent government.

To look at movements left and right we define two boolean variables, one for each direction. The

variable for moving left (`move_left`) equals 1 if the individual voted for a right-wing party in the first election and for a left-wing party in the second election. The variable for moving right (`move_right`) equals 1 if the individual voted for a left-wing party in the first election and for a right-wing party in the second election. Individuals voting for one of the other parties or who abstained from voting are excluded. With these two variables we can compare those who changed block to those who did not and we can also look at movements in different directions separately. By excluding all other observations and only comparing two distinctive groups we can focus closer on the effect of income change.

Income data is taken from the Swedish Tax Authority and is reported in 1000 SEK for 1994 and 1998, 100 SEK for 1991 and SEK for 2002, 2006 and 2010. We compute the real income in 1990's SEK using Swedish KPI.⁹ The real income is then used to compute a variable for percentage change in real income and this percentage change is in turn used to compute threshold variables for positive and negative changes in real income. We further introduce a boolean variable for whether an individual's income has surpassed the income threshold for central government income tax in the period between the first and second election.

We also define dummy variables for different age groups: 20-29, 30-39, 40-49, 50-59 and 60-69 years respectively. For descriptive statistics please see appendix D.

⁹KPI is not a perfect measurement of inflation but precise enough for this application.

6 Empirical Specification

Since the dependent variables (`move_right`, `move_left` and `vote_incumbent`) take the form of binary probability variables we use a probit model, which adheres to the fact that the dependent variable only can take values of 0 or 1 and that the probability will be somewhere in between those values. It accomplishes this by treating the dependent variable as a continuous value in the cumulative probability function from a normal distribution and the regression coefficients as the change in z-value for a change in the independent variable. Since the effect on probability from a change in z-value differs depending on the original z-value, the marginal effect of the coefficients is used to interpret the effects. Looking at the marginal effects means that the value given is the effect at a certain “starting point” and is not the applicable across all values. Since most of the variables we use only take values of 0 or 1 the interpretation is simplified and the marginal effect is the general effect.

Our focus is the effect of income change on voting behavior and since we use panel data we can look at the effect of income change in isolation. Since the primary focus of this investigation is to study any potential effect personal income changes can have on individuals’ voter behavior, we have chosen to not include macroeconomic variables. We argue that the state of the macro economy is the same for all respondents, no matter if they have increased or decreased their income, and can be excluded. We are instead closely comparing groups with different changes in their economic situation.

6.1 Incumbent Government Voting

We start with investigating whether there is any connection between income changes and the support for the incumbent government. We check if people with a real income increase reward the incumbent government and then whether the probability increases with the size of the increase. Since not voting for the incumbent party and a decrease in income are the exact opposites of voting for the incumbent government and an income increase we cannot tell rewarding and punishing effects apart. We include dummies for each election to control for election specific effects in support for the incumbent government.

We do a robustness test by running the same regression but instead we use a variable for income increases exceeding a certain threshold. Running a regression with this threshold also allows us to better compare the results to those regarding income voting, although we are aware that the logic of the threshold might seem a bit counterintuitive in this case as voters whose real income increases would behave differently although they are both better off than four years ago. A voter with a small increase would punish the incumbent while a voter with a bigger real income increase would reward the same. This threshold is set to having a better outcome than 75 % of the sample (i.e. +32.97 %), which means having a higher increase than the 75th percentile of all the people

experiencing both increases and decreases.

We treat the probability of voting for the incumbent party as a variable dependent on the change in the voter's income. We use a probit model with whether the voter voted for the incumbent party as the dependent variable and whether they had a positive change in income as the independent variable. The model is defined as

$$\begin{aligned} \text{vote_incumbent} = & \alpha + \beta_1 \times \text{positive_real_income_change} \\ & + \beta_2 \cdot \{\text{vector_of_election_dummies}\} + \epsilon \end{aligned} \quad (6.1)$$

where *positive_real_income_change* is a dummy variable indicating whether the voter had a positive change in real income and *vector_of_election_dummies* is a vector that includes one dummy for each election.

