Do house prices affect campaign contributions?

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Abstract

Individual campaign contributions are the largest source of financing for U.S. presidential and congressional candidates, though research examining why people give remains scant. To help understand these decisions, we estimate the causal impact of house prices on donations across campaigns and parties using an instrumental variables strategy. Our results indicate that an increase in house prices increases ZIP code-level donations to Democratic presidential and congressional candidates, with minuscule or no effect for Republican candidates. Because the consequences of rising house prices vary for renters and buyers, we exploit heterogeneity in homeownership rates. The effects in areas with a greater proportion of renters are surprisingly largest. Since this population is likely to experience higher rents as a result of house price increases, this suggests that pleas for policy may inspire giving.

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1 Introduction

The 2016 presidential campaigns generated $1.46 billion in contributions, with 74% coming from individual donors (Center for Responsive Politics 2016).[1] This statistic is not unique to presidential contests. In all 2016 elections for the U.S. House of Representatives and Senate, these small-dollar individual donors contributed 61% of the $1.7 billion dollars in total contributions (Center for Responsive Politics 2016). The frequency of giving to campaigns leads to a question as to why people choose to donate money to political candidates, or even vote, given that both the extra dollar or the extra vote are unlikely to be marginal for the outcome of the election. While donations undoubtedly help to fuel campaigns, little research exists to understand what affects individual-level giving.[2] In order to learn more about how people make donation decisions, this paper examines how fluctuations in house prices over the last three decades affect individual-level campaign donations across offices and parties.

There are three main reasons why house prices could affect campaign donations. One line of thought considers campaign donations to be (non-tax deductible) charitable donations. If this is the case, people may give money to political campaigns for a "warm glow" effect (Andreoni 1990) and increased wealth through house price shocks could lead to larger campaign donations. Similarly, renters who experience price increases may have a smaller fraction of their budget available for other consumption, decreasing donations if they are a normal good.

A second line of thought posits that people support candidates financially in order to help elect politicians who support their preferred policies. This is consistent with work that shows people are more likely to vote if one's expected relative influence is greater (Shachar and Nalebuff 1999; Strömberg 2008). If people contribute to support their policy preferences, it is unclear how increased house prices would affect campaign donations. As housing wealth increases, people have more money to use to support their preferred candidates and policies. However, as wealth decreases, people may place a higher weight on supporting policies that would help them economically, which could generate the opposite effect. If people donate to support policy preferences, we may also see varied effects of house prices on donations for Democrats and Republicans. For example, renters in areas with price increases may feel the need to support more redistributive policies to help them afford their rising rental expenses.

A third line of thought considers that some people contribute to buy access to politicians. If this is the case, individuals may donate in an effort to have their issues heard when their home values drop—or when their rents increase (Grossman and Helpman 2001, 1996, 1994).

These three simple theories suggest that the direction of the effect is ambiguous, making this a prime empirical question. However, studying the effect of house prices on campaign donations is challenging. Though house prices fluctuate regularly and are unlikely to be influenced by campaign donations, house price swings are correlated with many other economic conditions that could generate omitted variable bias; this omitted variable bias could

[1] This does not include the roughly $600 million directly spent by outside groups.

[2] Some exceptions are Niebler and Urban (2017), Urban and Niebler (2014), Fremeth, Richter and Schaufele (2013), and Petrova, Sen and Yildirim (2017) though none focus on economic factors of giving. Brady, Verba and Schlozman's (1995) work argues that "the major determinant of giving money is having money" (283), but they do not estimate causal effects.

either over- or under-state the true effect, making it difficult to pin down the causal effect of house prices on campaign contributions.

We overcome this challenge by using an instrumental variable (IV) strategy that relies on the supply elasticities of cities constructed by Saiz (2010) and national fluctuations in house prices. In areas with relatively more inelastic supply, national house price increases raise local house prices by relatively more than in areas with relatively more elastic supply. Our identifying assumption requires that swings in the interaction between national prices and supply elasticities are correlated with total or party-specific campaign donations in a given election cycle only through local price changes. This IV strategy allows us to estimate the causal effect of house prices on individual campaign contributions.[3]

To estimate the effect of house prices on contributions, we extract ZIP code level data on presidential and congressional campaign contributions from the Federal Election Commission (FEC) from 1992-2016, which was made publicly available by (Center for Responsive Politics 2016). We then merge these data with ZIP code level house price indexes over the same period from the Federal Housing Finance Agency (FHFA). We instrument for house prices using the Saiz (2010) elasticity of supply measures interacted with national fluctuations in house prices. In order to separate out heterogenous effects of house prices on donations, we interact our instrumented prices with ZIP code-level homeownership rates from 1990. ZIP code-level contributions in areas with more renters may respond differently than in areas with more owners, as higher prices may reflect a lower relative income for renters and a relatively greater income for owners. We study the effects on total contributions as well as contributions to each party and for each office, looking at elections for President, House of Representatives, and Senate. Further, we use voter turnout and vote choice data to understand how participation and preference change due to house price changes.

Our research fits into three different strands of the literature. First, we explore the reasons why people choose to donate to campaigns. A significant amount of the empirical and theoretical political economy literature has studied political action committee (PAC) giving,[4] but there is less evidence regarding why individuals give to political campaigns. Literature that does focus on this question often takes as its starting point the fact that individuals must have money in order to donate money (Brady, Verba and Schlozman 1995). Additional research examines contribution habits of "wealthy" Americans (Lomax Cook, Page and Moskowitz 2014) and how "the donor class" affects campaigns and participates in elections (Overton 2004). Other factors that affect whether individuals donate money to political campaigns are: campaign advertising (Urban and Niebler 2014; Niebler and Urban 2017; Collins 2011), the transition to becoming a CEO (Fremeth, Richter and Schaufele 2013), and campaign use of social media (Petrova, Sen and Yildirim 2017). Magleby, Goodliffe and Olsen (2018) find that characteristics of the candidates themselves plays a significant role in whether people give small-dollar donations. This paper is the first to look at how house prices affect campaign donations.

Second, this paper ties into the traditional charitable giving literature. Understanding the

[3] A similar IV strategy has been used to estimate the effect of house prices on fertility (Dettling and Kearney 2014) and portfolio choice (Chetty, Sandor and Szeidl 2017).

[4] Stratmann (2005) reviews this literature.

ways in which house prices affect campaign contributions may better inform how fluctuations in economic conditions affect charitable giving. To the extent that campaign contributions represent individuals giving to causes they believe are important, our findings may be applicable to other non-profit sectors. The charitable donations literature finds that the "warm glow" effect is an important reason people make donations (Andreoni 1990). Both Meer, Miller and Wulfsberg (2017) and List and Peysakhovich (2011) find that charitable donations are procyclical, and Meer and Priday (2020) show a pattern of increasing charitable donations with financial resources. A finding where an increase in home prices for homeowners causes an increase in political contributions could be consistent with that literature. However, there are other potential gains to political contributions that make it different than what we typically think of as charitable giving, as people may donate to campaigns to buy political influence (Grossman and Helpman 1994, 1996, 2001) or to influence the election (Shachar and Nalebuff 1999; Strömberg 2008). We are the first to document how campaign donations—as opposed to charitable donations —respond to potential resource changes through economic shocks.

