WORKING PAPER

Obama and the Macroeconomy

Estimating Social Preferences Between

Unemployment and Inflation

by

Soeren Enkelmann

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Abstract

This paper investigates social preferences towards unemployment and inflation in the United States. Estimating a popularity function with monthly data for the recent Obama administration, we find that U.S. voters react strongly to both unemployment and inflation. However, reducing unemployment is more important to society as voters would trade off 1 point of unemployment against 2.5 points of inflation. One point of unemployment costs the president about 4 points, one point inflation costs him 1.5 point. Moreover, we provide evidence that macroeconomic preferences are not stable over time. Finally, we show that public preferences towards unemployment and inflation are not homogeneous across different groups in society. The poor and low-educated, for example, react more strongly to changes in the unemployment rate than other groups.

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1 Introduction

People prefer both low unemployment and low inflation rates. Though socially desirable, achieving both goals at the same time is generally not feasible. In the short run, a lower unemployment rate usually comes with higher inflation, and *vice versa*. Which combination of unemployment and inflation will political decision-makers choose?

In democratic societies, we expect political decisions to be guided by public preferences. A society that places particular emphasis on the unemployment goal, for example, will lead opportunistic politicians to support a looser monetary policy and fiscal expansion. Otherwise, a high degree of inflation aversion will induce policies with a stronger focus on price stability, e.g. the creation of a more conservative and independent central bank. In other words, in democracies social preferences affect political outcomes and shape institutions. Unfortunately, these preferences are not observable.

The aim of this paper is to empirically estimate public preferences with respect to low unemployment and low inflation. Understanding public attitudes towards macroeconomic goals is not only of vital interest to politicians, but also to political scientists and economists who try to model the complex interaction between politicians, voters, and the economy (e.g. Frey (1978); Frey and Schneider (1978)). Additionally, results from many theoretical models that rely on a Phillips curve relationship (e.g. Barro and Gordon (1983); Nordhaus (1975)) depend on public preferences towards unemployment and inflation.[1] Quantifying these preferences will help to put the theoretical results into context.

To investigate social preferences we will estimate a so-called popularity function. The basic idea of popularity functions is that the overall utility or welfare level of society can be approximated by measures of government approval. If the responsibility hypothesis holds, i.e. political and economic outcomes are attributed to the government, voters will punish the government for a bad economy and reward the government for a good economy. The theory of punishment and reward goes back Downs (1957) and Key (1966). The extent to which voters react to changes in different macroeconomic variables can be used to construct a measure of social preferences.

The empirical literature on vote and popularity functions, going back to Mueller (1970), is very large.[2] Earlier studies have regularly shown that the economy plays an important role for the level of public support, especially unemployment and inflation (Paldam (2008)). However, the results are highly unstable. In a survey article, Berlemann and Enkelmann (2012) find that only half of the studies for the United States find a significant relationship between government approval and the economy. Some have therefore questioned the very existence of the popularity

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[1] See Smyth et al. (1991) for further references.

[2] It is nearly impossible to discuss the large body of research in an article like this. See, for example, Lewis-Beck and Paldam (2000), Lewis-Beck and Stegmaier (2007) and Paldam (2008) for recent surveys.

function (Lewis-Beck and Stegmaier (2007); Bellucci and Lewis-Beck (2011)). Smyth et al. (1991, 1995) have shown that there are structural changes in the popularity function over time which makes it necessary to restrict the analysis of popularity functions to single administrations.

This is the first study that estimates social preferences using recent data for the first Obama administration. We will investigate linear and non-linear dynamic models. We will also take potential non-stationarity and other, non-economic factors into account. Moreover, by comparing our findings with earlier studies we get an impression of how public preferences have changed over time. Finally, we investigate public preferences for different groups of society, e.g. the young and the old, the poor and the rich, and so on.

We find that social preferences for the United States can be well described by a dynamic popularity function. Both unemployment and inflation significantly reduce social welfare. However, the macroeconomic goals are not equally important to voters as they would accept roughly 2.5 additional points of inflation for a one-point reduction in the unemployment rate. Such preferences create strong political incentives to trade off unemployment for inflation. Moreover, we find further evidence that macroeconomic preferences are not stable over time. Surprisingly, we find that voters are more inflation-averse and less unemployment-averse than during most other presidencies. Finally, we show that social preferences are not homogeneous across different groups in society. The poor and low-educated, for example, prioritize fighting unemployment while Hispanics, the young as well as the high-educated voters react strongly to inflation.