After looking at whether a positive change in income has any effect on the probability of voting for the incumbent government we want to investigate whether the size of the change matter. We use a probit model to check whether the probability of voting for the incumbent government increases as the change in real income increases. The model is defined as

$$\begin{aligned} \text{vote_incumbent} = & \alpha + \beta_1 \times \text{real_income_change_percent} \\ & + \beta_2 \cdot \{\text{vector_of_election_dummies}\} + \epsilon \end{aligned} \quad (6.2)$$

where *real_income_change_percent* is the percentage change in real income and *vector_of_election_dummies* is the same vector of dummies as in the previous equation.

We then look for differences in income effects on voter behavior between those who supported the incumbent government in the election they were elected and those who voted for the opposition. We also run this regression using the threshold for income increase to test the robustness of our results. The model is defined as

$$\begin{aligned} \text{vote_incumbent} = & \alpha + \beta_1 \times \text{positive_real_income_change} + \beta_2 \times \text{voted_government} \\ & + \beta_3 \times \text{positive_real_income_change} \times \text{voted_government} + \epsilon \end{aligned} \quad (6.3)$$

where *positive_real_income_change* is a dummy variable indicating whether the voter had a positive development in real income, *voted_government* is a dummy variable indicating whether the voter voted for the current government in the previous election when they were elected and *positive_real_income_change* $\times$ *voted_government* is an interaction term.

6.2 Income Voting

To investigate the effects of income change on bloc change we begin by checking whether there is a difference in probability of moving from the left to the right bloc between those with a substantial positive change in real income and those without such increase. The substantial change in income is defined as having a percentage increase in real income over a certain threshold. This threshold is set to having a better outcome than 75 % of the sample (i.e. +32.97 %), which means having a higher increase than the 75th percentile of all the people experiencing both increases and decreases. We use a threshold because individual voters are assumed to require a non-negligible change in income to appreciate their new economic situation and consequently reevaluate their vote based on it. Testing with a threshold variable, compared to only a continuous variable, also allows us to detect effects even if they do not increase together with the size of the income change. To test the robustness of this result, we also test with the thresholds 10 percentage points larger and smaller than the original threshold (i.e. +42.97 % and 22.97 %).¹⁰ We include dummies for age group as control variables to capture general life cycle effects.

The model is defined with the probability of moving right as dependant on the individual having a substantial increase in real income. We then run a probit regression on this model

$$\begin{aligned} move_right = & \alpha + \beta_1 \times increase_exceeding_threshold \\ & + \beta_2 \cdot \{vector_of_age_group_dummies\} + \epsilon \end{aligned} \quad (6.4)$$

where *increase_exceeding_threshold* is a dummy variable indicating whether the voter had a positive change in real income exceeding the percentage threshold and *vector_of_age_group_dummies* is vector of dummies for different age groups. We control for age groups due to previous studies finding that voter behavior changes with age.

After checking for the existence of an income effect we want to check whether there the probability of moving right increases as the income change increases. We do so by defining a model where the probability of moving right is dependant on the size of the income change. The model is defined as

$$\begin{aligned} move_right = & \alpha + \beta_1 \times real_income_change_percent \\ & + \beta_2 \cdot \{vector_of_age_group_dummies\} + \epsilon \end{aligned} \quad (6.5)$$

where *real_income_change_percent* is the percentage change in real income and *vector_of_age_group_dummies* is the same vector of dummies as in the previous equation.

We then do the same for moving from the right-wing to the left-wing bloc and those having a

¹⁰Since the threshold value might seem arbitrary we feel the need to perform further tests to make sure the result is just not a coincidence of the threshold value chosen.

substantial negative change in income. We use a negative threshold set to having a development in real income worse than the median decrease (-10 %). For robustness we also test with thresholds defined as the original threshold increased and decreased with 10 percentage points (i.e. 0 % and -20 %). The model used is

$$\begin{aligned} move_left = & \alpha + \beta_1 \times decrease_exceeding_threshold \\ & + \beta_2 \cdot \{vector_of_age_group_dummies\} + \epsilon \end{aligned} \quad (6.6)$$

where *decrease_exceeding_threshold* (together the two other thresholds) is a dummy variable indicating whether the voter had a negative change in real income exceeding a threshold and *vector_of_age_group_dummies* is vector of dummies for different age groups.