Third, our work ties into a large and growing literature that studies how housing prices affect a variety of household decisions. For example, Dettling and Kearney (2014) and Lovenheim and Mumford (2013) study the effects of house prices on fertility, and both studies provide evidence that children are normal goods. Lovenheim (2011) shows that for homeowners, additional equity increases college attendance rates for their children. Further, Chetty, Sandor and Szeidl (2017) shows that house prices affect investment portfolios.[5] To the best of our knowledge, this is the first paper that ties house prices to political participation.[6]

Our results show that a 10% increase in housing prices decreases ZIP code level contributions to Democratic presidential candidates by $2,500, with smaller magnitudes for congressional races. These effects are *largest* for ZIP codes with fewer homeowners and more renters. At the same time, house prices do not meaningfully affect contributions to Republican candidates. When we supplement our results with vote choice and voter turnout data, we further find that a 10% increase in house prices increases Democratic presidential vote share by 3 percentage points, with a comparable decline for Republicans. This suggests a potential preference shift.

Overall, our results show different trends, where we do not always see a positive effect of wealth shocks on donations, which is different than what has been found for charitable good donations. These results suggest that we cannot simply think of campaign contributions as a normal (or even inferior) good. Instead, contributions could reflect efforts to influence policy, where people's policy concerns vary based on the value of their housing (for owners)

[5]There are many other papers that studies the effect of house prices. Farnham, Schmidt and Sevak (2011) find that relatively higher house prices allow married couples to divorce at higher rates, plausibly through selling their homes. Increased home equity allows individuals to become entrepreneurs at higher rates, according to work by Corradin and Popov (2015). Finally, Laeven and Popov (2017) examine how the findings behind house price effects are different for different populations. Specifically, the housing boom of the early 2000s decreased homeownership, marriage, and fertility rates for young Americans.

[6]While prior work asks a related question: how do economic conditions affect political behavior (Burden and Wichowsky 2014; Brunner, Ross and Washington 2011; Doherty, Gerber and Green 2006), this literature generally focuses on unemployment and does not explore house prices directly. In addition this literature ignores the contributions decision.

or their expected rents (for renters).

2 Theoretical Predictions

This paper explores the causal link between house prices and campaign donations, and in this section, we posit three channels through which this effect may occur. To interpret increasing house prices, one must allow for different effects for homeowners and renters. While homeowners are likely to see house price increases as increases in wealth that can be extracted through home equity lines of credit, renters are more likely to see house price increases as an increase in rental prices, resulting in a lower remaining budget to spend on other goods.

First, individuals may donate because it directly enters their utility function. Campaign donations can—in some ways—be considered comparable to charitable donations, where "warm glow" is an important determinant for contributions (Andreoni 1990) and more resources are correlated with more giving (Meer and Priday 2020). This is similar to the way some of literature on voter turnout explains the likelihood an individual votes, despite the fact that the likelihood of impacting the election is slim (Riker and Ordeshook 1968). If this is the case, an increase in house prices for homeowners would increase contributions provided they are a normal good. Similarly, renters would have less money left to spend on other goods after house price increases, decreasing contributions if they are a normal good.

A second reason individuals may donate is an attempt to influence policy, and house price swings may stimulate policy interest. This is consistent with the literature showing that individuals are more likely to vote when they expect elections to be close (Shachar and Nalebuff 1999; Strömberg 2008). Renters living in areas that become relatively more expensive may contribute as a plea for more affordable housing policies, and owners in areas with house price declines may appeal to candidates campaigning for mortgage relief through modification options, such as the Home Affordable Mortgage Program (HAMP). Thus, we may expect that campaign donations support policy preferences. Supporting the finding that economic conditions can affect policy preferences, Brunner, Ross and Washington (2011) and Doherty, Gerber and Green (2006) find that improved economic conditions cause voters to reject ballot measures supporting redistribution.[7] This implies that not only may we see varied effects of house price shocks on donations, but there could be different effects across parties if policy influence plays a role.

A third reason individuals may give to candidates in the wake of house price fluctuations may be to buy access. Recent price changes may make individuals wary of future conditions and contributing to campaigns is one way to increase the likelihood of a candidate responding to—or even hearing—your requests (Grossman and Helpman 2001, 1996, 1994).

[7]To identify this, Brunner, Ross and Washington (2011) uses quasi-experimental shifts in income through neighborhood positive shocks, and Doherty, Gerber and Green (2006) uses and lottery winnings.

3 Data

To build our dataset, we compile information from four sources: FEC data on individual-level campaign contributions made publicly available by Center for Responsive Politics (2016), FHFA house price data, Census house prices and homeownership rates, and supply elasticities from Saiz (2010).

We begin with individual-level campaign contributions from the FEC for all election years from 1992-2016. We aggregate these data to the ZIP code level, as we have information on ZIP codes with no giving but no information on individuals who did not give. The aggregate data include total giving to all presidential candidates and all congressional candidates, as well as total contributions to the Democratic and Republican parties. For these totals, we include both direct individual contributions to the campaigns, as well as individual contributions to the national parties (Democratic and Republican National Committees, Senatorial Campaign Committees, Congressional Campaign Committees). We do not restrict congressional contributions to be within district, as Gimpel and Lee (2008) show that a typical district receives over two-thirds of its contributions from Americans living outside of the district. This study only includes general election contributions, using contributions after the nomination for presidential elections and after the end of the primary for congressional races.[8] In addition to totals, we collect data on the number of contributors in each ZIP code, the number of contributors who gave the minimum amount required to be in the dataset ($200), and the number of contributors who gave the maximum allowable amount per legal rules.[9] This leaves us with a dataset of ZIP code level aggregate campaign contributions among a variety of categories for each election from 1992-2016.

The structure of the data collection as well as campaign finance regulations lead to some patterns in the data worth mentioning. In the FEC data, contributions are reported once an individual gives at least $200. That means if an individual contributes $50 four times, she will appear in the dataset only at the fourth contribution. However, if an individual gives $50 only once, he will not be in the dataset. This suggests that we will understate the amount of total contributions.[10] To the extent that these low dollar contributions are from donors likely to be affected by house prices, we understate the effect of house prices on donations.[11] Campaign finance laws regulate the maximum amount a person is allowed to give to a candidate or a party. Beginning just after the 2002 midterm elections, the Bipartisan Campaign Reform Act (BCRA) increased contribution limits from individuals to index contributions to inflation. Table A.1 shows these limits to candidates and parties,

[8] To determine congressional general election contests, we determine the date for each House and Senate primary election by state.

[9] In later years, some contributors giving less than $200 appear in the data. We include these individuals as minimum donors, but if we do not, our results remain robust. We include a list of limits by year in Table A.1 which is how we determine maximum contributions.

[10] It may at first seem like a wise idea to use monthly variation in house prices and campaign donations. However, FEC data report the aggregate contribution at the last time the individual contributes to a candidate. For example, if an individual donates $1,000 in August, $500 in September, and $250 in October, she will only show up in the data as having contributed $1750 in October. This would make contributions in the last months of the election larger than they are.