The remainder of the paper is structured as follows. Section 2 introduces the dataset and discusses a number of methodological issues. Section 3 presents the results for the overall sample and 4 analyses social preferences for different groups of society. The final section concludes.

2 Data and Method

In this section, we briefly describe the dataset and discuss a set of methodological questions. The subsequent analysis is based on monthly data from January 2009 to September 2012, thus covering $T = 46$ months of the Obama presidency. We will estimate a social preference function of the following general form:

$$approval_t = f\left(unemployment_t, inflation_t, controls_t\right) + \epsilon_t. \tag{1}$$

The dependent variable *approval* is generated from a Gallup survey question that is commonly used in the popularity function literature. It measures the aggregate share of positive answers to the question "Do you approve or disapprove of the way Barack Obama is handling his job as President?" The variable is bounded to a (0,100) interval. However, as the true values in the

sample range from 40 to 67 percent we will treat the dependent variable as non-bounded as it is common in the field.

The stance of the economy is represented by two major variables: the unemployment rate and the inflation rate. The unemployment rate is defined as the number of unemployed as a percentage of the total civilian labor force. The inflation rate is defined as the year-to-year percentage change of the consumer price index.[3] Both the unemployment and inflation rate are lagged by one month to account for a publication lag.[4] Of course, there are several other economic issues that affect the voters' opinion of the government (economic growth, deficits, stock markets), but there are three arguments that guided our choice. First, many economic variables are not available at a monthly frequency. Second, previous results have shown that unemployment and inflation are "the big two" (Paldam (2008)) issues that shape public support. Finally, the choice of economic variables relates to theoretical models that regularly include preferences towards unemployment and inflation (e.g. Nordhaus (1975); Barro and Gordon (1983)).
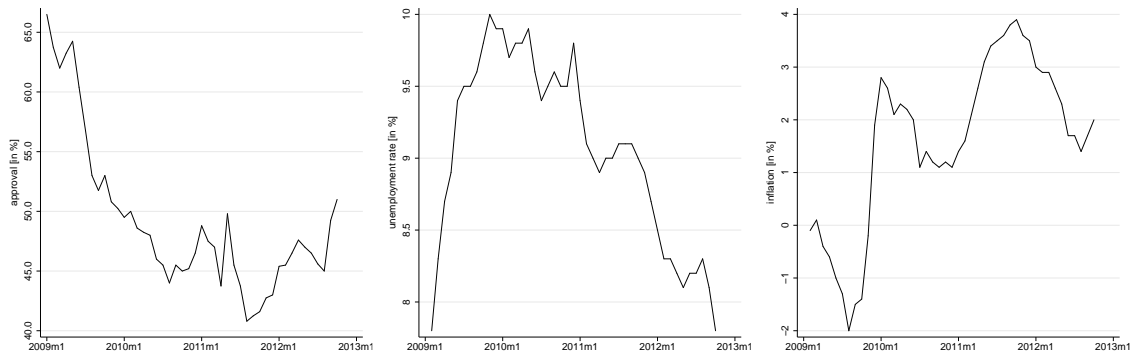

Figure 1 Approval, unemployment and inflation.

Additionally, we include a set of control variables to represent important non-economic influences. First, a dummy variable is included for the month in which Obama received the Nobel Peace Prize (Oct 2010). Second, a dummy variable captures the rally effect after killing Osama bin Laden (May 2011). Third, we control for the negative effect of war activity by including the number of US casualties in Afghanistan.[5] Finally, we include the president's time in office to account for the so-called cost of ruling. It has been shown that – independent from the economy – all governments lose support over the course of time (Paldam (2008)).

Before we turn to specification issues, we investigate the time series properties of our variables. Figure 1 presents government approval as well as the unemployment and inflation rate between January 2009 and September 2012. The graphs indicate non-stationary behavior for all

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[3] Unemployment and inflation series are taken from the Federal Reserve Bank of St. Louis (FRED), series UNRATE and CPIAUCSL.

[4] Unemployment (inflation) rates are usually published in the first (third) week of the following month.

