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Self-servingness Undermines Democratic Accountability for Personal Welfare

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Democratic accountability is an elusive goal. Some scholars argue that it could proceed from voters punishing and rewarding the government for changes in their personal welfare. Yet it is often unclear to what extent changes in personal welfare are the result of government policies or voters' own behavior. At the same time, voters have a desire to protect and enhance their own self-image. These factors might lead to a self-serving bias in attribution of political responsibility for personal welfare. In particular, voters might seize on the ambiguity about who is responsible to take personal responsibility for desirable changes in their personal welfare and to hold the government responsible for undesirable changes. This article uses a variety of data sources, including election surveys and survey experiments, to explore this contention. The results suggest that there is a strong self-serving bias in political attribution which potentially undermines democratic accountability.

Early scholars of political behavior argued that democratic accountability could proceed from voters punishing and rewarding the government for changes to their personal welfare (Downs, 1957; Key, 1966). Most notably, Fiorina (1981) argued that even uninformed voters "typically have one hard bit of data: they know what life has been like during the incumbent's administration" (Fiorina, 1981, 5), and that voters can use this data to judge the incumbent (see also Popkin, 1991). The early enthusiasm for this type of "egotropic" voting was tempered by research showing that voters are rarely moved to reject or support governing politicians because of changes in their personal welfare (e.g., Kinder and Kiewiet, 1979, 1981; Stubager et al., 2014). Instead, voters focus on how society is doing as a whole (Lewis-Beck and Stegmaier, 2013). However, more recent research has cast doubt on the irrelevance of personal welfare for incumbent support. Both Tilley, Neundorf and Hobolt (2018) and Healy, Persson and Snowberg (2017) find that changes in voters' own economic situation powerfully shape support for incumbent governments when more detailed measures and more appropriate research designs are used (see also Healy and Lenz, 2017; Simonovits, Kates and Szeitl, 2018). This puts the politicization of personal welfare back into play as a potential source of democratic accountability.

Even so, a key problem with holding politicians accountable for changes in personal welfare remains. It is often unclear to what extent changes in personal welfare are the result of government policies or voters' own behavior. Things like your employment situation, the size of your mortgage payments and your children's test scores are influenced by government action, but they are also influenced by your own behavior as well as other extraneous factors. In this article, we show that this ambiguity might be more detrimental to accountability than previously thought. In particular, we show that voters seize on this ambiguity about who is responsible for changes in personal welfare to attribute responsibility in a self-serving way.

We know from social psychological research that protection and enhancement of one's self-image is an important motivation underlying human behavior (Sedikides and Strube, 1995; Beauregard and Dunning, 1998; Baumeister, 1999). This is reflected in a ubiquitous self-serving bias in attribution which motivates people to draw causal inferences that make themselves look good (Kunda, 1999; Heider, 2013; Stephan, Rosenfield and Stephan, 1976). In

particular, because of this bias, people tend to take personal responsibility for desirable outcomes and externalize responsibility for undesirable outcomes. In the context of attributing responsibility for changes to voters' personal welfare, the self serving bias implies that voters hold the government more responsible for bad outcomes (in order to exculpate themselves) and less responsible for good outcomes (in order to implicate themselves)—a valence asymmetry in attributions.

The argument is similar to the one advanced in the literature on partisan bias where voters who identify with or feel close to a particular party will hold this party responsible for desirable policy outcomes yet exculpate the party for undesirable outcomes (Rudolph, 2003, 2006; Malhotra and Kuo, 2008; Marsh and Tilley, 2010; Tilley and Hobolt, 2011; Bisgaard, 2015; Healy, Kuo and Malhotra, 2014). However, the self-serving bias is not driven by whether the voters' preferred party is in charge, but by whether outcomes reflect poorly or well on the voters themselves.

Related to this, it is important to note that the self-serving bias will not produce a valence asymmetry in political attributions for all types of outcomes. In particular, citizens need to be able to influence the outcome. If they cannot do this, then the outcome cannot reflect poorly or well on themselves. Too see this, imagine that voters have to assign responsibility for changes in the national unemployment rate. (An outcome individual voters have no control over.) If the unemployment rate increases, it does not reflect poorly on the individual voter. If it decreases, it does not reflect well on the individual voter. As a result, there is no self-serving motive to attribute political responsibility differently across these different outcomes. This is why the self-serving bias is especially relevant in the context of changes to voters' personal welfare— an outcome voters have partial control over. On a methodological note, this also means that the self-serving bias is observationally distinct from a general (i.e., unconditional) negativity bias in attribution (Rozin and Royzman, 2001).

I present evidence of a self-serving bias in political attributions for personal welfare in three separate studies. The first study examines voters' propensity to support the incumbent across their beliefs about the economy. Using data from the Danish National Election Studies, the American National Election Studies and the Latinobarómetro, I show that voters punish

incumbents more for negative changes to their economic situation than they reward incumbents for positive changes. Consistent with the self-serving bias, I do not find a similar grievance asymmetry for national economic conditions—an outcome voters have no personal stake in. In the second study I move a step closer to the proposed mechanism, investigating whether voters adjust their beliefs about the government's role in producing economic outcomes in a self-serving way. Using a population-based survey of Danish voters, I show that voters who say their own economic situation is getting worse are more likely to believe that the government can affect their own economic situation than voters who say their own situation is getting better. In the third study I conduct a survey experiment on a population-based sample of Danish voters as well as a survey experiment on a convenience sample. In the experiments, I ask respondents to evaluate the extent to which the government would be responsible for a set of hypothetical outcomes, randomly assigning outcomes to respondents. Consistent with the self-serving bias, I find that voters hold the government more responsible for negative hypothetical changes to their personal welfare than for positive changes.

Across all three studies I thus find that voters attribute political responsibility for changes in their personal welfare in a self-serving way, attributing more responsibility to the government if changes are undesirable and less responsibility if they are desirable. As mentioned above this is potentially problematic from the perspective of democratic accountability. In particular, our results suggest that voters will sometimes punish governments for things they are themselves responsible for and will sometimes not reward governments for improving their personal welfare. As a result, voters risk re-electing politicians who improve their standard of living at the same rate as those who do not.

The article extends the literature on how voters assign political responsibility for policy outcomes, as it tells us that not only partisanship but also self-servingness can bias voter attributions. Further, the article uses both observational and experimental data from outside the US and the UK in a literature which has been primarily experimental and based in these two countries (Rudolph, 2006; Malhotra and Krosnick, 2007; Healy, Kuo and Malhotra, 2014; Marsh and Tilley, 2010; Tilley and Hobolt, 2011). Finally, the results imply that the estimated effect of personal economic conditions is sensitive to the distribution of personal economic conditions

in the electorate (i.e., the effect will be smaller when more economic situations' are improving). This might help explain why the previous literature has generally found that the effect of personal economic conditions is small and inconsistent (Kinder and Kiewiet, 1979, 1981; Singer and Carlin, 2013; Lewis-Beck and Stegmaier, 2013; Stubager et al., 2014).

The Political Relevance of the Self-serving Bias

Social psychological research has long identified a self-serving bias in attribution (Heider, 2013; Greenwald, 1980; Stephan, Rosenfield and Stephan, 1976; Fiske and Taylor, 2013, 272). This bias is reflected in a "tendency for people to take personal responsibility for their desirable outcomes yet externalize responsibility for their undesirable outcomes" (Shepperd, Malone and Sweeny, 2008, 895). If, for instance, someone gets a good grade on an exam, they will infer that the grade must reflect their own effort and skill. If they get a bad grade, they infer that it was due to the teacher's tough grading or the loud neighbors who made studying impossible (McAllister, 1996). The self-serving bias is a type of "directional" motivated reasoning (Kunda, 1990), meaning that the bias leads people to reach conclusions based on some other motive than accuracy. In particular, the self-serving bias has been shown to be driven by a number of different cognitive heuristics and psychological needs (Shepperd, Malone and Sweeny, 2008; Snyder, Stephan and Rosenfield, 1976). The most prominent driver of the bias being the need to sustain a positive self-image (i.e., self-enhancement or self-protection) (Miller, 1976; Sedikides, Gaertner and Toguchi, 2003).

While previous studies have found that the self-serving bias shapes people's attributions in a number of different areas (e.g., Campbell et al., 2000), it has not been shown to affect how voters attribute responsibility for political outcomes, such as the state of the economy or the quality of public services. This might be because the self-serving bias in attribution has no obvious universal political relevance. To see this, imagine that a voter thinks the national economy is doing worse than it was 12 months ago. It is not obvious that motives such as self-protection and self-enhancement have a role to play in how voters attribute political responsibility for this economic development. However, even if the self-serving bias does not have an impact on how voters attribute political responsibility for all types of outcomes, it might still have an impact

in some cases. In particular, it might have an impact on how voters make inferences about who is responsible for changes to their personal welfare.

