Housing Bubbles and Support for Incumbents

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Abstract

Abstract here

1 Introduction

In this article we examine whether local changes in property values play a part in shaping the electoral success of incumbents. Our focus is on Danish Parliamentary elections between 2005 and 2015. A period in which the Danish real-estate market experienced a dramatic boom and bust, the extent of which was largely driven by policies which deregulated the housing market (Dam et al., 2011). Following the literature on economic voting (Healy and Malhotra, 2013; Lewis-Beck and Stegmaier, 2013), we want to examine whether voters held governing parties electorally accountable for how the housing bubble played out in their local context .

We do this using two complementary empirical approaches. First, we link detailed registry data on local housing prices to election results at the precinct-level across five national elections, allowing us to study whether within-district differences in property values are related to changes in support for governing parties. Second, to test the hypothesized causal mechanism, that voters are able to make inferences about government based on the state of their local housing market, we zoom in on individual voters' local contexts. Specifically, we link a two-period panel survey to uniquely detailed data from the Danish administrative registries, which allows for precise measures of how individuals' neighborhoods –measured at very low levels of aggregation– were affected by changes in house prices.

Analyzing these data, we find that changes in housing prices do leads to a change in support for governing parties; a relationship which is consistent across precinct-level and individual-level data. In particular we find that support for governing parties is 3-5 pct. higher in contexts where the price of property has increased 50 pct the last year than it is in contexts where the price of property has decreased 50 pct.

We are not the first to investigate, whether voters might draw inferences about policy outcomes from local economic conditions. A number of studies have examined the extent to which voters draw inferences about national economic conditions from local economic conditions (Books and Prysby, 1999; Reeves and Gimpel, 2012; Anderson and Roy, 2011; Ansolabehere et al., 2014; Bisgaard et al., 2015), and a number of studies

have examined the extent to which voters draw inferences about whether to support incumbent politicians (Hansford and Gomez, 2015; Eisenberg and Ketcham, 2004; Kim et al., 2003; Healy and Lenz, 2014a). The results from these studies are somewhat mixed, but on balance they find that voters do make inferences based on local economic conditions; asserting that the national economy declining or that incumbent politicians are doing a bad job when local economic conditions are declining.

Our study adds to these literature in two ways. It does so by examining a new type of local economic condition: property values. Compared to other features of the economy, the quality and status of one's home has received scant attention in extant literature on economic voting. A small literature exists on patrimonial economic voting (Nadeau et al., 2010; Stubager et al., 2013), that is the extent to which owning assets, like real estate, makes it more likely that you will vote for right-wing parties (see Ansell, 2014, for a similar argument). However, very few studies and have focused on whether housing prices, similarly to other economic indicators like unemployment and GDP per capita, influence electoral support for governing parties (e.g. Hopkins and Pettingill, 2015), and no studies have looked at how local differences in property values affect economic conditions.

We also adds to the existing literature by addressing some methodological shortcomings with previous studies. First, previous studies have generally relied on rather large geographical units (e.g. US counties) when estimating the effects of local economic conditions. This is potentially problematic, as the local context voters react to might not map on to these (typically large) geographical areas. Further, to the extent that these larger geographical units map unto media markets the effect of local economic conditions may be confounded with the effect of mass media communications about these issues (Bisgaard et al., 2015). Second, the studies do not generally take structural differences between local contexts into account when relating economic conditions to attitudes or voting behavior. This is potentially problematic, since it seems likely that voters will at least take some structural factors into account. In the present case, voters are probably not likely to infer much about the government based on the fact that there

are differences in property values between cities and rural areas. They are more likely to infer based on the fact that properties are selling for more (or less) than they used too in their own area. More broadly, if one does not take structural differences into account, one risks conflating re-distributive concerns, i.e. voters in comparatively less well off areas having different demands from government than those in well of areas, with inferential concerns, i.e. the question of what my local contexts tell me about the national economy or about the quality of the government. Third, measures of local economic conditions are often based on samples which, while large enough to estimate precise national economic conditions, are not sufficiently precise on geographical levels (Healy and Lenz, 2014a).

It is important to note that some previous studies do address some of these methodological challenges, however, our study contributes by addressing all of these shortcomings at once. We do so by (1) employing data on a very small geographical level of aggregation, (2) using panel data which removes influence of time invariant structural factors, and (3) by using detailed register data on all real estate transactions in the period under investigation.

2 Empirical Setting: A Policy Driven Boom and Bust

This is an excellent setting because:

1. Housing bubble was induced by policy. As such, not strange that voters infer something about government based on local changes in house prices.

2. We have kick-ass administrative data - all house sale registered, we can link these houses to individuals local contexts (e.g zipcodes or survey respondents).