[5] Information on war casualties from Operation Enduring Freedom are taken from www.iCasualties.org.

three variables. Moreover, public support shows a downward trend that is well in line with the cost-of-ruling hypothesis. To formalize our non-stationarity assumption, we employ a battery of stationarity tests whose results are presented in Table I. We find that all variables are $I(1)$ processes, i.e. the variables are stationary after taking first differences.[6]

These results are in line with findings by Kirchgässner (2009) and Clarke and Stewart (1994). Other studies find that either approval, unemployment or inflation are stationary processes (Beck (1991); Geys and Vermeir (2008); Geys (2010)) which seems reasonable if one accepts the argument that at least approval and the unemployment rate are bounded variables which by definition cannot have infinite variances or ever-trending means. However, we should always have in mind that the power of the tests is rather low and the sample too short to draw definite conclusions about the time series properties.

Table I Stationarity tests

	levels			first differences		
	ADF	PP	KPSS	ADF	PP	KPSS
government approval	—	—	**	***	***	—
unemployment rate	—	—	**	***	***	**
inflation rate	—	—	**	***	***	—

Augmented Dickey-Fuller (ADF), Phillips-Perron (PP) and Kwiatkowski-Phillips-Schmidt-Shin (KPSS) unit root tests. Null hypothesis is non-stationarity for ADF and PP, stationarity for KPSS. * (**, ***) indicate statistical significance at the 10 (5, 1) percent level. Time trend included for approval.

In a next step, we have to choose a specification for the general model presented in Equation 1. There are several ways to think about the dynamics between government support and the economy, but the most common model in the popularity function literature is the partial adjustment model.[7] The partial adjustment model assumes that approval reacts to changes in the economic variables but, due to inertia, the full effect on approval will only be seen after several (more precisely, an infinite number of) periods. The inertia can be explained by adjustment costs, which in this case can be justified with information lags and psychological persistence regarding the evaluation of the government. Assuming partial adjustment, the model takes the following form:

$$approval_t = \beta_0 + \beta_1 \cdot approval_{t-1} + \beta_2 \cdot unemployment_t + \beta_3 \cdot inflation_t + \boldsymbol{\beta} \cdot controls_t + \epsilon_t. \quad (2)$$

As mentioned above, the partial adjustment model is widely applied to estimate popularity functions but the use of potentially non-stationary variables leads to biased standard errors and test results are no longer reliable (Kirchgässner (2009)). To deal with non-stationary $I(1)$ variables we

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[6] For the differenced inflation series, the KPSS test rejects the null of stationarity at the 5 percent level. To our mind, this is implausible and most likely due to the low power of the tests and the sample size.

[7] See Beck (1991)) for a discussion of different dynamic models in the context of popularity functions.

could therefore estimate the model in first differences. This approach, however, neglects all long-term dynamics (Beck (1991)). Alternatively, if presidential approval and the economic variables are co-integrated we can explcitly model the long- and short-term dynamics by estimating an error correction model:

$$\Delta approval_t = \beta_0 + \beta_1 \cdot approval_{t-1} + \beta_2 \cdot unemployment_{t-1} + \beta_3 \cdot inflation_{t-1}$$
$$+ \beta_4 \cdot \Delta unemployment_t + \beta_5 \cdot \Delta inflation_t + \boldsymbol{\beta} \cdot controls_t + \epsilon_t. \tag{3}$$

The error correction model combines the partial adjustment and the first difference model by including lagged and differenced economic variables. The existence of a co-integration relationship is tested with the Engle-Granger two-step method. The results show that we cannot reject the null hypothesis that there is a co-integration relationship which means that we can apply the error correction model.[8] Against the background of weak stationarity tests, it should be noted that error correction models are also applicable in the case of stationary time series (De Boef and Keele (2008)).

Since we cannot draw definite conclusions about the time series properties and for the sake of comparability with the existing literature we will present results from both the partial adjustment and the error correction model thoughout the paper.

A final specification issue deals with the question of non-linearities. The linear inclusion of the economic variables has some potential drawbacks. First, it implies that a one-point increase in the unemployment (inflation) rate has the same effect on approval, no matter if the increase is from 4 to 5 percentage points or from 9 to 10. Moreover, in the linear model less inflation is always preferred to more inflation if, as expected, the inflation coefficient is negative. This is not plausible in the case of negative inflation rates which occurred in 2009. For these reasons, we additionally estimate models 2 and 3 as quadratic models as introduced by Smyth et al. (1989).[9]

3 Estimation Results

After discussing a number of methodological issues we will now present the empirical results.