All types of motivated reasoning feed on ambiguity (Kunda, 1990). It is ambiguity about what conclusions to draw that gives room for rationalization of inferences steered by motives like self-enhancement. For the self-serving bias this ambiguity relates to your own involvement in producing an outcome. If your are unambiguously detached from an outcome, the self-serving bias cannot play a role, because the outcome will never reflect poorly or well on yourself, and accordingly it is impossible to self-enhance or self-protect by attributing responsibility in a specific way. This is why it does not make sense to say that the self-serving bias can influence how people interpret changes in the national economy.

While people cannot meaningfully influence national welfare, they can meaningfully influence their personal welfare. Mortgage payments, income, job security. These are all outcomes that people can have some control over. Accordingly, the self-serving bias would predict that when outcomes like these change for the worse, peoples' motivation to self-protect will lead them to externalize responsibility, and that one of the external forces that might get blamed is the government. Conversely, when outcome related to personal welfare change for the better, peoples' motivation to self-enhance will lead them to internalize responsibility, and one of the external actors that might receive less credit is the government. This valence asymmetry in how voters attribute responsibility for changes in their personal welfare is the politically relevant implication of the self-serving bias that we want to examine in this article.

> **The self-serving bias hypothesis:** Voters will hold governing politicians more responsible for changes in their personal welfare when these changes are for the worse than when they are for the better.

The Self-serving Bias Hypothesis and the Existing Literature

The self-serving bias hypothesis is most closely related to a small and recent set of studies which explain policy attitudes in terms of the self-serving bias (e.g., Deffains, Espinosa and Thöni, 2016; Cassar and Klein, 2017; Joslyn and Haider-Markel, 2017). However, unlike these

studies, this hypothesis is not concerned with voters' preferences over policies, but in how voters attribute responsibility to the government.

As mentioned in the introduction the hypothesis is also related to the large literature on partisan bias in political attributions (e.g., Malhotra and Kuo, 2008; Healy, Kuo and Malhotra, 2014; Bisgaard, 2015). In fact, partisan bias in attribution is often conceptualized as the "group-serving" counterpart to the self-serving bias (Rudolph, 2003, 701) and might be driven by similar psychological motivations (Lodge and Taber, 2013; Tilley and Hobolt, 2011). Even so, the self-serving bias hypothesis stands apart from the partisan bias hypothesis in that it is interested in whether voters exculpate themselves, rather than their preferred party, when assigning blame for undesirable outcomes.

As the self-serving bias hypothesis predicts a valence asymmetry in attribution of responsibility for policy outcomes, it is also related to studies that identify a negativity bias (or grievance asymmetry) in retrospective voting (e.g., Bloom and Price, 1975; Soroka, 2006). However, the self-serving bias hypothesis suggests that the valence asymmetry in attributions is only present for changes in personal welfare (i.e, conditional on whether voters can influence the outcome themselves), contrary to the negativity bias literature, where the asymmetry is typically thought to be unconditional (e.g., Nannestad and Paldam, 1997). Even so, the hypothesis is not necessarily at odds with the notion of a more unconditional negativity bias, as the present hypothesis focuses exclusively on attribution and not on how voters form beliefs about how the economy is doing. Accordingly, a conditional attributional valence asymmetry could be compatible with an unconditional perceptual valence asymmetry. In particular, the self-serving bias hypothesis can operate in a world in which voters are always more (less) likely to notice, remember and retrieve negative (positive) information when assessing the quality of policy outcomes. The self-serving bias hypothesis simply suggests that once the voter has assessed the quality of a given policy outcome, then the valence of this assessment will only affect the extent to which the voter attributes responsibility to the government if voters can influence the outcomes themselves.

Testing the Hypothesis

The article employs a series of surveys and experiments to test the self-serving bias hypothesis. I have organized these different data sources into three separate studies. All three studies, directly or indirectly, look at how voters attribute responsibility for changes to their personal welfare. The three studies have different inferential strengths (i.e., some have stronger external and some have stronger internal validity) in order to provide a methodologically triangulated test of the hypothesis. Table 1 presents an overview of the different studies.

Table 1: Overview of the studies

	Motivation	Data sources	N
1.	Identify signs of a self-serving bias in voter behavior.	Danish National Election Survey (1990-2015)	13,292
		American National Election Survey (1984-2012)	13,306
		Latinobarómetro (1995-2010)	141,191
2.	Explore whether differences in behavior reflect differences in attributions.	Survey of Danish voters (2014)	943
3.	Explore whether differences in attributions are caused by changes in personal welfare.	Survey experiment with Danish voters (2015)	1,002
		Survey experiment with convenience sample (2017)	263

Study 1: Election surveys

In study 1 I examine whether signs of a self-serving bias can be identified in election surveys. Election surveys do not generally include explicit questions about attribution. Instead, I measure how responsible voters hold their government for economic outcomes by looking at the correlation between voters' perceptions of the economy and support for the incumbent government, inferring that a stronger correlation implies that voters hold governments more responsible. A relatively standard assumption in retrospective voting research (e.g., Lewis-Beck and Stegmaier, 2013; Duch and Stevenson, 2008).

Following the self-serving bias hypothesis developed above, I expect that voters will hold governing politicians more electorally responsible when their own economy is getting worse and less responsible when their own economy is getting better. That is, I expect a valence asymmetry with negative outcomes having a larger effect than positive outcomes on electoral support for the government.

I also examine whether there is a similar valence asymmetry when it comes to national economic outcomes. Since a bad (good) national economic situation does not reflect poorly (well) on the individual voter, the self-serving bias would not predict a valence asymmetry in this case. This analysis serve two purposes. First, this analyses allows us to rule out that there is a general negativity bias in attribution, where voters generally hold the government more responsible for negative outcomes regardless of whether they have a personal stake in the outcome. Second, the analysis serves as a more general placebo test, showing that those who tend to select into negative outcomes do not differ systematically from those who select into positive outcomes in the extent to which they are responsive to economic conditions.

I use three different sets of election surveys: the American National Election Studies (ANES), the Latinobarómetro and the Danish National Election Studies (DNES). The ANES was chosen because much groundbreaking research on retrospective voting has used this dataset (e.g. Fiorina, 1981). The Latinobarómetro was chosen based on two considerations: (1) it covers a diverse set of countries that are quite different from the US which enhances external validity, (2) it includes a large number of respondents ($n > 140.000$) which increases statistical power. Finally, studies 2 and 3 are based on surveys of Danish voters, so to increase consistency and continuity across the different studies the DNES is included as well.

Data and Empirical Strategy

From the ANES, I use the time series cumulative data file, analyzing data from the presidential election years 1984 to 2012. From the Latinobarométro, I use 141 annual surveys from 18 countries covering the years from 1995 to 2010 (our starting point is the dataset used in Carlin and Singh, 2015). The DNES data is from the Danish Data Archive, and covers all parliamentary elections from 1990 to 2015 (except 1998 due to a missing question concerning

personal economic conditions). For an overview of which surveys were included in study 1, see Appendix A.

The dependent variable is support for the incumbent government. In the ANES, this is operationalized as a dummy variable indicating whether the respondent reported voting for the incumbent presidential party at the presidential election. Denmark has a parliamentary system, and accordingly the dependent variable in the DNES is a dummy variable indicating whether the respondent reported voting for one of the parties in government at the time of the election. Since the Latinobarómetro data does not follow election cycles, I cannot use reported voting behavior at elections as the dependent variable. Instead, I use a dummy variable indicating whether the respondent approved of the incumbent president's performance.[2]

The independent variables are voters' evaluations of their own and the national economy. Specifically, I use two questions which were included in all the election surveys, which asks respondents how (1) your own and your family's economy and (2) the national economy has developed over a period of time. The time period differs across the different election surveys covering anything from the last 12 months to the last three years. Responses given to these questions were sorted into three categories: responses indicating the economy had stayed the same, responses indicating the economy had gotten worse, and responses indicating the economy had gotten better.[3]

I also use a small set of control variables in some parts of the analysis. These are gender, age in years, education, ideology and strength of party identification. Education is measured using a dummy indicating whether the respondent reported having attended college/university. Ideology is measured on an eleven-point scale going from left to right in the Latinobarómetro and the DNES. In the ANES, ideology is measured on a seven-point scale going from "extremely liberal" to "extremely conservative". Strength of party identification is measured on a three point scale in the DNES (none, weak, strong) and on a four point scale in the ANES (in-

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[2]This is the standard dependent variable used when estimating retrospective voting models on the Latinobarómetro data (Carlin and Singh, 2015).