We then check whether the size of the income decrease is correlated with the effect in probability. The model is defined as

$$\begin{aligned} move_left = & \alpha + \beta_1 \times real_income_change_percent \\ & + \beta_2 \cdot \{vector_of_age_group_dummies\} + \epsilon \end{aligned} \quad (6.7)$$

where *real_income_change_percent* is the percentage change in real income and *vector_of_age_group_dummies* is the same vector of dummies as in the previous equation. A negative coefficient in this model indicates that the probability increases with the size of the income decrease.

To test the robustness of our results we also run specifications 6.5 and 6.7 again using winsorized values for real income change in percent. Winsorized values imply that all the values in the 1st and 99th percentile are replaced with the lowest value in that percentile and values in the 1st percentile are replaced with highest value in that percentile.

Finally we look at the effect of passing the threshold for central government income tax on the probability of moving from left to right. There is two thresholds in the central government tax, one which qualifies you for the tax to begin with, increasing marginal tax by 20 percentage points and then an second threshold, at which point the marginal tax increases by the 5 percentage points. The effect of the second threshold is quite small compared to that of the initial central governmental tax. Therefore we opt for only testing the effect of the first marginal tax increase. The model is defined as

$$\begin{aligned} move_right = & \alpha + \beta_1 \times pass_threshold_for_central_tax \\ & + \beta_2 \cdot \{vector_of_age_group_dummies\} + \epsilon \end{aligned} \quad (6.8)$$

where *pass_threshold_for_central_tax* is a dummy specifying whether the voter passed the threshold for central government income tax in the time between the first and second election and

vector_of_age_group_dummies is the same vector of dummies as in the previous regressions.

7 Results

In the following section we report the results of our empirical study. On the whole, these indicate that Swedish voters are indeed self-interested pocketbook voters. The implications and validity of our findings are discussed in the subsequent section.

The results are presented as the marginal effect in all tables except for the one containing an interaction. The coefficient for interaction terms is difficult to interpret when using a probit model since the baseline which to calculate the marginal effect from is difficult to define. We thus only interpret the results of the interaction terms as the presence or absence of an effect without digging into the size of the effect. The marginal effects for other variables are presented as the effect holding the main variable dummy at zero and the control variables at their mean. The raw regression output for these equations is available in appendices F to H.

7.1 Incumbent Government Voting

There is no statistically significant relationship between income change and probability of voting for the incumbent party. The result holds when we change the independent variable and test for changes above the specified threshold. Furthermore, there is no statistically significant linear relationship between the size of the income change and the probability of voting for the incumbent government.

Table 3: Regression results from regressions looking at the probability of voting for the incumbent government. Marginal effects.

VARIABLES	(1) vote_incumbent	(2) vote_incumbent	(3) vote_incumbent
Positive change in real income	0.028598 (0.024589)		
Positive real income change exceeding threshold		-0.023707 (0.025269)	
Percentage change in real income			0.000002 (0.000011)
Election			
1998	0.081596** (0.032790)	0.094062*** (0.032560)	0.089486*** (0.032179)
2002	0.121416*** (0.035614)	0.132123*** (0.035330)	0.128059*** (0.035119)
2006	0.003981 (0.031459)	0.008948 (0.031660)	0.007811 (0.031579)
2010	0.134870*** (0.034952)	0.147545*** (0.034690)	0.140760*** (0.034371)
Observations	2,102	2,102	2,102

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

There is no significant effect of income change on probability to vote for the incumbent party when taking into account the vote in the previous election. Neither is there any significant difference in effect between those who supported the incumbent government when they were elected and those who did not.

Table 4: Regression results from regressions looking at the probability of voting for the incumbent government based on whether the voter supported them when they were elected.

VARIABLES	(1) vote_incumbent	(2) vote_incumbent
Positive change in real income	0.015605 (0.117517)	
positive_real_income_change#voted_government	0.172926 (0.153293)	
Positive real income change exceeding threshold		0.020746 (0.122158)
positive_threshold_real_change#voted_government		-0.019369 (0.159530)
voted_government	2.092362*** (0.128831)	2.221149*** (0.080974)
Constant	-1.279648*** (0.098764)	-1.273991*** (0.062184)
Observations	2,102	2,102

Standard errors in parentheses

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

7.2 Income Voting

7.2.1 Income Increase

We find a significant effect on probability of moving from the left to a the right bloc for voters with a substantial increase in income. Comparing two persons who voted left in the first election, a person with a substantial increase in income is 5.76 percentage points more likely to vote right in the second election than a person without the same increase. The increase in probability is sizable: 61 % (9.45 % to 15.20 %).