Table II shows the results for the partial adjustment model. In both models all variables are statistically and economically significant and show the expected sign. Regarding the control variables, we find that increasing war casualties decrease approval while the killing of Osama bin

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[8] In the first step, we estimate the long-run relationship between approval, unemployment and inflation including a trend. In a second step, we test whether the first-step residuals are stationary using the augmented Dickey-Fuller test with corrected critical values. See Stock and Watson (2007) for a description of the Engle-Granger two-step procedure.

[9] Following Smyth et al. (1989), we will include the quadratic term but not the linear term, which allows the comparison with earlier results. This implies the assumption that voters maximize utility when unemployment and inflation is zero. We have also estimated a linear-quadratic model with similar results. Evaluated at the mean, an increase in the unemployment (inflation) significantly decreases approval by 3.7 (1.6) points in the long run.

Laden and the Nobel Prize lead to a positive rally effect. Moreover, public support declines by about one point in each year which is well in line with results in the literature.

The results show that voters dislike both unemployment and inflation. In the linear model, a one-point increase in the unemployment rate decreases support by 1.5 percentage points in the short-run. In the long run, public support falls by about 3.5 points. A similar rise in the inflation rate decreases popularity by 0.6 points, the long-run coefficient is −1.3. In other words, voters would trade off 2.5 points of inflation for 1 point of unemployment. The interpretation of the quadratic model is less straightforward as the effect on approval depends on the level of unemployment and inflation. Evaluated at the respective sample means, one additional point of unemployment (inflation) decreases approval by 1.5 (0.7) points in the short run and 3.8 (1.9) points in the long run.[10]

In the partial adjustment model, one minus the coefficient on the lagged dependent variable measures the speed of adjustment. In Table II, the estimated speed of adjustment is about 0.4, which means that 40 percent of the gap between current approval and its long-run equilibrium is adjusted in each period.

Table II Estimated social preference function: partial adjustment model

	linear model (1)		quadratic model (2)	
approval ($t-1$)	0.558***	(0.062)	0.612***	(0.055)
unemployment	−1.529***	(0.493)		
inflation	−0.593**	(0.250)		
sq. unemployment			−0.078**	(0.034)
sq. inflation			−0.173***	(0.043)
war casualties	−0.078***	(0.015)	−0.072***	(0.012)
Osama bin Laden	5.665***	(0.266)	5.829***	(0.248)
Nobel Prize	2.902***	(0.682)	3.890***	(0.287)
time in office	−0.102***	(0.034)	−0.096**	(0.040)
constant	40.907***	(7.087)	30.395***	(5.745)
observations	44		44	
Durbin's h (p-value)	0.495		0.746	
R^2	0.966		0.968	
R^2 (adj)	0.959		0.962	

Dependent variable: approval. Robust (HAC) standard errors in parentheses. ***, **, * indicate statistical significance at the 1%, 5%, 10% level.

The results from the linear and quadratic error correction model are presented in Table III. The findings are very similar to Table II. Again, all coefficients are statistically significant and have the expected sign. In the linear model, the short-run effects of an increase in unemployment and inflation are −2.5 and −1.0 points, respectively. The long-run effects are −4.0 for unemployment

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[10] For the unemployment rate, we considered an increase from 9.0 to 10.0 points (sample mean: 9.06). For the inflation rate, we considered an increase from 1.6 to 2.6 points (sample mean: 1.62). Of course, the results differ for other values.

and -1.2 for inflation. The results from the quadratic model are similar, though the short-run impact of rising inflation is not significantly different from zero and the long-run coefficients are somewhat higher (-5.1 for unemployment and -1.8 for inflation). Similarly, the estimated speed of adjustment is about 0.4.[11]