[3]For some of the election surveys, the respondent had more than three options available when characterizing the economic situation; however, to make comparisons across all of the surveys possible, these were collapsed into these three categories. Appendix B discusses whether this might affect the results.

dependent, leaning, weak and strong). The Latinobarómetro only asks for party identification in a small number of surveys. Instead, I use a dummy indicating whether the respondent had strong feelings about (not) trusting the president. Appendix D features descriptive statistics and variable descriptions.

To analyze the data, I model the probability of supporting the incumbent as a linear function of voters' evaluations of the national and their personal economic conditions. I also include survey fixed-effects to control for any election-specific or country-level confounders. For both national and personal economic evaluations, I include the variables as dummy variables, using those who thought their own/the country's economy had stayed the same as the reference category. I estimate the parameters of this linear probability model (LPM) using an OLS regression with robust standard errors, and estimate separate models for each of the three sets of election studies. In Appendix E these analyses are replicated using a logistic link function. The results of are substantively similar. We privilege the LPM's in the main analyses because they are easier to interpret.

Results

Figure 1 present the key results from study 1. In particular, it presents the estimated effect of evaluating the economy as doing *better* rather than having stayed the same, the estimated effect of evaluating the economy as doing *worse* rather than having stayed the same, and the estimated difference between these effects: the valence asymmetry.[4] The valence asymmetry represents the extent to which voters react more strongly when the economic situation changes for the worse rather than for the better. A positive valence asymmetry thus means that voters are more sensitive to things getting worse. I present estimates of the valence asymmetry for both national economic conditions and for personal economic conditions. Appendix F present the regression analyses underlying this and subsequent figures in the article.

In both the DNES, the ANES and in the Latinobarómetro there is a statistically significant valence asymmetry for personal economic conditions ($p < 0.05$), yet no discernible valence asymmetry for national economic conditions. Further, if one compares the estimated valence

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[4]See Appendix C for details on how the valence asymmetry was estimated.

asymmetry for personal and national economic conditions, one finds that the former is significantly larger than the latter in each case ($p < 0.05$). This is in line with the self-serving bias hypothesis, which predicted a valence asymmetry in attribution of responsibility for personal economic conditions, but no asymmetry for national economic conditions.
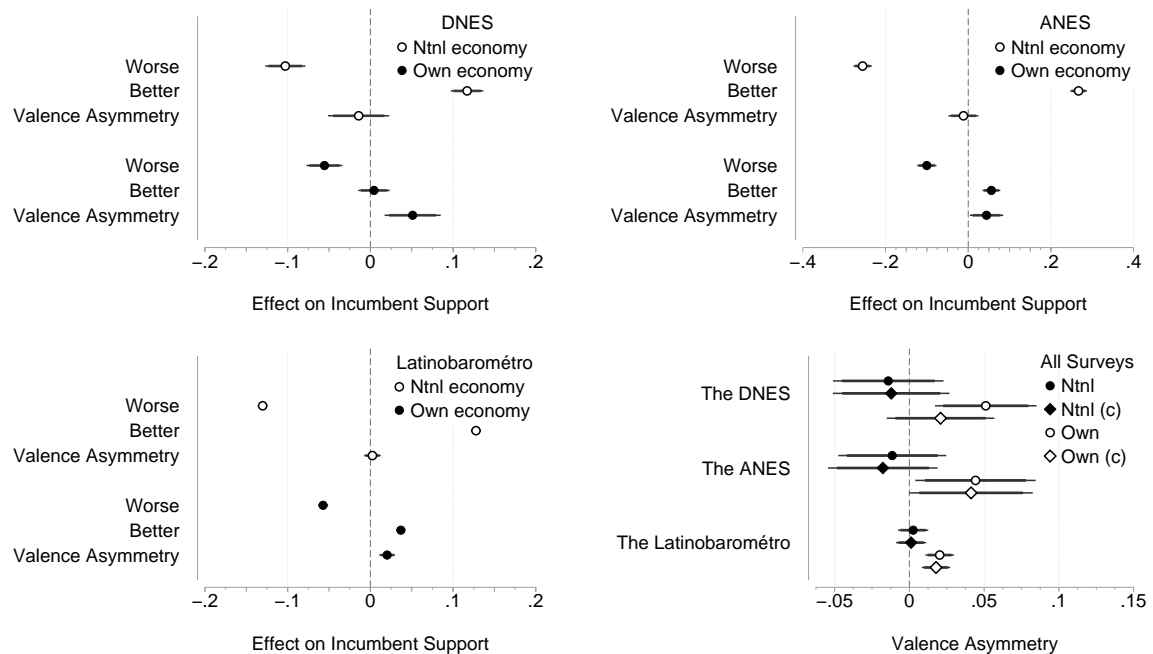

Figure 1: Estimated effects of believing your own or the national economy has gotten "Worse" or "Better" rather than "Stayed the same" on voting for/supporting the incumbent government. Estimated using OLS-regression of incumbent support for the DNES ($n = 13,293$), the ANES ($n = 13,306$) and the Latinobarometro ($n = 143,191$). The valence asymmetry was calculated as the difference between the absolute values of the "Worse" and "Better" effects. Horizontal lines are 95 pct. (thin) and 90 pct. (thick) confidence intervals. Diamond shaped dots are from models which include controls (i.e., gender, age, education, ideology and strength of partisanship).

Figure 1 also shows, unsurprisingly, that across all three election surveys, the state of the national economy seems to be more closely related to government support than the state of the respondent's own economy (cf. Kinder and Kiewiet, 1981). There are also some differences across the election surveys. As such, for both the Latinobarómetro and the ANES, there is a statistically significant estimated effect of perceiving one's own economy as improving rather than staying the same. There is no such effect in the DNES. Even so, in all three sets of election studies the estimated negative effect of things getting worse are larger than the positive effect of things getting better.

How does this pattern hold up to statistical control? To test this I re-estimate the models including age, gender, education, ideology and strength of partisanship. These controls are not meant to be exhaustive, as they do not control for all possible confounders. Nor are they necessarily great controls, as some of them, like ideology, might be "post-treatment" (Angrist and Pischke, 2008). However, in re-estimating the models, I can conduct a simple test of whether the patterns found above can be explained away by including a "standard set of controls".

In the graph presented in the bottom right corner of figure 1, I plot the valence asymmetry estimated from the LPM's with controls. For comparison, I also include the estimates from the models without controls. The main difference is that the valence asymmetry for the respondent's own economy in the DNES becomes roughly two percentage points smaller and, as a result, statistically insignificant ($p = 0.26$). However, in the ANES and the Latinobarómetro, the valence asymmetry for the respondent's own economy is still significantly different from zero ($p < 0.05$) and significantly different from the valence asymmetry for the national economy ($p < 0.05$). Just as important as the statistical significance, however, is that once controls are introduced, the approximate size of the valence asymmetry is remarkably similar across all three election studies (between two and four percentage points).

Across the US, Latin America and in Denmark, I thus find that voters hold the incumbent less responsible for their personal welfare if it changes for the better than if it changes for the worse. An asymmetry which is not present for the state of the national economy. These findings are especially noteworthy, because of the diverse set of contexts which have been analyzed. As such, signs of a self-serving bias in political attribution, where voters attribute responsibility to the government for changes in their personal welfare if it makes themselves look good, do not seem confined to one particular type of election or country.

While the consistency of the results speak in favor of the self-serving bias hypothesis, there are still some important inferential issues, which these analyses cannot deal with effectively. First, I assume that differences in the effect of economic conditions on incumbent support correspond to differences in attribution of responsibility. As mentioned above, this is a standard assumption in much research on retrospective voting, but this does not necessarily make it a valid assumption. Second, I assume that the correlation between voters beliefs about the

economy and incumbent support reflects a causal effect of the former on the latter. This is not necessarily the case, as the factors which determine voters' beliefs about their own economy might have an independent effect on incumbent support. In studies 2 and 3, I devise new tests of the self-serving bias hypothesis, which try to address these shortcomings. In particular, study 2 utilizes a survey of voters' beliefs about the government's role in producing economic outcomes, alleviating potential concerns related to measuring attribution of responsibility, and study 3 randomly assigns hypothetical outcomes to voters in the context of a survey experiment, alleviating potential concerns related to causal inference.