[11] Gimpel and Lee (2008) point out that in 2000 and 2004, contributions under $200 only accounted for 10-12 percent of candidates' total funds.

respectively by year.[12] We will include year fixed effects in our specifications to control for differences in national changes in campaign finance over time.[13] We also use annual CPI data less housing to index our campaign contributions to inflation.

Second, we collect house price indexes (HPI) with base year 1990 from the FHFA at the ZIP code level.[14] Given the 1990 base year, each local HPI measure will be indexed to 100 in 1990. We then interact 1990 ZIP code level median house prices from the decennial Census to determine the price in each ZIP code by year.[15]

Third, we obtain supply elasticity measures directly from Saiz (2010). These supply elasticities capture cross-sectional variation in the difficulty to expand housing in an area, such as regulatory restrictions and natural barriers like rivers or mountains. The elasticity measures have been used as IVs in other papers studying the causal effects of house prices on a variety of outcomes (Chetty, Sandor and Szeidl 2017; Dettling and Kearney 2014). A map of these elasticities across the country is in Figure 1. Our instrument relies on an interaction of a fixed characteristic, supply elasticities, and a time-varying factor, national house prices. Thus, we interact the elasticity measures with national annual house prices from the FHFA. Areas with relatively higher supply elasticities and hence more elastic supply of housing will be able to respond to higher prices by increasing inventory. This will mean that local house prices will rise by relatively less than other cities with lower elasticities of supply, or more inelastic supply.

Fourth, we collect ZIP code level homeownership rates from the 1990 decennial Census, before our FEC data begin. We compile these data because we are interested in seeing the heterogeneity in effect sizes by areas that have relatively more or less homeowners. Specifically, increases in house prices may result in renters having a relatively higher proportion of their income devoted to housing and simultaneously allow homeowners to experience positive income effects via home equity. We use an ex ante homeownership rate since prices and homeownership rates may be endogenously determined. Our contributions data begin in 1992, and our homeownership measure is from two years prior.

Our merge of these four datasets leaves 6,537 ZIP codes in 247 CBSAs, spanning 7 presidential election years from 1992-2016 and 13 congressional elections over the same timeframe. Our full presidential sample includes 45,727 observations. Of all ZIP codes in the presidential election sample (with house price data and in CBSAs), only 13 never had contributions to any candidate in any year. Including midterm elections yields a greater number of observations: our sample size for House and Senate elections is 84,920.

[12] Further, the 2010 Citizens United legislation allowed outside groups and corporations to spend money in support of candidates independent of campaigns. Contributions in support of Super PACs do not have to be reported to the FEC, and thus are not included in the analysis.

[13] If we drop the 2016 election, which had a high proportion of self-financing from the Republican candidate, our results remain consistent.

[14] See Bogin, Doerner and Larson (2016) for more on the validity of these data.

[15] If we instead use ZIP code level house price data from Zillow, which uses its proprietary formula to calculate prices, our results remain consistent, though the sample is slightly smaller (e.g., N=32,277 for the presidential sample).

3.1 Descriptive Statistics

Table 1 reports means and standard deviations of contributions in thousands of dollars by party and office. In addition to the total amount, we report the average total number of donations, the average number of minimum donations ($200 and under), and the average number of maximum donations by ZIP code.[16] Average contributions are higher in presidential races than congressional races, with Democratic candidates receiving on average more than Republicans candidates. Democratic candidates further receive more small donations than Republicans, and Republican candidates receive more large donations than Democrats.

Average house prices are roughly $192,000 in presidential election years, and median prices are lower at $98,000 (Table A.2). Both average prices and the distribution of prices are similar in presidential and midterm election years. Mean and median homeownership rates are close to 70 percent.

The elasticity measures, which we use to construct our IV, are available at the CBSA level, and only for 220 CBSAs. In Table A.3, we compare the full sample of ZIP codes in the FEC data to ZIP codes with price data from FHFA, as well as to ZIP codes within the 220 CBSAs for which we have elasticity measures.

To visually depict the ways in which the data merge reduces the sample, we provide a series of maps in Figure 2 for presidential elections, and in Figures A.1 and A.2 for House and Senate elections. The top panel depicts the full sample of ZIP codes in the contributions data, the middle panel depicts the sample when we include only ZIP codes with FHFA data, and the bottom panel depicts the sample when we include only ZIP codes with FHFA data that also have supply elasticity measures available. The biggest change going from top to bottom is the reduction in more rural ZIP codes, particularly in the central and western regions of the country. The bottom panel reflects our final sample. Notably, the bottom panel is mostly representative of cities. The lightest color on the map is listed as 0-$200, since we cannot observe contributions less than $200. Our sample restrictions do not impede the internal validity of our results, but our results cannot necessarily be extrapolated away to more rural areas.

4 Empirical Strategy

To empirically investigate the link between house prices and campaign contributions, we use an IV strategy. While an OLS specification can control for differences within ZIP codes over time, as well as national differences across election cycles, house price fluctuations could still be correlated with some unobservable time-varying local economic characteristics that are also correlated with the propensity to give. Since we cannot pinpoint the specific direction of the omitted variable bias, or control for factors that are unobservable to the econometrician, we employ an IV strategy commonly used in the literature analyzing the causal effects of house prices on a variety of outcomes (Dettling and Kearney 2014; Chetty, Sandor and Szeidl 2017). This instrument relies on cross-CBSA differences in the elasticity of supply, based on both regulatory environment and natural barriers. Those cities with

[16] See Appendix Table A.1 for contribution limits by year.

more inelastic supply, such as San Francisco, have greater responses to house price increases, while cities with more elastic supply, such as Houston, can simply build more to respond to increased housing demand. We interact these elasticities (E_c), provided by Saiz (2010), with logged annual national prices from FHFA (P_y) to create our instrument, $E_c \times ln(P_y)$.

Our IV strategy is captured in Equation (1).

$$\begin{aligned} C_{z,y} &= \beta_0 + \beta_1 \widehat{ln(P_{z,y})} + \gamma_y + \eta_z + \epsilon_{z,y} \\ ln(P_{z,y}) &= \alpha_0 + \alpha_1 E_c \times ln(P_y) + \gamma_y + \eta_z + \zeta_{z,y} \end{aligned} \tag{1}$$

In Equation (1), we include ZIP code level fixed effects (η_z) and year fixed effects (γ_y). $C_{z,y}$ represent total contributions in a given race (e.g., President, Senate, or House), and we split contributions by party (Republican or Democrat). $P_{z,y}$ indicates house prices in ZIP code z in year y.

In order to determine if the effect of house prices on campaign contributions differs by areas with greater proportions of renters, we interact prices with homeownership rates from 1990, before our contributions data begin, in a separate specification. These results assume that pre-period homeownership rates are orthogonal to campaign donations in a given estimation period year and ZIP code. In this specification, we create our $\widehat{ln(P_{z,y})}$ estimate as in Equation (1) and include both $\widehat{ln(P_{z,y})}$ and $\widehat{ln(P_{z,y})}$ interacted with our 1990 homeownership rates in quartiles.

Since our instrument varies at the CBSA by year-level, we are careful to cluster our standard errors by CBSA; our standard errors account for heteroskedasticity.