3. We witnessed a really volatile bubble - there is gonna be a lot of changes in IV.

2.1 Identification strategy

We use a difference-in-difference approach controlling for other economic factors.

Use two different empirical approaches: Precinct level and Individual level data.

3 Precinct-level Evidence

3.1 Data sources and indicators

Data description

3.2 Estimating the average effect of housing prices

Table 1 shows the effect og house prices adding controls, precinct FEs and year FE. Use lag house prices as a placebo-test in 2.

Table 1: Estimated effects of house prices on electoral support for governing parties.

	(1)	(2)	(3)	(4)
Δ housing price	0.105**	0.050**	0.036**	0.032**
	(0.008)	(0.007)	(0.007)	(0.007)
Unemployment rate		-1.582**	-0.563**	-1.634**
		(0.057)	(0.087)	(0.230)
Median income		-39.257**	-49.367**	-114.303**
		(1.370)	(1.541)	(9.085)
Precinct FE			✓	✓
Year FE				✓
Observations	4192	4172	4172	4172
RMSE	8.394	6.753	5.544	5.438

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

In appendix S2 we examine the common trends assumption.

3.3 Heterogeneity

Brief discussion of heterogeneity. We find (1) no difference in effects between positive and negative changes, but (2) larger effects in more densely populated areas.

Table 2: Estimated effects of house prices on electoral support for governing parties.

	(1)	(2)	(3)	(4)
L.Δ housing price	0.124**	0.029**	-0.018	0.002
	(0.010)	(0.009)	(0.009)	(0.010)
Unemployment rate		-1.479**	-0.345	-1.529**
		(0.053)	(0.282)	(0.318)
Median income		-25.650**	-52.873**	-143.291**
		(1.808)	(3.580)	(11.155)
Precinct FE			✓	✓
Year FE				✓
Observations	3226	3216	3216	3216
RMSE	8.615	7.508	6.041	5.897

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

4 Individual-level evidence

4.1 Data Sources and indicators

Description of data sources.

4.2 Average Effect

Table 3 shows the effect og house prices.

We use a linear probability model of support for governing parties. Independent variable is year on year change in house prices measured in different ways. For the first three columns we look at changes in prices for the closest 10, 20 and 40 house sales. For the next three columns we look at changes in the price of houses sold within 500, 1000 and 1500 metres.

In table 4 we use lag house prices as a placebo test.

4.3 Heterogeneity

Brief discussion of heterogeneity. We find (1) no difference in effects between positive and negative changes, but (2) larger effects in more densely populated areas (not significant).

Table 3: Linear Regression of Voting for Governing party

	10 Closest	20 Closest	40 Closest	500 metres	1000 metres	1500 metres
Δ housing prices	0.051^{+}	0.057	0.052	0.059	0.056	0.074
	(0.027)	(0.038)	(0.045)	(0.050)	(0.044)	(0.048)
Unemployment rate	0.044	0.052	0.059	-0.507	0.038	0.848^{+}
	(0.290)	(0.290)	(0.291)	(0.458)	(0.494)	(0.489)
Average income	-0.004	-0.004	-0.004	-0.004	-0.006	-0.006
	(0.003)	(0.003)	(0.003)	(0.004)	(0.006)	(0.006)
Personal income	-0.000	-0.000	-0.000	-0.001*	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)
Unnemployed (household)	-0.033	-0.032	-0.032	-0.083*	-0.051	-0.042
	(0.035)	(0.035)	(0.035)	(0.042)	(0.038)	(0.037)
Round FE	Yes	Yes	Yes	Yes	Yes	Yes
Voter FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3479	3479	3479	2851	3178	3318

Standard errors in parentheses
$^{+}$ $p < 0.1$, * $p < 0.05$

Table 4: Linear Regression of Voting for Governing party

	10 Closest	20 Closest	40 Closest	500 metres	1000 metres	1500 metres
Lag Δ housing prices	0.010	-0.003	-0.010	-0.010	0.012	-0.012
	(0.013)	(0.020)	(0.023)	(0.016)	(0.026)	(0.010)
Unemployment rate	-0.002	0.005	0.006	-0.328	0.174	1.051*
	(0.292)	(0.291)	(0.292)	(0.472)	(0.522)	(0.527)
Average income	-0.004	-0.004	-0.004	-0.003	-0.003	-0.004
	(0.003)	(0.003)	(0.003)	(0.004)	(0.006)	(0.006)
Personal income	-0.000	-0.000	-0.000	-0.001*	-0.001	-0.001
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Unnemployed (household)	-0.028	-0.028	-0.028	-0.081*	-0.034	-0.020
	(0.036)	(0.036)	(0.036)	(0.041)	(0.038)	(0.038)
Round FE	Yes	Yes	Yes	Yes	Yes	Yes
Voter FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3301	3301	3301	2717	3034	3160

Standard errors in parentheses
$^{+}$ $p < 0.1$, * $p < 0.05$

4.4 Comparing effect sizes

Here we will have figure comparing effect sizes for precinct level and individual level data.