Study 2: A Survey of Voters' Attributional Beliefs

Below I test the self-serving bias hypothesis by once again examining the relationship between voters' beliefs about their own economic situation and the extent to which they attribute responsibility for this situation to the government. However, instead of inferring attribution from voting behavior, I measure it directly by asking voters to what extent they believe the government can affect different aspects of the economy. I expect that voters who believe their own economic situation is improving will be less likely than those who think their own economic situation is deteriorating to think that the government can affect their personal economy.

Data and Empirical Strategy

The survey I use in study 2 was collected by the polling company Epinion using a population-based sample frame. The survey ran from May 28 to June 28 2014, included 1,028 respondents, and was conducted over the phone. The sample was diverse though not completely representative of the Danish voting age population. In particular, the sample was more educated and slightly older than the Danish voting age population, see Appendix D.

The survey focused mainly on EU attitudes, but also included some items related to the national government's ability to affect the state of the economy. In particular, the survey included the following items:

- "To what extent can the Danish government affect your personal economic situation?"

- "To what extent can the Danish government affect the national economic situation?"

Answers were recorded on five-point scales going from "Not at all" to "A lot". These items are used as the dependent variable in the analyses. The independent variables are the same as in study 1: voters' evaluations of how their own economic situation and the national economic situation developed during the past 12 months. For simplicity, responses are once again sorted into three categories; better, worse and the same.

To analyze the data, I estimate two linear regressions with the two items on the government's role in shaping economic outcomes as the dependent variables. I include the independent economic variables as a set of dummy variables, using those who thought the economy had stayed the same as the reference category. Models are estimated with robust standard errors.

Results

Figure 2 presents the main results from study 2. In the top panel, I look at how personal economic conditions are related to attributional beliefs. Here I find that voters are less likely to think the government can affect their personal economic situation if their own economic situation is improving. In particular, there is a statistically significant difference between those who think their economy is doing better than a year ago and those who think their economy is doing worse ($p < 0.05$). This is in line with a self-serving bias in attribution of political responsibility, since those who are doing better should be motivated to credit themselves rather than the government. Conversely, there is no statistically significant relationship between voters' personal economic situation and their beliefs about the government's role in producing national economic outcomes. This is important, because it tells us that the types of people who are doing well are not less likely to hold the government responsible for all types of economic outcomes. They are only less likely to hold the government responsible for their *own* good fortune, not the fortune of the nation as a whole.

In the bottom panel of figure 2, I look at how national economic conditions are related to attributional beliefs. I find no systematic relationship between how voters believe the national economy is doing and their beliefs about the extent to which the government can affect their personal or national economic conditions. If I compare those who believe the country is doing

Personal Economy
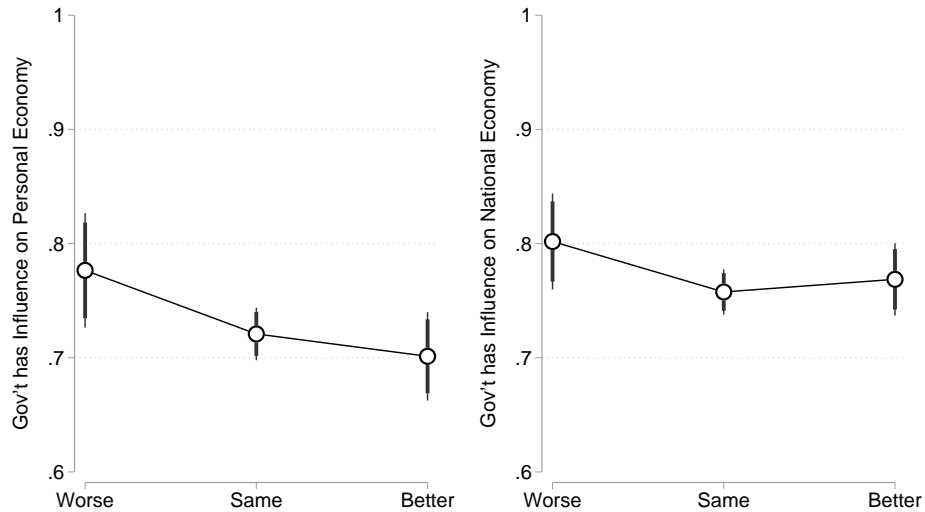
National Economy
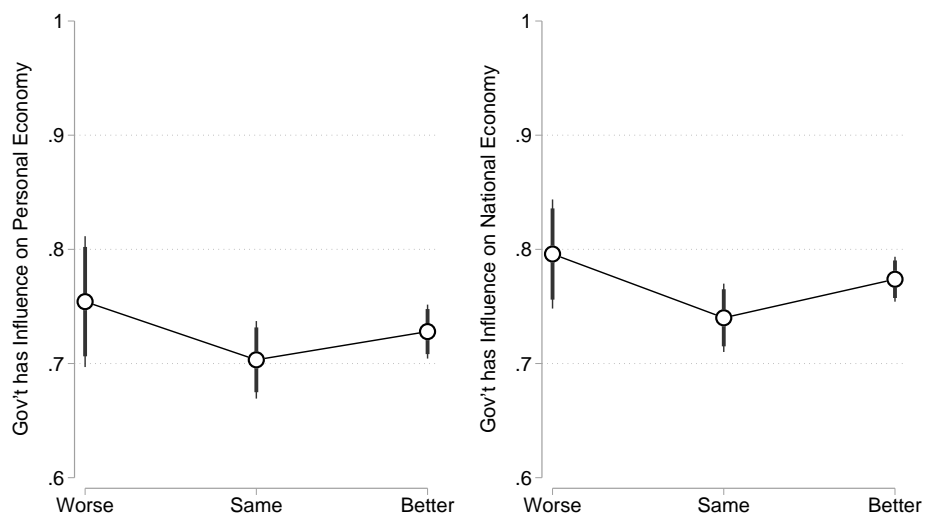
Figure 2: Top: Beliefs about the extent to which the government can affect your personal (left) and the national (right) economy across beliefs about personal economic conditions. Bottom: Beliefs about the extent to which the government can affect your personal (left) and the national (right) economy across beliefs about national economic conditions. Dots calculated by adding average marginal effects of economic variables, derived from the OLS-regressions ($n = 943$ for all models), to the sample mean. All models include both evaluations of your own and the national economy as well as controls for ideology, education, gender and age. Vertical lines are 95 pct. (thin) and 90 pct. (thick) confidence intervals.

better than a year ago with those who think the economy is doing worse, I find no differences in their attributional beliefs ($p > 0.2$ for both dependent variables).[5]

In summary, there is a relationship between changes in voters personal economic conditions and the extent to which they think the government can affect their personal economic situation. At the same time, there is no relationship between changes in national economic conditions and the extent to which voters think the government can affect the national economy. This suggests that the difference between positive and negative personal economic outcomes cannot be explained a general negativity bias in attributions of political responsibility. Instead, the results are consistent with the self-serving bias hypothesis.

Study 3: Survey Experiments

Below I test the self-serving bias hypothesis using a set of survey-experiments that randomly assign voters to descriptions of different hypothetical outcomes. I then ask them the extent to which they believe the government would be responsible for these outcomes in order to find out whether their answers follow the same self-serving pattern identified in studies 1 and 2.

By randomly assigning economic outcomes to voters, I address a key problem with the analyses I have engaged in so far, namely, that observed economic outcomes are endogenous to assignment of responsibility. So far I have estimated the effect of economic outcomes on the assignment of political responsibility by comparing voters who believe an outcome is getting better with voters who believe the same outcome is getting worse. This is potentially problematic, as voters with specific propensities to attribute responsibility to the government may, inadvertently or intentionally, select into specific types of beliefs (Rudolph, 2003, 2006). By assigning outcomes at random, we can be sure that voters' baseline propensity to hold the government responsible is balanced in expectation across those assigned to desirable and undesirable outcomes.

This is a relatively hard test, in the sense that people do not actually experience these outcomes (they are hypothetical), and accordingly the affective response that might drive moti-

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[5]Interestingly, those who think the national economy has remained the same are significantly more likely to think that the government cannot influence their personal and the national economy.

vated reasoning when faced with a realized undesirable outcome (Lodge and Taber, 2013) is potentially muted. However, this is probably the only ethically defensible way to randomly assign negative outcomes to subjects, and if anything it biases the findings against the self-serving bias hypothesis.

Data and Empirical Strategy

The main survey experiment was conducted by the polling company Norstat using a population-based internet panel to recruit respondents. The survey ran from June 2 till June 4 2015. It sampled 1,002 respondents. The sample was diverse, though not completely representative of the Danish voting age population. In particular, the sample was slightly older and had a higher proportion of men, see Appendix D.