We explore a variety of robustness checks in Section 5.1. We choose a log-linear specification in our main results for ease of interpretation. However, we show robustness to a log-log specification that recovers an elasticity and overcome the skewness in the contributions data, though that forces us to drop ZIP codes with 0 giving.[17] Our results are robust to estimating a tobit.

The primary assumption is that absent their relationship with house prices, the interaction between supply elasticities and national trends in house prices are uncorrelated with campaign donations. As a robustness check, we use national prices from the year prior to the election (an odd-numbered year when there is no election) interacted with supply elasticities as our instrument. This would allow the year fixed effect for our contributions to be separate from the national trend in house prices.[18]

[17] One may suggest adding one to our log measures, but since it is infeasible to give one dollar in contributions and be observed in the data, this results in an even more skewed, left-censored, distribution with a large gap. If we instead add $200, the minimum contribution amount to appear in the data, our results remain consistent, though they are smaller in magnitude. If we add $200 and drop zeros, our results are slightly muted.

[18] These results are in Table B.6 and are consistent with our main findings.

5 Results

Table 2 reports the average effect of local house prices on aggregate ZIP code-level campaign donations using the IV strategy. The bottom panel reports the validity of the IV, where F-statistics remain around 50 across specifications, surpassing the Stock and Yogo (2005) criteria.[19] Similar to previous work, we show that areas with higher elasticity values and price increases have relatively lower house prices than those with lower elasticities and price increases.

The results in Table 2 report that a 10% increase in house prices increases aggregate ZIP code-level contributions by $2,870. This result varies across parties. For Democratic presidential candidates, a 10% increase in house prices increases contributions by $2,500, and for Republican presidential candidates, a 10% increase in house prices increases contributions by $300. Recall that these effects represent aggregate ZIP code level contributions, where mean populations are approximately 19,000. Thus, the effects are modestly sized, are close to zero for Republicans, and could potentially represent an increase in only one to two donors for Democrats.

Democratic congressional candidates also see increases in donations after local house prices increase. While the magnitude at first seems to be smaller than for presidential Democrats, the effect in all cases is relatively similar in magnitude when compared to mean donations for each office. The congressional effects are not statistically different from and are very close in magnitude to zero for Republican congressional candidates. One potential explanation for the differences in effects across party is homeownership. Data from the American National Election Studies (ANES) from 1992-2012 show that of those identifying as Republicans, 76% are homeowners, whereas only 60% of those identifying as Democrats are homeowners.[20] This suggests that additional home equity may not be enough of a wealth increase to move Republicans to donate more, but higher rental prices may cause individuals to contribute.

In addition to dollars contributed, we are interested in the number of contributions. Table 3 looks at the effect of house prices on the total number of donations to each party-office combination, the number of contributors giving the minimum amount ($200), and the number of contributors giving the maximum amount of contributions.[21] Table 3 shows that higher house prices increase the number of minimum zip code contributions more than the maximum. This suggests that small donors are potentially more affected by fluctuations in local house prices, across all three races. As before, the effects predominantly exist for Democrats and not Republicans.

While the average results are interesting, to better understand how house price shocks can be interpreted as wealth or income shocks, we determine the effect of house prices heterogeneously across ZIP codes with greater and fewer fractions of homeowners. Specifically, we estimate the second stage of our IV specification but interact local prices with homeownership rates in 1990 in quartiles. We plot these results in a figure, where we report 95%

[19] Since our model is just-identified, we do not have to perform an over-identification test.
[20] These means are statistically different from each other at the 1% level.
[21] See Table A.1 for maximum amounts by year.

confidence intervals for each estimate of β_1 for each quartile of homeowners on the y-axis.

Figure 3 reports the results by homeownership and party. For Democratic candidates across all offices, the largest effect of house price increases on donations is from the first quartile of homeownership, where the highest fraction of residents in the ZIP code are renters. This finding seems surprising at first, since higher prices in areas with fewer homeowners are likely to reflect higher rental prices. However, it could be that those in ZIP codes with higher rents back candidates who support policies that may improve access to affordable housing. These givers may be reacting to a preference for policy. This is consistent with work on economic shocks and voter preferences for redistribution (Brunner, Ross and Washington 2011), where a negative economic shock increases preferences for redistribution.

While the effect is largest for the first quartile of homeownership, Democratic candidates also exhibit positive effects of house prices on donations for the remaining quartiles. These findings could suggest a wealth effect: increased house prices reflect greater wealth, greater access to home equity, and greater money to spend on consumable goods like donations. Republican candidates experience no meaningful increases in donations due to increased house prices across any of the races or homeownership quartiles.

The heterogeneity results so far have considered only results on the total amount of donations. The effects in the lowest quartile of homeownership, where residents are most likely to be renters, may actually represent a smaller number of high-dollar contributors who are homeowners within ZIP codes filled predominantly with renters. This would then support a different type of story, which would be more consistent with an increase in home equity. In Figures 4 and 5 we report the effects of house prices on the number of contributions, the number of minimum, and the number of maximum contributions by homeownership quartiles.

Across the board, the effects for Republicans are again close to zero in magnitude. For Democrats, we see that the effect of house prices on the total number of contributions largely comes from an increase in the total number of low-dollar contributions ($200). The effects of house prices on the number of minimum contributions for the lowest homeownership quartile is the largest effect size across the homeownership distribution for president, House, and Senate races alike. The effects of house prices on giving the maximum amount are close to zero. This makes intuitive sense, as contributors who choose to max out are likely to do so regularly and may be less influenced by external economic factors in making donation decisions.

While conventional wisdom suggests that constituents might base their votes or contributions on whether the incumbent party has improved the economy, Wright (2012) finds instead that poor economic conditions benefit Democrats, even when they are the incumbent party. As Wright notes in his article, "unemployment is a partisan issue for voters, not a valence issue, and that the Democratic Party 'owns' unemployment" (699) meaning Democrats have convinced voters they are the ones to solve the problem. Our findings suggest that the same is true not only for unemployment, but for other economic conditions as well. Individuals' contributions to Democratic candidates are driven by economic conditions, while contributions to Republican candidates are not.

Grossman and Hopkins' (2015) work on asymmetrical polarization may also help us understand the differences we see with respect to partisanship. Their research finds that the two major political parties are not in fact mirror images of one another, but are instead quite different in their compositions. Grossmann and Hopkins (2015) argue that while the Democratic Party is best understood as a "coalition of social groups whose interest are served by various forms of government activity," the Republican party is "best viewed as the agent of an ideological movement whose members are united by a common devotion to the principle of limited government" (120). In terms of our findings then, it makes sense that contributions to the GOP would not be as affected by changing housing prices while contributions to Democratic candidates would be much more sensitive to current economic conditions.

Our main findings suggest that people increase donations to Democrats in order to influence policy. To complement these results, we use the same IV specification except use presidential data on turnout and vote choice as the outcome of interest. To do this, we modify Equation 1 to include county instead of ZIP code fixed effects. These results (Table 4) suggest that house prices do not meaningfully affect turnout. In addition to not being statistically different from zero, the effect is small in magnitude (a 10% increase in house prices increases turnout by 0.7 percentage points.) It does seem to have meaningful effects on vote choice, however. A 10% increase in local house prices increases Democratic vote share by 3.3 percentage points, and decreases Republican vote share by 3.0 percentage points. These results jive with our donations findings, suggesting that higher house prices may in fact swing voters in favor of Democratic candidates.[22]

5.1 Robustness

In this section, we perform four robustness checks. First, we show that our results are robust to alternate functional forms, including a log-log specification (Table B.1) and tobit specifications (Tables B.2-B.3).