5 An Alternative Explanation: Ideology not Inference

Ansell (2014) and others find that house prices affect ideology. In our study the DV is primarily a right-wing government. Can the effects we find be explained by house prices affecting governmetn support thorugh ideologY?

Tables **??** and **??** examine whether this is the case substituting incumbent support for a measure of voters ideological orientation. For precinct level data this is net support for right wing government, for individual level data this is self placement on ideological left right scale. We find no

Table 5: Estimated effects of house prices on net electoral support for right wing government parties.

	(1)	(2)	(3)	(4)
Δ housing price	0.076**	-0.010**	-0.014**	-0.003
	(0.008)	(0.004)	(0.004)	(0.004)
Unemployment rate		-1.973**	-1.693**	-0.777**
		(0.055)	(0.058)	(0.149)
Median income		-58.076**	-59.430**	-39.236**
		(0.795)	(0.824)	(5.002)
Precinct FE			✓	✓
Year FE				✓
Observations	4192	4172	4172	4172
RMSE	7.736	3.679	3.073	3.013

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

6 Conclusion

Conclusion

.

Table 6: Linear Regression of placement on Left/Right ideological scale

	10 Closest	20 Closest	40 Closest	500 metres	1000 metres	1500 metres
Δ housing prices	0.069	0.039	0.021	-0.292	0.133	0.045
	(0.154)	(0.188)	(0.258)	(0.231)	(0.256)	(0.255)
Unemployment rate	0.152	0.114	0.176	-3.582^{+}	-2.983	-2.992
	(1.155)	(1.151)	(1.156)	(2.131)	(2.344)	(2.528)
Average income	0.003	0.003	0.003	-0.000	0.010	0.021
	(0.010)	(0.010)	(0.010)	(0.015)	(0.021)	(0.022)
Personal income	0.001	0.001	0.001	0.003*	0.003*	0.003*
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Unnemployed (household)	-0.206	-0.208	-0.204	-0.343	-0.200	-0.227
	(0.203)	(0.204)	(0.203)	(0.246)	(0.232)	(0.216)
Round FE	Yes	Yes	Yes	Yes	Yes	Yes
Voter FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3301	3301	3301	2702	3013	3148

Standard errors in parentheses
$^{+}$ $p < 0.1$, * $p < 0.05$

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Supplementary materials

S1:Descriptive statistics

Table of descriptive statistics

S2: Common trends in precinct-level data

In table 7 we look at whether housing prices can predict changes in support for governing parties in the last period.

Table 7: Estimated effects of house prices on electoral support for governing parties at t-1.

	(1)	(2)	(3)	(4)
Δ housing price	-0.02**	-0.04**	-0.04**	0.01
	(0.01)	(0.00)	(0.00)	(0.00)
Unemployment rate		-0.96**	0.17*	-0.11
		(0.06)	(0.07)	(0.07)
Median income		-30.30**	-42.83**	-20.49**
		(0.81)	(0.91)	(2.73)
Precinct FE			✓	✓
Year FE				✓
Observations	3100	3090	3090	3090
RMSE	4.431	2.320	1.720	1.465

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

S3: Alternative estimation in individual-level data

In table 8 we estimate a conditional logit model on the panel data. We find similar effects as in linear model above.

Table 8: Conditional Logit Model of Voting for Governing party

	10 Closest	20 Closest	40 Closest	500 metres	1000 metres	1500 metres
Δ housing prices	0.687	0.631	1.015	0.557	0.752	0.837
	(0.431)	(0.559)	(0.766)	(0.627)	(0.871)	(0.962)
Unemployment rate	-1.950	-2.044	-2.109	-9.478	2.381	15.116^{+}
	(3.126)	(3.142)	(3.068)	(6.613)	(6.747)	(7.775)
Average income	-0.040	-0.035	-0.036	-0.046	-0.055	-0.081
	(0.040)	(0.039)	(0.039)	(0.071)	(0.059)	(0.075)
Personal income	-0.001	-0.001	-0.001	-0.009	-0.002	-0.003
	(0.004)	(0.004)	(0.004)	(0.017)	(0.004)	(0.005)
Years of Education	0.042	0.030	0.017	0.128	0.023	0.027
	(0.171)	(0.170)	(0.171)	(0.206)	(0.210)	(0.218)
Round FE	Yes	Yes	Yes	Yes	Yes	Yes
Voter FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	562	562	562	420	504	528

Standard errors in parentheses
$^{+}$ $p < 0.1$, * $p < 0.05$

S3: Heterogeneous effects in precinct-level data

Tables 9 and 10 examines the heterogeneity of the effects in the precinct level data.