The survey presented voters with two experimentally manipulated outcomes. One outcome was related to housing and one outcome was related to employment. For each of the two outcomes, respondents' were given one of three valence conditions (negative, neutral, positive) and one of two relevance conditions (personal, national). Respondents were then asked: "To what extent would the government be responsible for this outcome?" Answers were given on a eleven point point scale from "Not at all" to "A great deal". The variable was rescaled to go from zero to one.

The first outcome voters were presented with concerned house prices. Specifically, respondents were presented with one of the following six hypothetical outcomes:

1,2,3 Imagine that the price of your or your family's house [increased/ decreased/ increased or decreased].

4,5,6 Imagine that the price of houses in the country as a whole [increased/ decreased/ increased or decreased].

The positive economic outcome in this case is increasing house prices, which will enable voters to sell their house, or draw up a larger mortgage, at a possible gain to themselves (Ansell, 2014). Conversely, decreasing house prices is the negative outcome. Note that the neutral

condition simply ask voters to evaluate how responsible the government would be for house prices either increasing or decreasing.

The second outcome concerned employment. Respondents were presented with one of the following six versions of the outcome:

1,2,3 Imagine that you or someone in your family [lost their job/got a better job/lost their job or got a better job].

4,5,6 Imagine that unemployment in the country as a whole [increased/ decreased/ increased or decreased].

For the first three versions, the positive outcome is getting a better job and the negative outcome is losing a job. For the last three versions, the negative outcome is increasing unemployment and the positive outcome is decreasing unemployment. The neutral outcomes are, once again, either the negative or the positive outcome.

The housing and employment outcomes have different inferential strengths and weaknesses. The balance across negative and positive outcomes is strong for house prices but weaker for employment status. As such, there might be different causal processes involved in losing a job as opposed to getting a better job, whereas the causal processes involved in increasing as opposed to decreasing house prices are more similar. At the same time, it might be hard for voters to figure out what implications increasing or decreasing house prices will have for their personal economic situation. That is, whether the housing outcome they get is in fact desirable or undesirable. Conversely, almost all voters should understand that getting a better job is a desirable outcome and that losing a job is an undesirable outcome. All in all, the housing outcomes thus provide a harder test of the self-serving bias hypothesis and the employment outcomes an easier test of the hypothesis. By including both outcomes the experiment should provide a fair overall test of the hypothesis.

I analyze the survey experiment by setting up two linear models that use voters' attributions of responsibility for the housing and unemployment outcomes as the dependent variables. The independent variables are the different experimental treatments. The models are estimated using an OLS regression with robust standard errors.

Results

Figure 3 presents the results from the survey experiment. In the top panel, I examine the effects of the personal housing and employment outcomes. Across both types of outcomes, a similar pattern emerges. Voters who were assigned to a positive outcome were *less* likely to think that the government was responsible for securing this outcome than those assigned to a neutral or negative outcome ($p < 0.05$). At the same time there was no statistically discernible difference between receiving a negative economic outcome as opposed to a neutral outcome. This conforms fairly well to the predictions made by the self-serving bias hypothesis. That is, when voters had a personal stake in the outcomes, they adjusted the extent to which they implicated the government in a self-serving way (i.e., downplaying the role of the government when faced with a desirable outcome).

In the bottom panel of the figure 3, I examine the effects of the national housing and employment outcomes. For the national housing outcomes there was practically no difference in the extent to which voters assigned responsibility to the government for positive, negative and neutral outcomes. For the national employment outcomes there was no difference in how voters assigned responsibility for positive and negative outcomes. Voters who were assigned a neutral national employment outcome, however, were less likely to assign responsibility to the government than those who were assigned to a positive or a negative outcome. The absence of systematic differences in attributions across negative and positive national level outcomes tells us, once again and consistent with the self-serving bias hypothesis, that there is no unconditional valence asymmetry in how voters assign political responsibility — it is only for changes to voters personal welfare that the valence asymmetry kicks in.

One finding from the experiment does not line up that nicely with the self-serving bias hypothesis: there is no difference in the extent to which voters hold the government responsible for neutral and negative personal economic outcomes. One explanation for this might be that the "neutral" condition, which asks voters to assign responsibility for either a positive outcome or a negative outcome, is actually more negative than neutral. The literature on the negativity bias thus suggests that the mere presence negative information crowds out positive information (Rozin and Royzman, 2001; Olsen, 2015). If this is true, then it might make sense that the
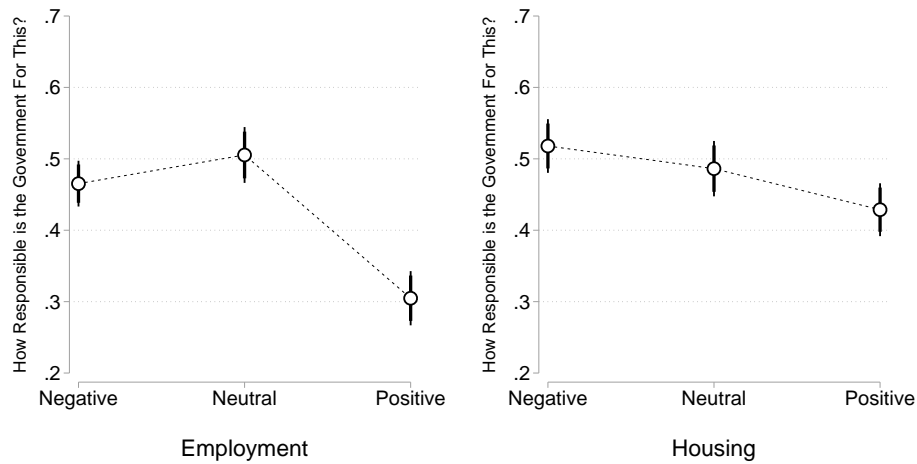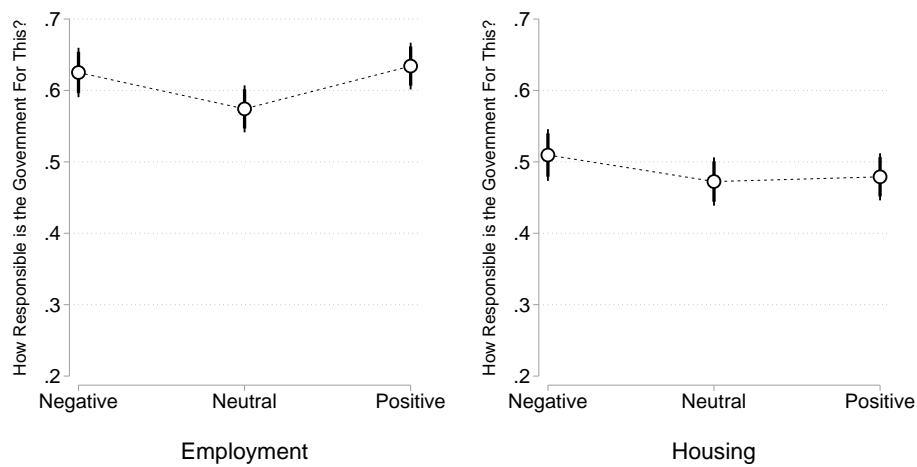
Figure 3: Mean level of beliefs about government responsibility for economic outcomes across valence ("Negative", "Neutral" and "Positive") and relevance ("Personal" and "National"). Mean levels reported separately for housing and employment outcomes. Vertical lines are 95 pct. (thin) and 90 pct. (thick) confidence intervals. Confidence intervals calculated based on predicted values from an OLS regression with robust standard errors ($n = 1,002$ for housing, $n = 1,002$ for employment).

respondents assigned to the "neutral" condition respond in the same way as those assigned to the "negative" condition.

Validating the Results Using an Additional Survey Experiment

The results in the experiment above were consistent with the self-serving bias hypothesis. However, do the findings actually reflect that voters are self-serving when it comes to assigning political responsibility? One might have two concerns in this regard. First, the differences in the way voters attribute responsibility for national vis-a-vis personal outcomes may reflect that voters have to operate on different 'levels of analysis'. That is, the attributional differences might be borne out of voters dealing with aggregates (i.e., national house prices and national unemployment rate) rather than individual instances (the price of one house and the employment situation of one person). Second, voters might simply hold the government more responsible for negative outcomes that affect them personally than for positive outcomes that affect them personally even if these outcomes are completely outside of the government's control. That is, voters might be lashing out blindly when something happens to them personally.