We then look at the effects of the lower and higher thresholds, 10 percentage points lower and higher. We find a positive and significant effects of 5.38 and 5.54 percentage points for smaller and larger thresholds respectively. The effect of the larger threshold is slightly less significant than the other two thresholds. This suggests that we were correct in assuming that a substantial increase was needed to see an effect but that the exact size of the threshold does not matter.

There is no linear relationship between the size of the increase in income and the probability of moving from left to right. This indicates that a substantial increase is needed but that the probability does not continuously increase with the income change. The result is the same using winsorized data. Comparing two persons not paying central income tax and voting for the left bloc in the first election there is no significant difference in probability of moving to the right bloc for those whose income passes the tax threshold compared to those who remain below.

7.2.2 Income Decrease

Looking at those with a substantial decrease in income we find a significant effect on probability of moving from the right to a the left bloc. Comparing two persons who voted right in the first election, a person with a substantial decrease in income is 5.49 percentage points more likely to vote left in the second election than a person without a the same decrease. That is an increase of 51 % (10.72 % to 16.21 %). There is a significant effect of 4.60 percentage points for the smaller (smaller decrease) threshold but no significant effect for the larger (larger decrease) threshold. There is no linear relationship between the size of the decrease in income and the probability of moving from right to left. This indicates that a substantial decrease is needed but that the probability does not continuously increase with the income change. The result is the same using winsorized data.

Table 5: Regression results from regressions looking at movements from the right to left bloc. Marginal effects.

VARIABLES	(6.3) move_right	(6.3b) move_right	(6.3c) move_right	(6.7) move_right	(6.4) move_right	(6.4b) move_right
Threshold						
Positive real income change exceeding threshold	0.057565*** (0.021687)					
Small positive real income change exceeding threshold		0.053813*** (0.017194)				
Large positive real income change exceeding threshold			0.055444** (0.025343)			
Pass the threshold for central government income tax				0.043870 (0.034912)		
Continous						
Percentage change in real income					-0.000012 (0.000041)	
real_income_change_percent, Winsorized fraction .01						-0.000012 (0.000095)
Age group: 40-	0.023312 (0.023556)	0.023581 (0.022336)	0.021765 (0.024299)	0.013975 (0.030661)	0.020063 (0.026008)	0.019768 (0.026006)
Age group: 50-	0.002267 (0.024138)	0.004656 (0.022956)	-0.001115 (0.024658)	-0.016298 (0.030905)	-0.007062 (0.026018)	-0.007062 (0.026103)
Age group: 60-	0.045961 (0.095738)	0.053651 (0.095622)	0.042950 (0.096979)	0.187393 (0.172078)	0.065574 (0.108993)	0.065634 (0.109099)
Observations	839	839	839	539	839	839

Standard errors in parentheses

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

Table 6: Regression results from regressions looking at movements from the left to right bloc. Marginal effects.

VARIABLES	(6.5) move_left	(6.5b) move_left	(6.5c) move_left	(6.6) move_left	(6.6b) move_left
Threshold					
Negative real income change less than threshold	0.054880** (0.025075)				
Small negative real income change exceeding threshold		0.046045** (0.019868)			
Large negative real income change exceeding threshold			0.062835* (0.032097)		
Continuous					
Percentage change in real income				-0.000042 (0.000066)	
real_income_change_percent, Winsorized fraction .01					-0.000054 (0.000078)
Age group: 40-	-0.022999 (0.028735)	-0.026299 (0.027860)	-0.024648 (0.029253)	-0.028797 (0.030593)	-0.029154 (0.030615)
Age group: 50-	-0.071784*** (0.026035)	-0.071768*** (0.025317)	-0.073663*** (0.026581)	-0.078597*** (0.027977)	-0.078639*** (0.028051)
Age group: 60-	-0.103655** (0.043511)	-0.102757** (0.040863)	-0.099827** (0.048802)	-0.107716** (0.051161)	-0.107807** (0.051224)
Observations	789	789	789	789	789

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

8 Discussion

The results of our econometric analysis reveal mixed effects of income changes on voter behavior. A change in income appears to affect party choice more than the tendency to reward or punish the incumbent government for said income change. Below we will analyze the validity, potential limitations and implications of our results.