Table III Estimated social preference function: error correction model

	linear model (1)		quadratic model (2)	
approval $(t-1)$	-0.437^{***}	(0.061)	-0.400^{***}	(0.066)
unemployment $(t-1)$	-1.758^{***}	(0.496)		
inflation $(t-1)$	-0.517^{*}	(0.261)		
Δ unemployment	-2.545^{*}	(1.387)		
Δ inflation	-1.028^{**}	(0.417)		
sq. unemployment $(t-1)$			-0.107^{**}	(0.040)
sq. inflation $(t-1)$			-0.167^{***}	(0.050)
Δ sq. unemployment			-0.137^{*}	(0.075)
Δ sq. inflation			-0.205	(0.124)
war casualties	-0.082^{***}	(0.015)	-0.071^{***}	(0.011)
Osama bin Laden	5.968^{***}	(0.350)	5.955^{***}	(0.585)
Nobel Prize	3.197^{***}	(0.761)	3.907^{***}	(0.420)
time in office	-0.126^{***}	(0.034)	-0.128^{***}	(0.043)
constant	43.369^{***}	(6.390)	34.100^{***}	(6.721)
observations	43		43	
Durbin's h (p-value)	0.546		0.939	
R^2	0.731		0.743	
R^2 (adj)	0.658		0.673	

Dependent variable: approval. Robust (HAC) standard errors in parentheses. ***, **, * indicate statistical significance at the 1%, 5%, 10% level.

Summarizing, the estimated social preference function indicates a robust negative effect of unemployment and inflation on public support. In the long run, one point of unemployment costs about 4 points while one point of inflation decreases approval by 1 to 2 points. These effects are sizeable and can be decisive in elections. Assuming vote-maximizing politicians, it can therefore be expected that social preferences affect economic policy decisions. For example, the stronger the public's demand for low unemployment and the lower the political punishment for rising inflation, the more likely are politicians to exploit a short-run Phillips curve trade-off. Against this background, the current economic policy in the United States – low interest rates and expansive fiscal policy – seems to be rational, vote-maximizing behavior.

How do these results compare to earlier findings and are social preferences stable over time? The popularity function literature is large and diverse which makes a direct comparison of results difficult, if not impossible. However, Smyth, Dua and Taylor have consistently estimated a quadratic partial adjustment model for several presidents. Table IV summarizes their findings with

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[11] We also estimated static and first-difference models as a robustness check. Results are in line with the presented tables and the unemployment and inflation coefficient is statistically significant and correctly signed in most cases.

respect to the unemployment and inflation coefficients. A comparison with earlier results shows that the unemployment and inflation coefficients changed considerably over time. The long-run coefficient on the unemployment variables ranges from −0.243 to −1.061. During the Obama presidency, the long-run unemployment coefficient is relatively low, comparable with findings for the Ford period. Given the high unemployment rates during the Obama presidency, this is a little surprising. The long-run coefficient on inflation, on the other hand, is relatively high.

However, this kind of comparison should be taken with a grain of salt. All social preference functions are estimated for periods with specific macroeconomic characteristics. These results cannot necessarily be carried over to other periods. Moreover, popularity functions are based on the responsibility hypothesis, i.e. voters punish the president for high unemployment and inflation rates because he is held responsible for the economy. Shifts in the attribution of responsibilty can also lead to changes in the coefficients, not reflecting changes in the preferences. Obama, who inherited a large recession, is probably held less responsible for high unemployment rates. Inflation, on the other hand, is very likely the result of Obama's expansionary policies.

Table IV Stability of social preferences over time

study	sample period	unemployment		inflation	
		short	long	short	long
Smyth et al. (1991)	Eisenhower	−0.116	−0.296	−0.281	−0.717
	Kennedy/Johnson			−0.082	−0.372
	Nixon/Ford	−0.110	−0.193	−0.039	−0.068
	Carter	−0.073	−0.243	−0.013	−0.043
	Reagan	−0.217	−0.347	−0.068	−0.109
Smyth et al. (1995)	Nixon	−0.232	−0.455	−0.075	−0.147
	Ford			−0.073	−0.092
Dua et al. (1995)	Bush I	−0.405	−1.061		
Smyth et al. (1999)	Carter	−0.093	−0.345	−0.004	−0.013
	Reagan	−0.172	−0.331	−0.069	−0.132
	Reagan/Bush I/Clinton	−0.101	−0.502		
Smyth and Taylor (2003)	Clinton	−0.103	−0.468	−0.024	−0.109
own findings	Obama	−0.078	−0.201	−0.173	−0.446

Table shows coefficients on unemployment and inflation from a quadratic partial adjustment model. Note that not all coefficients were statistically significant. Implausible positive coefficients not shown. See original studies for further details.