To address these concerns, I ran an additional online survey experiment with 263 undergraduate political science students from a Danish university.[6]. The survey included two sequential experiments

First, respondents were randomly split into four groups. The first two groups were randomly assigned to either the positive or the negative personal housing and employment outcome(see above for details). The other two groups received the same positive or negative outcomes, but with a small tweak. Instead of it being their own house or their own job, it was now "someone's" job or "someone's" house.[7] This is a more subtle difference than the national/personal split made in the main survey experiment, however, it should still regulate whether respondents have a personal stake in the outcome. As such, if voters are asked to evaluate who is responsible for

[6]The survey was conducted in February 2017 on the platform *psytoolkit*. The sample consisted of 55 pct. female students with an average age of 22.4 years

[7]The exact wording was "Imagine that someone in Denmark [lost their job/got a better job]" and "Imagine that the price of a Danish family's house [increased/ decreased]".
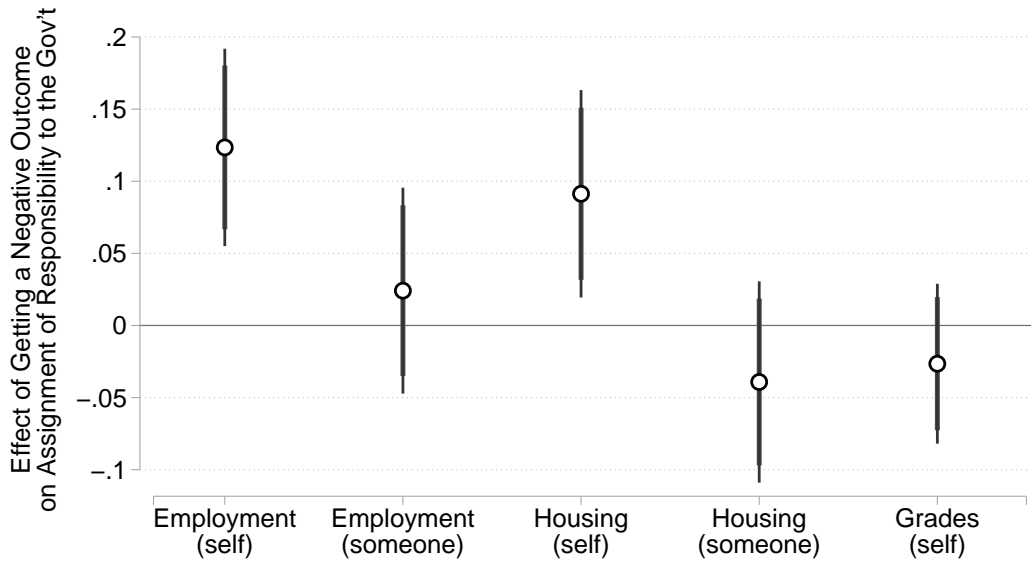
Figure 4: Effect of being presented with a negative rather than a positive outcome. Effects estimated using an OLS regression with robust standard errors. From left to right, the sample sizes used to estimate the effects are 141, 132, 143, 130, 263. Vertical lines are 95 pct. confidence intervals.

someone else's economic situation, then the self-serving motive should not influence voters' attributions, and there should be no valence asymmetry in political attributions.

Second, respondents were presented with either a positive or a negative hypothetical personal outcome related to their own academic performance. In particular, they were presented with one of the following outcomes: "Imagine that you get a [bad/good] grade on an exam". This outcome is arguably completely outside of the government's control, and therefore we should not expect the self-serving bias to be relevant.

After being presented with each of these different hypothetical outcomes, respondents were asked to evaluate the extent to which the government would be responsible for this outcome using the same item as in the main experiment.

Figure 4 presents the effect of being presented with a negative outcome on how responsible the respondents thought the government was across the different outcomes. Three things stand out. First, the results from the main survey experiment replicate. Those who got a negative as opposed to a positive personal outcome were more likely to think the government was responsible across housing and employment outcomes. Second, there is no statistically significant difference for the same outcomes when voters were simply asked to imagine that the outcomes

happened to "someone" instead of themselves. Accordingly, it does not seem to be the case that there is something special about small-scale outcomes. It is only when the small scale is the voters' themselves, and self-serving motives become relevant, that there is a valence asymmetry in political attributions. Third, there is no difference between those assigned to the negative and the positive "grades" outcome. This suggests that when outcomes are completely outside of the government's control, there is no valence asymmetry in political attributions.

Overall, the additional experiment should increase our confidence in the self-serving bias hypothesis, as the results suggest that the conditional valence asymmetry in attributions identified in the main experiment is driven by voters making self-serving judgments.

Conclusion

A lot of research in social psychology have shown that people tend to exculpate themselves for undesirable outcomes yet implicate themselves in desirable outcomes. In this article, I have argued that this self-serving bias in attribution has important consequences for how voters attribute responsibility for changes in their personal welfare. In particular, I have found that voters tend to shift blame towards the government when their personal welfare changes for the worse and away from the government when their personal welfare changes for the better.

I found evidence of such a self-serving bias in political attribution in a number of different places. For one, I showed that voters in Denmark, the US and Latin America are more prone to punish their government if their personal economic conditions worsen than they are to reward their government if their personal economic conditions improve. I have also shown that there is a negative correlation between voters' evaluation of their own economic situation and the extent to which they believe the government can influence their economic situation. Finally, I have shown that if we ask voters to evaluate how responsible the government is for randomly assigned hypothetical outcomes, then, to the extent that voters have a personal stake in the outcome, they are less likely to hold the government responsible for desirable outcomes.

These findings have important implications for the existing literature on how voters respond to social and economic outcomes. As such, the focus in previous work has gravitated towards attribution for events which are national in scope, like the national economy (Duch and Steven-

son, 2008; Alcañiz and Hellwig, 2011) national emergencies (Malhotra and Kuo, 2008; Healy, Kuo and Malhotra, 2014) or how the government handles public service provision (Tilley and Hobolt, 2011; although see Tilley, Neundorf and Hobolt, 2018). Yet this study underscores the importance of also focusing on how voters attribute blame for outcomes that are more personal in nature (Kinder and Kiewiet, 1979; Feldman, 1982; Giuliano and Spilimbergo, 2013; Ansell, 2014). In particular, it seems that voters can potentially attach political significance to personal economic outcomes, although, as this study has shown, whether voters do so depend on the valence of these outcomes. As mentioned in the introduction, this conditionality might help explain why previous studies have struggled to pin down the exact importance of personal economic conditions (Lewis-Beck and Stegmaier, 2013; Nannestad and Paldam, 1994; Kinder and Kiewiet, 1981; Stubager et al., 2014).

The findings should also give pause to anyone who thinks that democratic accountability can proceed from voters punishing and rewarding the government for changes to their personal welfare. While changes to personal welfare are easily observable (Fiorina, 1981), and do, at least to some extent, reflect government action, they are by definition *personal* to the voters, and this means that motivations like self-protection and self-enhancement influence how voters attribute responsibility for these changes. In particular, as we have shown in this article, voters will tend not to credit the government for positive changes in their personal welfare. In this way, self-servingness undermines democratic accountability.

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Appendix: For Online Publication

Contents

A Surveys Included in Study 1

Election surveys from Denmark: 1990, 1994, 2001, 2005, 2007, 2011 and 2015. For details see `http://www.valgprojektet.dk/default.asp?l=eng`.

Election surveys from the US: 1980, 1984, 1988, 1992, 1996, 2000, 2004, 2008 and 2012. For details see: `http://www.electionstudies.org/studypages/anes_timeseries_cdf/anes_timeseries_cdf.htm`

Election surveys in the Latinobarómetro: The countries included in the Latinobarómetro, and the number of years that these countries have been part of the study, can be seen in table A1. For details see: `http://www.latinobarometro.org/latContents.jsp`

Table A1: List of included surveys from the Latinobarómetro

Country	First year	Last year
Argentina	1995	2010
Bolivia	1996	2010
Brazil	1995	2010
Chile	1995	2010
Colombia	1996	2010
Costa Rica	1996	2010
Dominican Republic	2004	2010
Ecuador	1996	2010
El Salvador	1996	2010
Guatemala	1996	2010
Honduras	1996	2010
Mexico	1995	2010
Nicaragua	1996	2010
Panama	1996	2010
Paraguay	1995	2010
Peru	1995	2010
Spain	1996	2010
Uruguay	1995	2010
Venezuela	1995	2010

B   Asymmetry in Economic Experiences

In study 1, I find that there is a larger difference in support for the incumbent between those who think the economy is doing worse as opposed to the same than there is between those who think the economy is doing better as opposed to the same. This is consistent with a self-serving bias in attribution of political responsibility. However, an alternative explanation is that the experience of those who are doing worse deviates more from the experience of those who are doing the same, than the experience of those who are doing better deviates from those who are doing the same. That is, the distribution of economic fortunes might be skewed, so that a lot of people experience something very bad and only a few people experience something very good. Could this explain the findings presented in study 1?