8.1 Incumbent Government Voting

The econometric analysis does not show a statistically significant increase in the probability of voting for the incumbent government if the voter's income has increased between the two elections. The same applies to the mirrored effect in the case of an income decrease. There is no difference in results using a threshold change in income. Further, there is no statistically significant difference between voters who did and did not support the incumbent when they were elected. We can therefore conclude that changes in taxable income do not cause voters to reward or punish the government for said change.

Instead, the results indicate that there are other, election-specific effects that influence the tendency to vote for the incumbent.

A possible reason why previous studies find retrospective pocketbook effects (Jordahl, 2006; Oscarsson & Holmberg, 2013) and we do not, could be that compared to the standard item measuring egotropic effects (the perceived change in personal finances) our indicator (changes in personal pre-tax income) is much more narrow in its scope and is probably more difficult to attribute to the incumbent government's actions. The share of the change in income attributed to the government is plausibly smaller than the share of the change in the personal financial situation in general. For example, a salary increase may have very little to do with the government but subsidized prices on public transport could have resulted in halved transport expenses and consequently a better financial situation for those affected.

As we cannot see any retrospective pocketbook voting, our results do not support the cultural hypothesis proposed by Kinder & Kiewiet (1981). The cultural hypothesis predicts that citizens in welfare states such as Sweden or Denmark will hold the government responsible for the personal financial situation to a greater extent than more individualistic countries, as the welfare state actively redistributes funds and influence the citizens' welfare.

Other factors that could affect the attribution of responsibility negatively even if voters would like to hold the government responsible for their personal financial situation is if the clarity of responsibility is low (Powell & Whitten, 1993). Given that all incumbent governments where either supported minority governments or multiparty coalitions we can expect that the diffusion of responsibility might have a weakening effect on the tendency to engage in retrospective voting in Sweden.

In addition to this, if voters do not perceive the change in real income and recognize that they are better or worse off, this will naturally not influence their voting behavior. Even though they have received an increase in income they might not consider themselves better off and a subjective measure of perceived economic wellbeing might therefore be better, although it is difficult to isolate

the economic effect from any partisan bias and any other factors that also influence both vote choice and perception of the personal economic situation. It would be interesting to study the relationship between objective changes and perceived changes in future research.

It is difficult to compare our results directly to those of Jordahl (2006), Oscarsson & Holmberg (2013) and Kinder & Kiewiet (1981) as they test the relative impact between sociotropic and egotropic variables on voting behavior rather than the direct effect of an egotropic variable.

While we cannot rule out that Swedes engage in retrospective voting at all, our results seem to indicate that they do not consider personal income changes in this decision. This is in line with the results of Elinder et al. (2015) who find that voters respond to election promises that affect their pocketbooks rather than past events that affect the same.

As a last point of discussion, we would also like to discuss whether this model allows us to determine the real time horizon and motive for voting certain way. Egotropic voting does not necessarily mean that the voter is purely self-interested and sociotropic voting does not necessarily mean that the voter is purely altruistic. Voters might use their own economic situation as a point of reference for the state of the aggregate economy and/or the situation of other citizens, thus believing a vote that benefits their own pocketbooks will also benefit others. Similarly, voters using macroeconomic variables to evaluate the economic situation might believe those variables best reflect, and predict, their own economic situation. Therefore, we can not, based on this test, draw any conclusion regarding the motive of the retrospective vote. It could be either altruistic and selfish.

8.2 Income Voting

Our results support that voters engage in pocketbook voting, changing their preferences for redistributive policies as their income increases. The increase in the probability of changing bloc is statistically significant and voters with an income increase are 1.6 times more likely to move right compared to someone without this change. The sensitivity tests using other thresholds provide strong support for the notion that a substantial positive change in income make voters more prone to move from the left to the right bloc.

There is also support for the opposite effect, that voters move from right to left as income decreases. Individuals with a decrease in income are 1.5 times as likely to move left compared to someone without this change. However, the effect is not statistically significant for the larger threshold, which suggests that the effect mainly is present for those with small to moderate decreases.