Table 9: Estimated effects of house prices on electoral support for governing parties across positive and negative changes.

	(1)	(2)	(3)	(4)
Δ housing price (negative)	-0.08***	-0.06***	-0.04*	-0.02
	(0.02)	(0.02)	(0.02)	(0.02)
Δ housing price (positive)	0.12***	0.04***	0.03**	0.04***
	(0.01)	(0.01)	(0.01)	(0.01)
Unemployment rate		-1.58***	-0.56***	-1.65***
		(0.06)	(0.09)	(0.23)
Median income		-39.29***	-49.37***	-114.79***
		(1.37)	(1.54)	(9.12)
Precinct FE			✓	✓
Year FE				✓
Test of no difference (p)	0.28	0.42	0.75	0.36
Observations	4192	4172	4172	4172
RMSE	8.40	6.75	5.54	5.44

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 10: Estimated effects of house prices on electoral support for governing parties across volatility.

	(1)	(2)	(3)	(4)
Δ housing price	-0.01	-0.20**	-0.18**	-0.17**
	(0.03)	(0.02)	(0.02)	(0.03)
Log(density)	-5.49**	-2.69**	0.00	0.00
	(0.37)	(0.41)	(.)	(.)
Δ housing price $\times$ Log(density)	0.05**	0.12**	0.10**	0.10**
	(0.01)	(0.01)	(0.01)	(0.01)
Precinct FE			✓	✓
Year FE				✓
Observations	4192	4172	4172	4172
RMSE	8.42	6.80	5.50	5.40

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

S4: Heterogeneous treatment effects in individual-level data

Tables 11 and 12 examines the heterogeneity of the effects in the individual level data.

Table 11: Linear Regression of Voting for Governing party

	10 Closest	20 Closest	40 Closest	500 metres	1000 metres	1500 metres
Δ housing prices (positive)	-0.020	-0.037	0.034	-0.053	-0.005	-0.021
	(0.062)	(0.072)	(0.083)	(0.095)	(0.088)	(0.089)
Δ housing prices (negative)	0.070^{+}	0.071	0.137^{+}	0.063	0.101	0.129^{+}
	(0.041)	(0.065)	(0.075)	(0.074)	(0.063)	(0.075)
Unemployment rate	0.040	0.050	0.044	-0.527	0.035	0.847^{+}
	(0.291)	(0.291)	(0.292)	(0.462)	(0.495)	(0.490)
Average income	-0.004	-0.004	-0.004	-0.004	-0.006	-0.006
	(0.003)	(0.003)	(0.003)	(0.004)	(0.006)	(0.006)
Personal income	-0.000	-0.000	-0.000	-0.001*	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)
Unnemployed (household)	-0.032	-0.031	-0.031	-0.081^{+}	-0.050	-0.041
	(0.035)	(0.035)	(0.035)	(0.041)	(0.038)	(0.037)
Round FE	Yes	Yes	Yes	Yes	Yes	Yes
Voter FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3473	3473	3473	2846	3173	3313

Standard errors in parentheses
$^{+}$ $p < 0.1$, * $p < 0.05$

Table 12: Linear Regression of Voting for Governing party

	10 Closest	20 Closest	40 Closest	500 metres	1000 metres	150
Δ housing prices	-0.007	-0.084	-0.166	0.014	-0.127	
	(0.078)	(0.107)	(0.137)	(0.173)	(0.157)	
Log(No. of ppl in context)	-0.010	-0.010	-0.010	0.006	-0.001	
	(0.010)	(0.010)	(0.010)	(0.020)	(0.015)	
Δ housing prices $\times$ Log(No. of ppl in context)	0.008	0.021	0.031^{+}	0.006	0.024	
	(0.010)	(0.014)	(0.019)	(0.023)	(0.019)	
Unemployment rate	0.098	0.102	0.114	-0.580	0.035	
	(0.297)	(0.295)	(0.293)	(0.484)	(0.557)	
Average income	-0.004	-0.004	-0.004	-0.004	-0.007	
	(0.003)	(0.003)	(0.003)	(0.004)	(0.006)	
Personal income	-0.000	-0.000	-0.000	-0.001*	-0.000	
	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	
Unnemployed (household)	-0.034	-0.034	-0.034	-0.081^{+}	-0.050	
	(0.035)	(0.035)	(0.035)	(0.042)	(0.038)	
Round FE	Yes	Yes	Yes	Yes	Yes	
Voter FE	Yes	Yes	Yes	Yes	Yes	
Observations	3473	3473	3473	2846	3173	

Standard errors in parentheses
$^{+}$ $p < 0.1$, * $p < 0.05$