To find out, I revisit the Latinobarómetro data. I examine the surveys from after 2000, because these include a more detailed version of the question concerning voters' experience of the economy. In particular, voters could report their personal and the national economy as doing "a little" or "much" better or worse.

If there is a negative skew in economic experiences, we would expect the proportion answering "much worse" to be larger than the proportion answering "much better". I calculate these proportions for the question concerning voters' own, and the national economy, in table B1.

Table B1: Composition of economic experiences

	(1)	(2)	(3)	(4)
	Worse, own	Better, own	Worse, national	Better, national
Proportion extreme	0.26	0.14	0.37	0.12
	(0.00)	(0.00)	(0.00)	(0.00)
Observations	43990	51047	75053	41600

Standard errors in parentheses. Data from the Latinobarometro.

As can be seen from table B1, there is some evidence of a negative skew in economic experiences: 14 pct. of respondents who thought their economy was doing better said it was doing much better, whereas 26 pct. of respondents who said their economy was doing worse said it was doing much worse. Even so, it seems unlikely that this can explain the valence asymmetry identified in study 1. As such, I found that the effect of the national economy was perfectly symmetrical, however, voters experience of the national economy was even more asymmetrical. Twelve pct. of respondents who said the national economy was doing better said it was doing much better, whereas 37 pct. of respondents who said the national economy was doing worse said it was doing much worse.

In summary, there is some evidence that those experiencing a deteriorating economy are more likely to believe it is rapidly deteriorating, whereas those who experience an improving economy are more likely to believe that it is only improving a little. However, this asymmetry cannot explain the findings in study 1, because this experiential asymmetry applies to

both national and personal economic conditions, whereas the attributional valence asymmetry identified in study 1 only applies to personal economic conditions.

C Estimating the Valence Asymmetry

The basic model used to look at how voters respond to economic conditions in study 1 is an LPM in line with this one:

$$Pr(y_{it} = 1) = \beta_0 + \beta_1 natwor_{it} + \beta_2 natbet_{it} + \beta_3 perwor_{it} + \beta_4 perbet_{it} + \epsilon_{it}. \quad (1)$$

Here y is the dependent variable, support for the incumbent, $natwor$ and $natbet$ are dummies indicating whether the respondent believes the national economy is doing better or worse, $perwor$ and $perbet$ are dummies indicating whether the respondent believes their own economy is doing better or worse, and ϵ_{it} is the error term.

When estimating the valence asymmetry we are interested in how much larger the negative "worse" effect is than the positive "better" effect. In terms of model 1 the relevant valence asymmetries can be defined as $\beta_1 + \beta_2 = \theta_n$ and $\beta_3 + \beta_4 = \theta_p$, where a negative θ implies that the negative "worse" effect is larger than the positive "better" effect. (Note that I multiply θ_p and θ_n by minus one when reporting them in figure 1, so that positive values come to represent that the negative effect is larger than the positive effect.)

θ_n, the valence asymmetry for the national economy, and θ_p, the valence asymmetry for the personal economy, are unfortunately not estimated directly in model 1. Instead, I estimate a slightly modified version of model 1. In particular, I incorporate θ_p and θ_n into the models by decomposing the "worse" effect into the valence asymmetry (θ) and the "better" effect (β_2 for national and β_4 for personal economic conditions),

$$Pr(y_{it} = 1) = \beta_0 + (\theta_n - \beta_2)natwor_{it} + \beta_2 natbet_{it} + (\theta_p - \beta_4)perwor_{it} + \beta_4 perbet_{it} + \epsilon_{it}. \quad (2)$$

This can be rearranged as

$$Pr(y_{it} = 1) = \beta_0 + \theta_n natwor_{it} + \beta_2(natbet_{it} - natwor_{it}) + \theta_p perwor_{it} + \beta_4(perbet_{it} - perwor_{it}) + \epsilon_{it}. \quad (3)$$

This linear probability model includes θ_p and θ_n directly, and it can be estimated by creating new variables for national and personal economic perceptions that subtract the "worse" dummies from the "better" dummies. It is a model like this one that is used to estimate the valence asymmetries in study 1.

D Variable Descriptions & Descriptive statistics

The ANES use the following question with answers falling in one of the three categories "better", "worse", and "the same":

- Country: "Would you say that over the past year the nation's economy has gotten better, stayed about the same or gotten worse?"

- Own: "We are interested in how people are getting along financially these days. Would you say that you and your family living here are better off or worse off financially than you were a year ago?"

The Latinobarometro has used two set of questions for the economic perceptions questions. From 1995-2000, the following questions were used:

- Country: "Do you consider the current economic situation of the country to be better, about the same, or worse than 12 months ago?"

- Own: "Do you consider your economic situation and that of your family to be better, about the same, or worse than 12 months ago?"

From 2001— the following questions were used:

- Country: "Do you consider the current economic situation of the country to be much better, a little better, about the same, a little worse, or much worse than 12 months ago?"

- Own: "Do you consider your economic situation and that of your family to be much better, a little better, about the same, a little worse, or much worse than 12 months ago?"

The DNES used the following questions, with answers falling in one of the five categories "better", "a lot better", "worse", "a lot worse" and "the same":

- Country: "How is the economic situation in Denmark today compared to one year ago?"

- Own: "How is your and your family's economic situation today compared to one year ago?"

The DK-OPT survey used the following questions, with answers falling in one of the five categories "better", "a lot better", "worse", "a lot worse" and "the same":

- Country: "How is the economic situation in Denmark today compared to one year ago?"

- Own: "How is your and your family's economic situation today compared to one year ago?"

The tables below show descriptive statistics from the election studies, the survey on attributions and the two survey experiments.

Table D1: Descriptive statistics, DNES

	Mean	SD	Min	Median	Max	n
Vote for governmening party	0.37	0.48	0.00	0.00	1.00	13379
Ideology (right-wing)	5.26	2.45	0.00	5.00	10.00	12841
State of personal economy	0.91	0.87	0.00	1.00	2.00	13379
State of country's economy	1.19	0.86	0.00	1.00	2.00	13379
Some College	0.32	0.47	0.00	0.00	1.00	13379
Age	48.69	16.85	17.00	48.00	106.00	13368
Woman (ref: man)	0.48	0.50	0.00	0.00	1.00	12089
Strength of party identification	0.79	0.86	0.00	1.00	2.00	13363

Table D2: Descriptive statistics, Latinobarometro

	Mean	SD	Min	Median	Max	n
Approve of president	0.52	0.50	0.00	1.00	1.00	143191
Ideology (right-wing)	25.68	38.69	0.00	6.00	99.00	143191
State of personal economy	0.85	0.86	0.00	1.00	2.00	143191
State of country's economy	0.89	0.77	0.00	1.00	2.00	143191
Some University	0.06	0.23	0.00	0.00	1.00	143191
Age	39.29	16.27	16.00	36.00	99.00	143191
Woman (ref: man)	0.51	0.50	0.00	1.00	1.00	143191
Strong feelings about president	50.55	49.22	0.00	99.00	99.00	143191

Table D3: Descriptive statistics, ANES

	Mean	SD	Min	Median	Max	n
Vote for president	0.52	0.50	0.00	1.00	1.00	12431
Ideology (right-wing)	4.78	2.41	0.00	4.00	9.00	12431
State of personal economy	1.18	0.80	0.00	1.00	2.00	12431
State of country's economy	0.97	0.78	0.00	1.00	2.00	12431
Some College	0.63	0.48	0.00	1.00	1.00	12318
Age	49.13	16.77	17.00	49.00	93.00	12362
Woman (ref: man)	1.54	0.50	1.00	2.00	2.00	12431
Strength of party identification	3.04	0.96	1.00	3.00	4.00	12388

Table D4: Descriptive statistics, DK-OPT survey

	Mean	SD	Min	Median	Max	n
Government responsible for national economy	0.77	0.24	0.00	0.75	1.00	943
Government responsible for repondent's economy	0.72	0.29	0.00	0.75	1.00	943
State of personal economy	2.11	0.60	1.00	2.00	3.00	943
State of country's economy	2.49	0.68	1.00	3.00	3.00	943
Some University	0.48	0.50	0.00	0.00	1.00	943
Age	52.68	17.49	19.00	55.00	97.00	943
Woman (ref: man)	0.48	0.50	0.00	0.00	1.00	943