It does not seem like the additional tax burden that an income increase beyond the threshold of central income tax entails affects voting behavior. However, it is worth noting that the sample size of voters passing the threshold is very small.

Overall, the pocketbook effects on election outcomes must be considered slim since these only

affects the small fraction of voters switching blocs.

Controlling for life cycle effects by age group, we do not find any statistically significant effects in moving from left to right. Nonetheless, we find strong effects for voters in their 50's being about 7 percentage point less probable to move from the right bloc to the left bloc. Voters in their 60's are roughly 10 percentage points less prone to change to the left bloc.

The significant increase in probability of switching to the right bloc for previous left bloc voters show evidence of a slightly different behavior than the one Karadja et al. (2014) find. In their study, people on the left of the political spectrum do not change their political preferences when they learn that they have a higher relative position on the income scale than they previously thought, while people on the right do. The different results may relate to the fact that the corrective information actually had no material impact on the left-wing voters, while an actual income change affects the pocketbook directly.

While we have controlled for age-specific life cycle changes we cannot completely rule out the possibility of omitted variables that could cause both an increase or decrease in income and increased support for a specific political bloc. One such change could be moving from one district to another in which both the salary level and the area-specific circumstances cause a change in bloc preferences. Unfortunately we were not able to control for moving to different types of areas, since the data on place of residence is inconsistently reported during the timeframe of our study.

Furthermore, with our dataset we are unable to test gradual effects over time. The change in voting behavior may not arise within the four year period in which the income change takes place, but later on as the individual perhaps grows accustomed to a new standard of living. Such gradual shifts in voting behavior would be an interesting topic for future research.

Another aspect to consider is whether the assumption that voters perceive a difference between the two blocs' redistributive policies actually holds. Since the actual differences between Swedish parties in terms of preferred tax levels are relatively small, the general effect of income voting could be larger. Voting for the "wrong" bloc in Sweden does not result in a drastically different tax policy compared to the "right" bloc. If the difference in tax level policies was larger this would probably create a stronger pocketbook effect.

There are as far as we know no earlier studies relating objective income changes to voting behavior, which makes it difficult for us to compare and contrast our results directly to other research. However, the results are in line with studies on relative income and bloc choice as well as relative income and policy preferences. Our results add to the evidence of pocketbook voting among Swedish voters previously identified by Elinder et al. (2015) despite that a large share of voters deem such behavior to be unethical (Carlsson & Johansson-Stenman, 2010).

We will not analyze the difference in size between the effects of income increases and shifts from the left-wing to the right-wing bloc and income decreases and shifts in the opposite direction

since the thresholds defined for increases and decreases are not directly comparable. In short, we can conclude that both effects seem to exist and are of about the same size based on the thresholds used in our study.

While an increase in income directly results in a larger sum of taxes paid, a decrease in the same do not intuitively entail a demand for increased redistribution. The demand for more redistribution is more likely to be linked to the person's relative position on the income scale rather than to a percentage decrease in absolute income or the absolute income level itself, just as Meltzer & Richard (1981) theorized. Furthermore, income changes will probably have different effects depending on a person's position on the income spectrum. An increase from a low income to a slightly less low income might not have the same effect as a change around the median which in turn might not have the same effect as an increase from an already relatively high income to an even higher. In further studies, it would be interesting to investigate the importance of initial position on the income spectrum and how movements relative to other people affect voting behavior. In addition to this, it would also be interesting to look more closely on the relationship between income change and movements within political blocs as a compliment to bloc switching.

Altogether, our study supports that a substantial percentage increase in real income will increase the probability of moving from a left to a right-wing party and a substantial percentage decrease in real income will increase the probability of moving from a right-wing to a left-wing party.

8.3 External Validity and Implications

It is difficult to appreciate the generalizability of our results since each country has its own political institutions, culture and values. It is therefore more likely that the same effects could be found in other countries that have political structures similar to that of Sweden.

Our results indicate that political parties and policymakers should behave differently depending on their political color if they want to attract voters. As Swedes do not seem to engage in any rewarding or punishing behavior towards incumbent governments based on their personal income changes policymakers should instead focus on promises in election debates rather than resting on their laurels. Potentially, for a right-wing government looking to increase support, it could be beneficial to try to affect left-wing voters incomes in such a way that they experience a significant increase. However, applying the same logic to a left-wing government looking to be re-elected would mean that it should decrease the taxable income of right-wing voters to attract their votes. This strategy may be beneficial if isolated to small groups of swing voters, but a government actively trying to reduce the income of its citizens and making them worse off would most likely not have any electoral success.