Second, remember that to construct our IV, we use the national trend in house prices. Our specification includes year fixed effects. To make sure the year fixed effects and the national trend in house prices are separate, we use national prices from the year prior to the election interacted with supply elasticities as our instrument. These results are in Table B.6 and are consistent with our main findings.

Our third robustness check drops the 2016 election, given that 2016 was an untraditional election with a candidate that largely self-financed, which may have led to different donation patterns. These results are in Tables B.5, and are not substantively different from our baseline results.

Our fourth robustness check drops all presidential election years from the analysis of congressional elections, to be sure the presidential race is not affecting donations to the House or Senate. These results are in Table B.4, and again are similar to our baseline results.

[22]When we separate this out by homeownership rates, we see no statistical difference or magnitude differences across quartiles.

6 Conclusion

This paper estimates the causal impact of house prices on campaign giving. While fluctuations in house prices do not affect contributions to Republicans, increases in house prices benefit Democratic candidates. The effects are sizable: a 10% increase in local house prices increases aggregate ZIP code-level contributions to Democratic presidential candidates by $2,500. These effects are also present for other Democratic congressional offices, though smaller in magnitude.

A simple economic story would suggest that areas with many renters have relatively less income to spend on other goods (e.g, campaign donations) and areas with more homeowners would have relatively more equity and feel relatively richer. However, we find that the effect of housing prices on campaign contributions for Democratic candidates is positive for all quartiles of homeownership. In fact, the effect is *larger* for areas with relatively more renters. The increase comes largely from more small dollar contributions and not from additional contributors maxing out. We posit that this effect is potentially explained by a desire for policy change, where renters who have smaller budgets due to increasing rents contribute to influence policy.

Vote choice data further show that house price increases also shift the vote towards Democratic presidential candidates. A 10% increase in local house prices increases county-level Democratic vote share by 3 percentage points. These results suggest that campaigns intending to maximize contributions need to understand how local economic factors, such as house prices, can affect party preferences and donations.

To illustrate the magnitude of our effects, we choose a year with a relatively high increase in house prices: 2006. From 2005-2006, house prices increased 7 percent. A quick back-of-the-envelope calculation for our 6,537 ZIP codes in study suggests that this increase resulted in over $666,000 to U.S. House Democratic candidates and $21,400 to U.S. Senate Democratic candidates, with no additional funds going to Republicans. Campaigns would be well-suited to understand how changing prices may affect their ability to fundraise.

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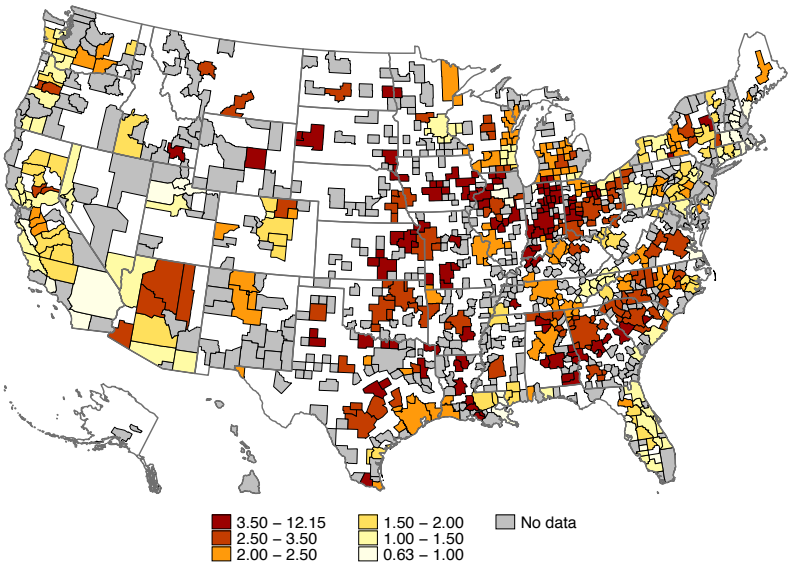
7 Tables and Figures

Fig. 1: Elasticity of Supplies



Notes: Data from Saiz (2010). White areas indicate that they are not represented by CBSAs. Grey areas are not covered by the elasticity measures.

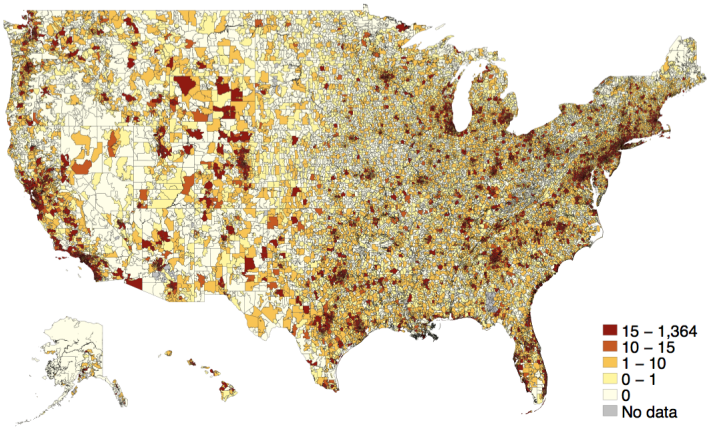
Table 1: Summary Statistics

	Total	Dem	GOP
President			
Amount	22.530	11.608	10.922
	(57.951)	(37.814)	(28.581)
Count	19.068	11.240	7.829
	(45.552)	(37.725)	(16.126)
# Min	4.986	3.508	1.479
	(14.709)	(13.088)	(3.042)
# Max	0.868	0.437	0.431
	(4.056)	(2.836)	(2.280)
House			
Amount	7.483	3.474	4.008
	(19.011)	(11.130)	(10.463)
Count	15.206	7.203	8.003
	(31.004)	(18.391)	(16.586)
# Min	1.629	0.833	0.796
	(3.998)	(2.787)	(1.977)
# Max	2.137	0.926	1.212
	(6.390)	(3.327)	(4.028)
Senate			
Amount	4.929	2.504	2.424
	(15.875)	(9.769)	(8.513)
Count	8.594	4.626	3.968
	(22.205)	(14.849)	(10.603)
# Min	1.101	0.617	0.483
	(3.599)	(2.719)	(1.597)
# Max	1.419	0.678	0.741
	(5.391	(3.139)	(3.126)

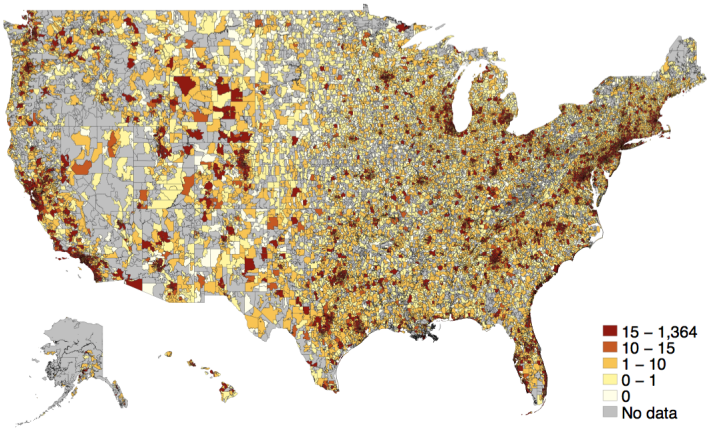
Notes: Means reported in thousands of dollars for amounts and in levels for counts, with standard deviations in parentheses. Campaign contributions from the Federal Election Commission from 1990-2016. All contributions dollars are adjusted to 1990 dollars using the CPI less housing. Number of minimum donations is the number of contributions in the ZIP code that were the minimum required to appear in the dataset ($200). Number of maximum donations is the number of contributions in the ZIP code that reached the maximum donations limit.