Table D5: Descriptive statistics, main experiment

	Mean	SD	Min	Median	Max	n
Government responsible for house prices	0.48	0.24	0.00	0.50	1.00	1002
Government responsible for employment status	0.52	0.26	0.00	0.50	1.00	1002
Age	52.83	16.66	18.00	55.00	88.00	1002
Man (ref: woman)	0.54	0.50	0.00	1.00	1.00	1002

Table D6: Descriptive statistics, additional experiment

	Mean	SD	Min	Median	Max	n
Government responsible for housing (self)	0.50	0.22	0.10	0.50	1.10	141
Government responsible for employment (self)	0.43	0.21	0.10	0.40	1.00	140
Government responsible for employment (other)	0.51	0.21	0.10	0.50	1.10	132
Government responsible for housing (other)	0.49	0.20	0.10	0.50	1.00	130
Government responsible for grade	0.33	0.23	0.10	0.30	1.10	263
Age	22.37	3.02	18.00	22.00	44.00	262
Man (ref: woman)	0.46	0.50	0.00	0.00	1.00	263

E   Logistic regressions

Tables E1, E2, E3 present logistic regressions using the same dependent and independent variables as the LPM's used to produce the main results in study 1. The result of these analyses are similar to what we found in study 1. In particular, the estimated logit coefficients suggest that the effect of being worse off is larger than the effect of being better off for personal economic conditions, and that there is no similar valence asymmetry in the effect of national economic conditions.

Table E1: Logistic regression of voting for the incumbent president's party (ANES)

	(1)	(2)
Worse off - own economy	-0.50*	-0.50*
	(0.06)	(0.06)
Better off - own economy	0.27*	0.30*
	(0.05)	(0.06)
Worse off - national economy	-1.12*	-1.13*
	(0.05)	(0.05)
Better off - national economy	1.36*	1.41*
	(0.06)	(0.06)
Female (ref:male)		0.19*
		(0.04)
Age		0.00
		(0.00)
Some college ore more (ref: none)		-0.09*
		(0.05)
Observations	12,431	12,210

Standard errors in parentheses
Dummies for election surveys included in all models.
Controls for ideology and strength of partisanship also included in model 2.
$^+ p < 0.10$, $^* p < 0.05$

Table E2: Logistic regression of voting for party in government (DNES)

	(1)	(2)
Worse off - own economy	-0.26*	-0.20*
	(0.05)	(0.06)
Better off - own economy	0.01	0.09+
	(0.04)	(0.05)
Worse off - national economy	-0.51*	-0.56*
	(0.06)	(0.07)
Better off - own economy	0.50*	0.54*
	(0.04)	(0.05)
Some college ore more (ref: none)		-0.10*
		(0.04)
Female (ref:male)		0.08+
		(0.04)
Age		0.01*
		(0.00)
Observations	13,379	11,651

Standard errors in parentheses
Dummies for election surveys included in all models.
Controls for ideology and strength of partisanship also included in model 2.
+ $p < 0.10$, * $p < 0.05$

Table E3: Logistic regression of approving of incumbent president (Latinobar.)

	(1)	(2)
Worse off - own economy	-0.29*	-0.29*
	(0.02)	(0.02)
Better off - own economy	0.19*	0.20*
	(0.01)	(0.01)
Worse off - national economy	-0.62*	-0.62*
	(0.01)	(0.01)
Better off - own economy	0.67*	0.67*
	(0.02)	(0.02)
Age		0.01*
		(0.00)
Female (ref:male)		0.02
		(0.01)
Some college ore more (ref: none)		-0.20*
		(0.03)
Observations	143,191	143,191

Standard errors in parentheses
Dummies for election surveys included in all models.
Controls for ideology and strength of partisanship also included in model 2.
+ $p < 0.10$, * $p < 0.05$

F   Tables Underlying the Different Figures

Tables F1, F2, F3 present the OLS regression models used to produce figure 1. Tables F4, F5 and F6 present the OLS regression models used to produce figures 2, 3 and 4.

Table F1: OLS regression of voting for the incumbent president's party (ANES)

	(1)	(2)
Worse off - own economy	-0.10*	-0.10*
	(0.01)	(0.01)
Better off - own economy	0.06*	0.06*
	(0.01)	(0.01)
Worse off - national economy	-0.26*	-0.26*
	(0.01)	(0.01)
Better off - national economy	0.27*	0.28*
	(0.01)	(0.01)
Female (ref:male)		0.04*
		(0.01)
Age		0.00
		(0.00)
Some college ore more (ref: none)		-0.02*
		(0.01)
σ	0.44	0.44
R2	0.22	0.23
Observations	12,431	12,210

Standard errors in parentheses
Dummies for election surveys included in all models.
Controls for ideology and strength of partisanship also included in model 2.
$^{+} p < 0.10,\ ^{*} p < 0.05$

Table F2: OLS regression of voting for party in government (DNES)

	(1)	(2)
Worse off - own economy	-0.06*	-0.04*
	(0.01)	(0.01)
Better off - own economy	0.00	0.02+
	(0.01)	(0.01)
Worse off - national economy	-0.10*	-0.11*
	(0.01)	(0.01)
Better off - own economy	0.12*	0.12*
	(0.01)	(0.01)
Some college ore more (ref: none)		-0.02*
		(0.01)
Female (ref:male)		0.02+
		(0.01)
Age		0.00*
		(0.00)
σ	0.47	0.46
R2	0.04	0.07
Observations	13,379	11,651

Standard errors in parentheses
Dummies for election surveys included in all models.
Controls for ideology and strength of partisanship also included in model 2.
+ $p < 0.10$, * $p < 0.05$

Table F3: OLS regression of approving of incumbent president (Latinobar.)

	(1)	(2)
Worse off - own economy	-0.06*	-0.06*
	(0.00)	(0.00)
Better off - own economy	0.04*	0.04*
	(0.00)	(0.00)
Worse off - national economy	-0.13*	-0.13*
	(0.00)	(0.00)
Better off - own economy	0.13*	0.13*
	(0.00)	(0.00)
Female (ref:male)		0.00
		(0.00)
Age		0.00*
		(0.00)
Some college ore more (ref: none)		-0.04*
		(0.00)
σ	0.44	0.44
R2	0.23	0.24
Observations	143,191	143,191

Standard errors in parentheses
Dummies for election surveys included in all models.
Controls for ideology and strength of partisanship also included in model 2.
+ $p < 0.10$, * $p < 0.05$

Table F4: OLS regression of beliefs about government's capacity to affect national and personal economic condtions

	(1) Personal	(2) National
Worse - Own	0.06*	0.04[+]
	(0.03)	(0.02)
Better - Own	-0.02	0.01
	(0.02)	(0.02)
Worse - National	0.05	0.06[+]
	(0.03)	(0.03)
Better - National	0.02	0.03[+]
	(0.02)	(0.02)
Constant	0.70*	0.73*
	(0.02)	(0.02)
σ	0.29	0.24
R2	0.01	0.01
Observations	943	943

Standard errors in parentheses
[+] $p < 0.10$, * $p < 0.05$

Table F5: OLS regression of attribution to government (population based sample)

	(1) Government responsible for employment status	(2) Government responsible for house prices
Worse - Own	0.04	-0.03
	(0.03)	(0.03)
Better - Own	-0.16*	-0.09*
	(0.03)	(0.03)
Same - National	0.16*	-0.01
	(0.02)	(0.03)
Worse - National	0.11*	-0.05[+]
	(0.02)	(0.03)
Better - National	0.17*	-0.04
	(0.02)	(0.03)
Constant	0.47*	0.52*
	(0.02)	(0.02)
σ	0.23	0.24
R2	0.19	0.01
Observations	1,002	1,002

Standard errors in parentheses
[+] $p < 0.10$, * $p < 0.05$

Table F6: OLS regression of attribution to the government (convenience sample experiment)

	(1) Employment (self)	(2) Employment (other)	(3) Housing (self)	(4) Housing (other)	(5) Grades
Negative Outcome	0.12*	0.02	0.09*	-0.04	-0.03
	(0.03)	(0.04)	(0.04)	(0.04)	(0.03)
Constant	0.25*	0.48*	0.37*	0.66*	0.37*
	(0.05)	(0.06)	(0.06)	(0.16)	(0.05)
σ	0.20	0.21	0.21	0.20	0.23
R2	0.09	0.00	0.04	0.01	0.00
Observations	140	132	141	130	263

Standard errors in parentheses
[+] $p < 0.10$, * $p < 0.05$