9 Conclusion

Through our empirical study we add to the vast academic literature in the field of voting research by using objective income changes in our tests and find that changes in a person's income have a significant effect on voter behavior. Voters will switch political bloc in accordance with changes in their personal financial situation. Left-wing voters whose income has increased substantially during the four years leading up to the election are more likely to switch to a right-wing party than a voter whose income has not increased by the same percentage. Right-wing voters whose income has decreased substantially are more likely to switch to a left-wing party than a voter whose income has not decreased by the same percentage.

However, we find no evidence that Swedish voters engage in retrospective pocketbook voting. As we do not test for sociotropic retrospective effects we can only exclude the possibility that voters do not punish or reward the incumbent based on pocketbook effects.

The results are coherent with international studies that usually predict very small or no retrospective pocketbook effects. However, the fact that we do find evidence of pocketbook voting that is not retrospective lends support to the microfoundations of political economic theory. It also shows that politicians may have incentives to adjust policies to attract pocketbook voters.

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Appendices

Appendix A Party Names

Table A1: Party names in English and Swedish

English name	Swedish Name
Left Party	Vänsterpartiet
Social Democratic Party	Socialdemokraterna
Green Party	Miljöpartiet
Moderate Party	Moderata samlingspartiet
Liberal Party	Folkpartiet
Center Party	Centerpartiet
Christian Democratic Party	Kristdemokraterna
New Democracy	Ny Demokrati
Sweden Democrats	Sverigedemokraterna

Appendix B Income Quantile and Bloc Choice

Table A2: Income quantile and bloc choice

Income quantile	Bloc		Total
	Left	Right	
1	51.2	48.8	100.0
2	59.5	40.5	100.0
3	59.4	40.6	100.0
4	56.2	43.8	100.0
5	38.6	61.4	100.0
Total	52.6	47.4	100.0

Appendix C Bloc Change

Table A3: Bloc change

	Bloc change
Right-wing	11.85%
Left-wing	11.57%
Total	11.71%

Appendix D Voters: Descriptive Statistics

Table A4: Gender and Age groups

Age group	Gender		
	Male	Female	Total
30-	307.0	268.0	575.0
40-	315.0	286.0	601.0
50-	283.0	238.0	521.0
60-	21.0	15.0	36.0
Total	926.0	807.0	1,733.0

Appendix E Elections Survey Questions

Table A5: Elections Survey Questions. Swedish original and the authors' translation.

English	Swedish
Pre-election Version Will you vote in the parliamentary elections this year? • Yes • Maybe / Don't know • No • Don't want to answer If "Yes" What party will you vote for in the parliamentary elections this year? • Left Party • Social Democratic Party • Center Party • Liberal Party • Moderate Party • Christian Democratic Party • Green Party • Other party (name which) • Blank • Have not decided / Don't know • Don't want to answer	Inför valet Tänker du rösta i riksdagsvalet i år? • Ja • Kanske / Vet ej • Nej • Vill ej svara Om "Ja" Vilket parti tänker du rösta på i riksdagsvalet? • Vänsterpartiet • Socialdemokraterna • Centerpartiet • Folkpartiet • Moderaterna • Kristdemokraterna • Miljöpartiet • Annat parti (ange vilket) • Blankt • Har inte bestämt sig / Vet ej • Vill ej svara
Post-election Version Did you vote in the elections this year? • Yes • Yes, but not in all elections • No, did not vote in any elections • Don't want to answer If "Yes" or "Yes, but not in all elections" What party did you vote for in the parliamentary elections this year? • Left Party • Social Democratic Party • Center Party • Liberal Party • Moderate Party • Christian Democratic Party • Green Party • Other party (name which) • Blank • Don't know / Don't remember	Efter valet Röstade du vid valet i år? • Ja • Ja, men inte i alla valen • Nej, röstade inte i något av valen • Vill ej svara. Om "Ja" eller "Ja, men inte i alla valen" Vi hade ju flera val samtidigt i år. Vilket parti röstade Du på i riksdagsvalet? • Vänsterpartiet • Socialdemokraterna • Centerpartiet • Folkpartiet • Moderaterna • Kristdemokraterna • Miljöpartiet • Annat parti (ange vilket) • Blankt • Vet ej / Minns ej

Appendix F Regression Output for Incumbent Voting

Table A6: Regression results from regressions looking at the probability of voting for the incumbent government.