Fig. 2: Presidential Campaign Donations with areas Covered by Price Data (2012)

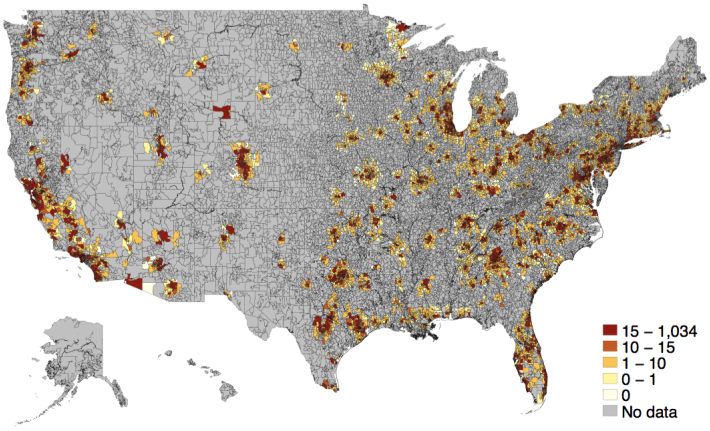
All ZIP Codes



ZIP Codes with Price data



ZIP Codes in CBSAs with Elasticity



Notes: Contributions in thousands of 1990 dollars from Federal Election Commission data.

Table 2: Instrumental Variables: House Prices and Contributions

IV: Stage 2

DV = Zip Code Contributions in Thousands of Dollars

	Total	Dem	GOP
President			
ln(Price)	28.68***	25.42***	3.265*
	(5.659)	(5.157)	(1.920)
N	45727	45727	45727
Mean DV	22.53	11.61	10.92
House			
ln(Price)	9.414***	10.18***	-0.765
	(3.436)	(2.529)	(1.496)
N	84920	84920	84920
Mean DV	7.48	3.47	4.00
Senate			
ln(Price)	4.868***	4.683***	0.185
	(1.794)	(1.360)	(0.891)
N	84920	84920	84920
Mean DV	4.93	2.50	2.42

IV: Stage 1

DV =ln(House Price)

Sample	Pres	House	Senate
Elasticity $\times ln(P_t)$	-0.14890***	-0.17062***	-0.17062***
	(0.0214)	(0.0232)	(0.0232)
N	45727	84920	84920
F-Stat	48.29	53.99	53.99

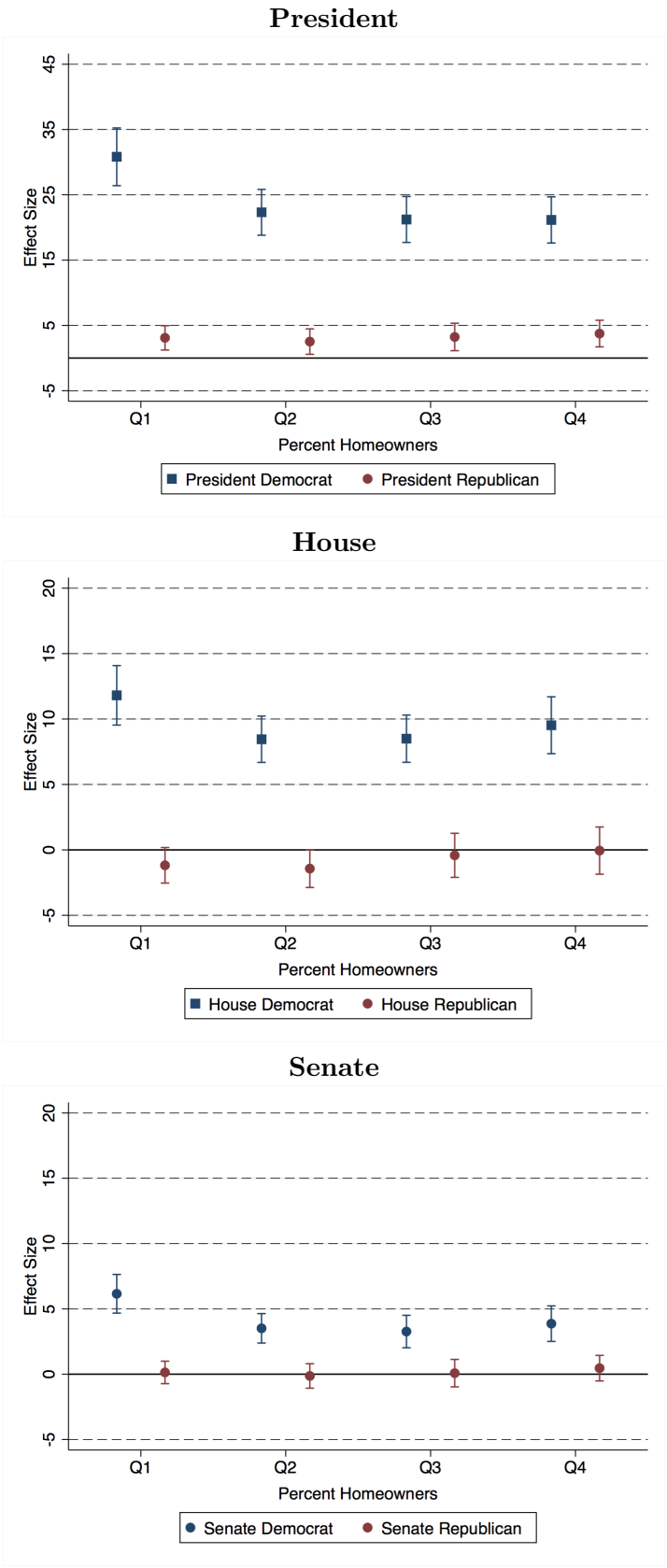
Robust standard errors clustered at the CBSA level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Year and ZIP code level fixed effects included. The instrument uses national price trends interacted with the elasticity of supply of each city from Saiz (2010). Each observation is a ZIP code by election year.