4   Heterogeneity in Macroeconomic Priorities

We have seen that U.S. voters dislike both unemployment and inflation. However, preferences towards macroeconomic goals need not be homogeneous across different groups of voters. If this is the case, political decisions that affect the macroeconomy will not only change overall welfare in

society, but also induce distributional effects in terms of public utility. We will address this issue in the following section.

Besides the average level of public support, Gallup also publishes approval ratings for different sub-groups of society, e.g. approval among different age groups, income groups, and so on. We can use these ratings to estimate separate social preference functions for each group which allows us to get an impression of how preferences are distributed among voters. Note, however, that our analysis takes place at the macro level, i.e. we are not able to control for all characteristics at the same time.

The results for the group-specific social preference functions are presented in Table V. The table shows the long-term effects of a one-point change in the economic variables.[12] The third column displays the ratio of unemployment coefficient to inflation coefficient, which indicates the relative unemployment aversion of the respective group. The last column shows the absolute sum of unemployment and inflation coefficient. The higher this sum, the more important are economic issues to the specific group.

Overall, we find that macroeconomic preferences are qualitatively similar for different groups of society. In most cases, unemployment and inflation enter the preference function with a negative sign and are different from zero. However, quantitatively there are interesting differences between groups. The reaction coefficient to unemployment ranges from -5 to non-significant coefficients. We also see that the overall long-run unemployment coefficient of -3.46 is mostly driven by older voters, whites, and the relatively low-educated. Low-income voters also dislike unemployment more than other income groups. Very young voters, non-Whites and the high-educated, on the other hand, do not seem to punish President Obama for high unemployment rates. There are also regional differences, at least between the West and non-West region. Interestingly, there are no large differences between Democrats and Republicans though Independents react strongly to higher unemployment. The inflation coefficient also varies strongly between groups. The long-run effect ranges from non-significant -0.23 to -3.12. Our results indicate that young respondents and Hispanics react most strongly to inflation. The coefficient is also relatively high for the low-income group and Democrats.

The u/π ratio indicates how many percentage points of unemployment voters would trade off against one point of inflation to keep the level of social utility constant. The higher the ratio, the higher the degree of relative unemployment aversion. Table V shows that especially older respondents, the low-educated, Whites, Republicans, and the more religious and conservatives place a greater emphasis on the unemployment issue.

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[12] Results are taken from the partial adjustment model. As the results for the partial adjustment model/error correction model are very similar (both in the linear and quadratic case) we do not report the other group-specific results here.

Table V Macroeconomic preferences among different groups

	unemployment (u)	inflation (π)	ratio (u/π)	sum ($u+\pi$)
full sample	-3.46^{***}	-1.34^{***}	**2.6**	**4.8**
gender				
male	-3.47^{***}	-1.24^{**}	**2.8**	**4.7**
female	-3.61^{***}	-1.30^{**}	**2.8**	**4.9**
age				
18-29 years	-1.79	-2.29^{***}	**0.8**	**4.1**
30-49 years	-3.47^{**}	-1.31^{**}	**2.6**	**4.8**
50-64 years	-5.28^{***}	-0.94^{*}	**5.6**	**6.2**
65 years and older	-3.79^{***}	-0.92^{***}	**4.3**	**4.9**
region				
east	-4.31^{***}	-1.47^{***}	**2.9**	**5.8**
midwest	-4.72^{***}	-1.21^{*}	**3.9**	**5.9**
south	-3.81^{***}	-0.93^{**}	**4.1**	**4.7**
west	-2.22^{*}	-1.64^{***}	**1.4**	**3.9**
race				
white	-4.41^{***}	-1.05^{**}	**3.9**	**5.2**
black	0.11	-0.78^{**}	**−0.1**	**0.7**
hispanics	-2.68	-3.12^{**}	**0.9**	**5.8**
education				
highschool or less	-5.40^{***}	-1.37^{*}	**4.0**	**6.8**
some college	-3.66^{***}	-1.35^{***}	**2.7**	**5.0**
college graduates	-3.07^{**}	-0.54	**5.6**	**3.6**
postgraduates	-1.34	-1.34^{***}	**1.0**	**2.7**
monthly income				
under \$2,000	-4.80^{***}	-1.92^{**}	**2.5**	**6.7**
\$2,000-\$4,999	-3.75^{***}	-1.33^{***}	**2.8**	**5.1**
\$5,000-\$7,499	-2.86^{**}	-1.10^{*}	**2.6**	**4.0**
\$7,500 or more	-3.81^{***}	-1.13^{***}	**3.4**	**4.9**
party id				
democrat	-2.59^{***}	-1.90^{***}	**1.4**	**4.5**
independent	-4.45^{***}	-1.08	**4.1**	**5.5**
republican	-2.84^{**}	-0.23	**12.2**	**3.1**
ideology				
liberal	-4.34^{***}	-1.50^{**}	**2.9**	**5.8**
moderate	-3.17^{**}	-1.49^{**}	**2.1**	**4.7**
conservative	-3.84^{***}	-0.38	**10.1**	**4.2**
church attendance				
weekly	-3.80^{***}	-0.67^{**}	**5.6**	**4.5**
nearly weekly/monthly	-3.62^{***}	-1.20^{**}	**3.0**	**4.8**
seldom/never	-3.48^{**}	-1.85^{***}	**1.9**	**5.3**