VARIABLES	(1) vote_incumbent	(2) vote_incumbent	(3) vote_incumbent
Positive change in real income	0.072790 (0.062859)		
Positive real income change exceeding threshold		-0.060168 (0.064148)	
Percentage change in real income			0.000006 (0.000029)
Election			
1998	0.207178** (0.083190)	0.237174*** (0.082384)	0.225991*** (0.081549)
2002	0.307033*** (0.090259)	0.332936*** (0.089715)	0.322954*** (0.089178)
2006	0.010289 (0.081295)	0.022847 (0.080827)	0.019991 (0.080821)
2010	0.340845*** (0.088741)	0.372030*** (0.088417)	0.355064*** (0.087516)
Constant	-0.252635*** (0.065971)	-0.203209*** (0.056617)	-0.212336*** (0.055856)
Observations	2,102	2,102	2,102

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Appendix G Regression Output for Movements Left to Right

Table A7: Regression results from regressions looking at movements from the right to left bloc.

VARIABLES	(1) move_right	(2) move_right	(3) move_right	(4) move_right	(5) move_right	(6) move_right
Threshold						
Positive real income change exceeding threshold	0.342751** (0.140833)					
Small positive real income change exceeding threshold		0.337081*** (0.124182)				
Large positive real income change exceeding threshold			0.321103** (0.155844)			
Pass the threshold for central government income tax				0.249324 (0.206650)		
Continuous						
Percentage change in real income					-0.000065 (0.000223)	
real_income_change_percent, Winsorized fraction .01						-0.000063 (0.000515)
Age group: 40-	0.137005 (0.139518)	0.146619 (0.140246)	0.123684 (0.138883)	0.076770 (0.168088)	0.106160 (0.138147)	0.104598 (0.138145)
Age group: 50-	0.014466 (0.154009)	0.031364 (0.154664)	-0.006909 (0.152750)	-0.100412 (0.192569)	-0.041003 (0.151320)	-0.040958 (0.151668)
Age group: 60-	0.250927 (0.455768)	0.301025 (0.455084)	0.228408 (0.455881)	0.725226 (0.517235)	0.308040 (0.442355)	0.308033 (0.442363)
Constant	-1.374373*** (0.112001)	-1.421780*** (0.118476)	-1.341601*** (0.108419)	-1.291175*** (0.123250)	-1.273026*** (0.102707)	-1.273093*** (0.104089)
Observations	839	839	839	539	839	839

Standard errors in parentheses

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

Appendix H Regression Output for Movements Right to Left

Table A8: Regression results from regressions looking at movements from the left to right bloc.

VARIABLES	(1) move_left	(2) move_left	(3) move_left	(4) move_left	(5) move_left
Threshold					
Negative real income change less than threshold	0.302040** (0.147321)				
Small negative real income change exceeding threshold		0.262006** (0.125285)			
Large negative real income change exceeding threshold			0.337923* (0.179922)		
Continous					
Percentage change in real income				-0.000217 (0.000339)	
real_income_change_percent, Winsorized fraction .01					-0.000277 (0.000403)
Age group: 40-	-0.109907 (0.137495)	-0.129574 (0.137722)	-0.115559 (0.137442)	-0.129642 (0.138094)	-0.131207 (0.138144)
Age group: 50-	-0.409478*** (0.150813)	-0.421359*** (0.150896)	-0.410019*** (0.150687)	-0.415672*** (0.150780)	-0.415406*** (0.151019)
Age group: 60-	-0.715981 (0.491924)	-0.735711 (0.487414)	-0.640099 (0.476742)	-0.658737 (0.478322)	-0.658668 (0.478508)
Constant	-1.081169*** (0.098042)	-1.097978*** (0.100521)	-1.061420*** (0.095802)	-1.006541*** (0.095505)	-1.005800*** (0.096241)
Observations	789	789	789	789	789

Standard errors in parentheses

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