Table 3: Instrumental Variables: House Prices and Contributions, Number of Donations

	No. Zip Code Contributions			No. Min Zip Code Contributions			No. Max Zip Code Contributions		
	Total	Dem	GOP	Total	Dem	GOP	Total	Dem	GOP
President									
ln(Price)	63.75***	63.65***	0.0967	21.76***	21.65***	0.113	3.620***	3.368***	0.252
	(12.42)	(11.80)	(3.257)	(3.789)	(3.638)	(0.777)	(0.758)	(0.691)	(0.231)
N	45727	45727	45727	45727	45727	45727	45727	45727	45727
Mean DV	19.068	11.240	7.829	4.986	3.508	1.479	0.868	0.437	0.431
House									
ln(Price)	13.03**	15.21***	-2.185	2.904***	2.727***	0.177	1.578*	0.868**	0.711
	(5.304)	(4.133)	(2.259)	(0.779)	(0.648)	(0.284)	(0.839)	(0.406)	(0.557)
N	84920	84920	84920	84920	84920	84920	84920	84920	84920
Mean DV	15.206	7.203	8.003	1.629	0.833	0.796	2.137	0.926	1.212
Senate									
ln(Price)	8.829***	8.355***	0.474	2.291***	1.980***	0.311	0.614	-0.0272	0.642**
	(3.176)	(2.609)	(1.505)	(0.759)	(0.611)	(0.351)	(0.513)	(0.277)	(0.317)
N	84920	84920	84920	84920	84920	84920	84920	84920	84920
Mean DV	8.594	4.626	3.968	1.101	0.617	0.483	1.419	0.678	0.741

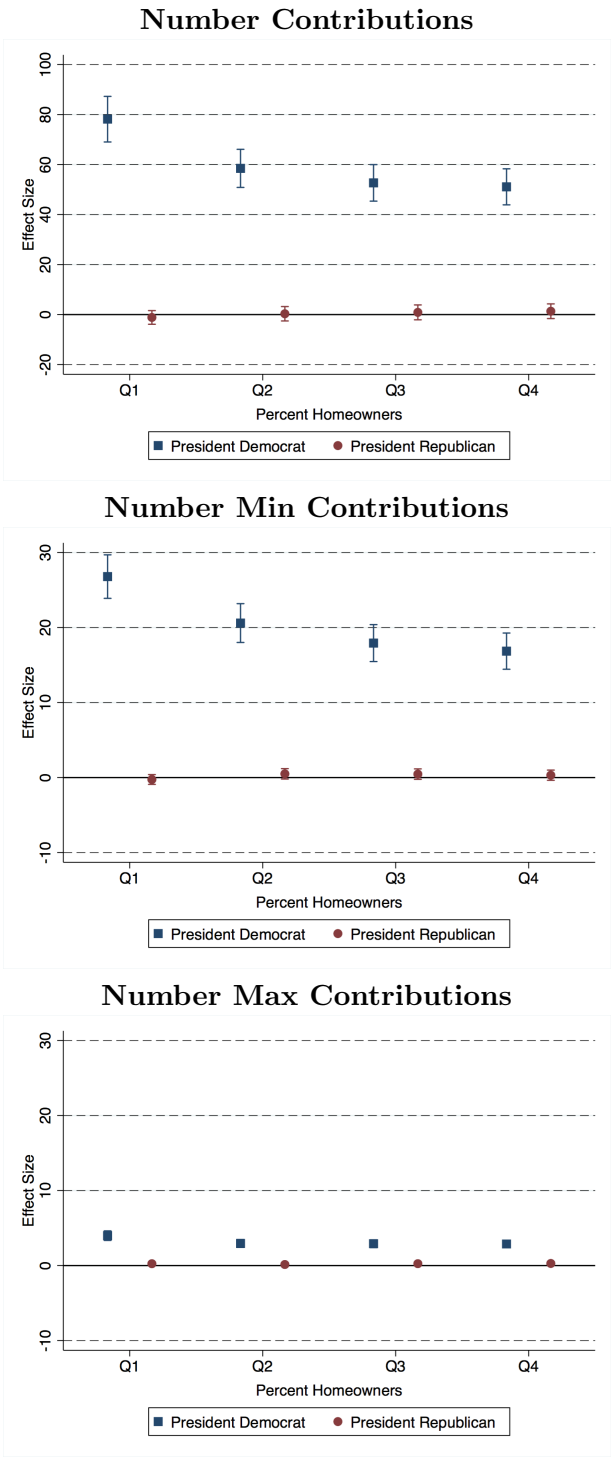
Notes: Robust standard errors clustered at the CBSA level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Year and ZIP code level fixed effects included. The instrument uses national price trends interacted with the elasticity of supply of each city from Saiz (2010). Each observation is a ZIP code by election year. The dependent variable equals the number of contributions, the number of minimum contributions ($200), and the number of maximum contributions (accounts for the donation limit in each year in Table A.1.) in each ZIP code.

Fig. 3: IV Effects of House Prices on Campaign Contributions by Homeownership Rate Quartiles



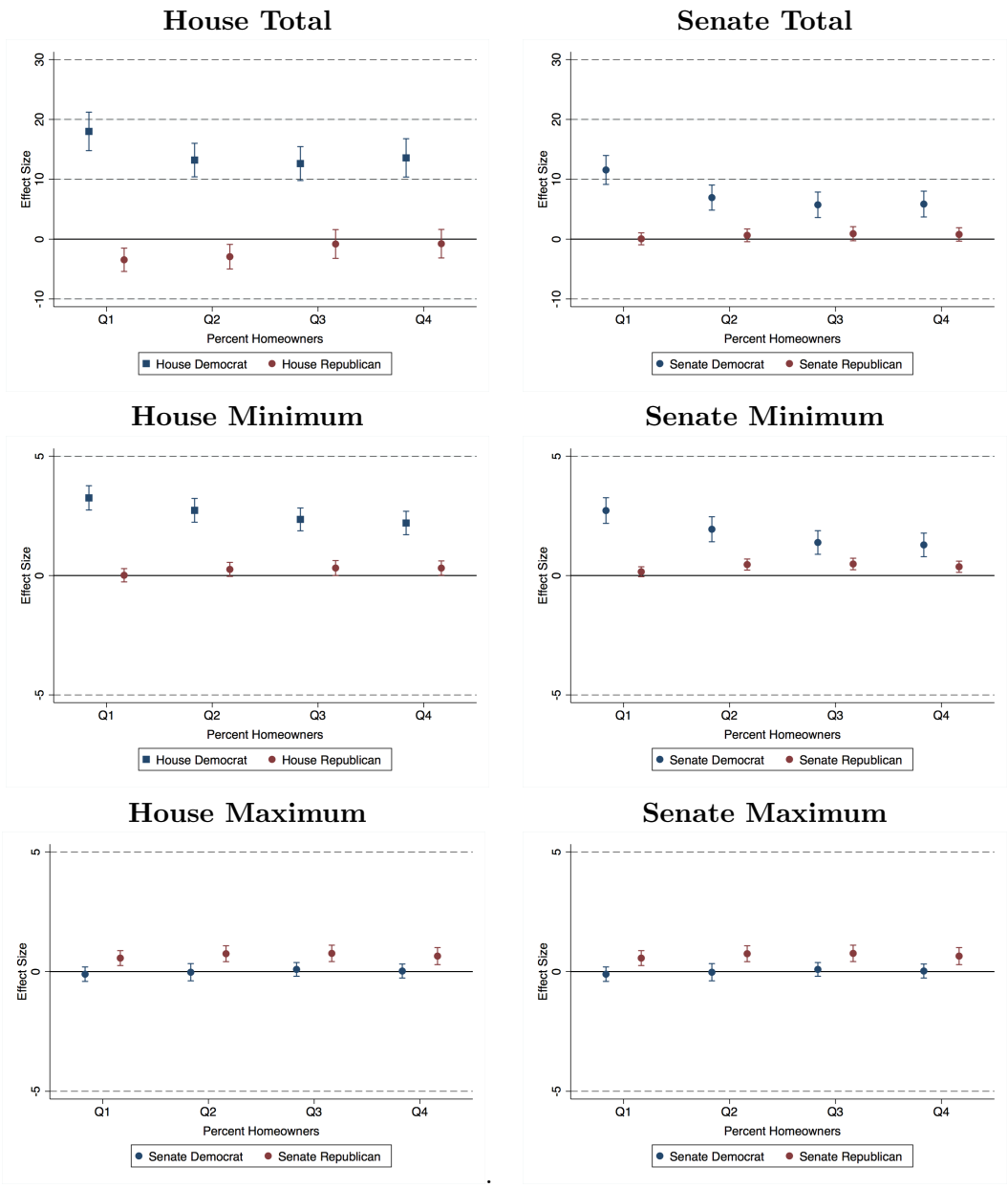
Notes: Contributions from Federal Election Commission data from 1992-2016. HPI from FHFA data by ZIP code. Dependent variable is in levels (thousands of dollars), and the independent variable is logged.