Results from partial adjustment model (long-run coefficients). Dependent variable: approval for specific group. Robust (HAC) standard errors in parentheses. ***, **, * indicate statistical significance at the 1%, 5%, 10% level.

Finally, we added the absolute coefficients of unemployment and inflation to get an idea of how important macroeconomic goals are to voters.[13] Measured this way, the economy is about equally important to most of the groups. The weakest relation between public support and the economic variables is found for the young, the high-educated, Republicans and the Blacks. High values are found for the low-educated and the low-income group. In most cases, the differences are mainly driven by differences in the unemployment coefficient.

Summarizing, we find that social preferences are – qualitatively – very similar across different groups of voters. In most cases, unemployment and inflation significantly reduce support for the government. However, the relative importance of macroeconomic goals differs considerably. The group of low-educated and low-income voters is particularly averse to unemployment which reflects an egotropic perspective. Republicans and conservative voters are also relatively more unemployment averse. This result, however, is not in line with the traditional view that leftist voters are more concerned with unemployment and rightist voters are more concerned with inflation. Finally, we find that support among Black voters is only marginally affected by economic variables. During his entire term, Obama's approval ratings in this group are extraordinarily high and seemingly unconditional.

5 Summary and Discussion

In this paper, we have estimated a social preference function for the United States employing monthly data for the Obama presidency. Using government approval ratings as a proxy for social welfare, we have shown that higher unemployment and inflation rates significantly decrease the society's utility level. Results from different dynamic models show that, in the long-run, a one-point increase in the unemployment rate decreases public support by about 3.5 points. Likewise, one point of inflation reduces approval by 1.5 points. These effects are large and can be decisive in elections.

In general, unemployment and inflation cannot be reduced at the same time. To keep utility constant, voters would accept roughly 2.5 points of inflation for a one-point reduction of the unemployment rate. Whenever it is possible to trade off unemployment and inflation at this or a better rate, it can be expected that vote-maximizing politicians use expansionary policies to reduce unemployment at the cost of higher inflation. This is exactly what could be observed during the first Obama presidency, showing that public preferences translate in actual policies.

We have also shown evidence that macroeconomic preferences are not stable over time. A comparison with earlier results indicates that the voters' reaction to changes is unemployment is relatively weak, whereas the reaction to inflation is comparatively strong during the Obama

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[13] Note that we do not add the unemployment and inflation rate, i.e. we do not construct a misery index.

presidency. This result is somewhat surprising. However, the comparison should be taken with a grain of salt as one must be careful in the interpretation of coefficients outside the respective sample of each study. In addition, the attribution of responsibility could have changed over time which affects the size of the coefficients.

Moreover, we could show that macroeconomic preferences are heterogeneous across different groups in society. Although all voters dislike unemployment and inflation, there are considerable differences between income, education and age groups. The old, the low-educated as well as conservative and low-income voters are particularly averse to unemployment, reflecting an egotropic assessment of the president. Public support of high-educated voters is less affected by economic variables as they are more likely to place higher emphasis on other, non-economic goals. The reaction of Black voters to economic variables is also modest.

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