Fig. 4: IV Effects of House Prices on Number of Presidential Campaign Contributions by Homeownership Rate Quartiles



Notes: Contributions from Federal Election Commission data. HPI from FHFA data by ZIP code. Dependent variable is in levels (thousands of dollars), and the independent variable is logged.

Fig. 5: IV Effects of House Prices on Number of Minimum or Maximum Congressional Campaign Contributions by Homeownership Rate Quartiles



Notes: Contributions from Federal Election Commission data from 1992-2016. HPI from FHFA data by ZIP code. Dependent variable is in levels (thousands of dollars), and the independent variable is logged.

Table 4: Instrumental Variables: House Prices, Voter Turnout, and Vote Choice

IV: Stage 2

	Turnout	% Dem	% GOP
President			
ln(Price)	0.0754	0.335***	-0.300***
	(0.0537)	(0.0708)	(0.0731)
N	5187	5187	5187
Mean DV	0.564	0.440	0.497

IV: Stage 1

DV =ln(House Price)	
$\epsilon_S \times ln(P_t)$	0.131***
	(0.0193)
N	5187
F-Stat	46.33

Notes: Robust standard errors clustered at the CBSA level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Year and county level fixed effects included. The instrument uses national price trends interacted with the elasticity of supply (ϵ_S) of each city from Saiz (2010). Each observation is a county by election year.

8 Appendix A: Data Appendix

Table A.1: Campaign Contribution Limits by Year

Year	To Candidate	To National Committees
2016	$2,700	$33,400
2014	$2,600	$32,400
2012	$2,500	$30,800
2010	$2,400	$30,400
2008	$2,300	$48,500
2006	$2,100	$26,700
2004	$2,000	$25,000
$\leq$ 2002	$1,000	$20,000

Notes: Source: Federal Election Commission Campaign Contributions Limits.

Table A.2: Summary Statistics for House Prices

	Mean	25th	50th	75th	Std Dev
Price (Pres Years)	192.46	97.77	139.24	222.11	166.01
N	45,727				
Price (Midterm Years)	195.05	99.73	140.25	224.95	165.44
N	39,199				
% Homeowner (1990)	0.69	0.60	0.71	0.80	0.16
N	6,531				

Notes: Summary statistics for all ZIP codes in our final dataset. House price data from the FHFA from 1992-2016. 1990 homeownership rates from the US Census Bureau.

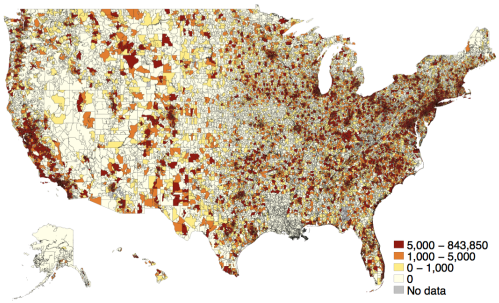
Table A.3: Summary Statistics for Contributions in all ZIP Codes

	All			With Price			With Price and Elasticity		
	25th	50th	75th	25th	50th	75th	25th	50th	75th
President									
Amount	0	712	3,330	395	1,869	6,906	401	1,925	7,383
Amount D	0	23	1,048	0	429	2,637	0	463	2,833
Amount R	0	324	1,663	142	859	3,160	142	879	3,310
Count	0	2	9	1	5	17	1	5	18
Count D	0	1	3	0	1	7	0	2	7
Count R	0	1	5	1	3	8	1	3	8
House									
Amount	0	623	3,061	302	1,758	5,863	312	1,850	6,250
Amount D	0	0	1,006	0	437	2,204	0	467	2,330
Amount R	0	279	1,656	0	832	3,135	0	875	3,325
Count	0	2	8	1	5	14	1	5	14
Count D	0	0	3	0	1	5	0	2	6
Count R	0	1	4	0	2	7	0	3	8
Senate									
Amount	0	125	1,353	0	565	2,870	0	600	3,029
Amount D	0	0	400	0	0	1,059	0	0	1,144
Amount R	0	0	593	0	154	1,369	0	165	1,424
Count	0	1	3	0	2	6	0	2	7
Count D	0	0	1	0	0	3	0	0	3
Count R	0	0	2	0	1	3	0	1	3

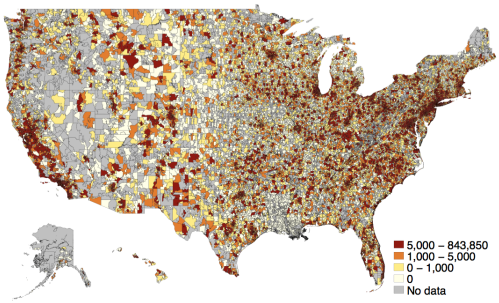
Notes: Summary statistics for all ZIP codes with contributions data, ZIP codes with FHFA price data, and ZIP codes with both FHFA price data and elasticity measures. Campaign contributions from the Federal Election Commission from 1990-2016. All contributions dollars are adjusted to 1990 dollars using the CPI less housing.

Fig. A.1: 2012 House Campaign Donations with areas Covered by Price Data and in CBSAs with Elasticity

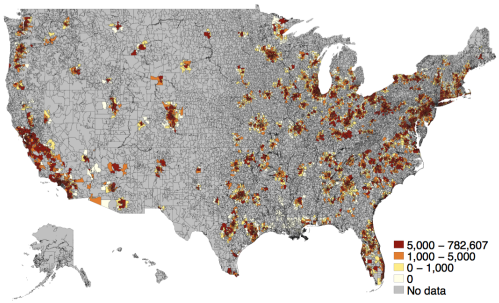
All ZIP Codes



ZIP Codes with Price data

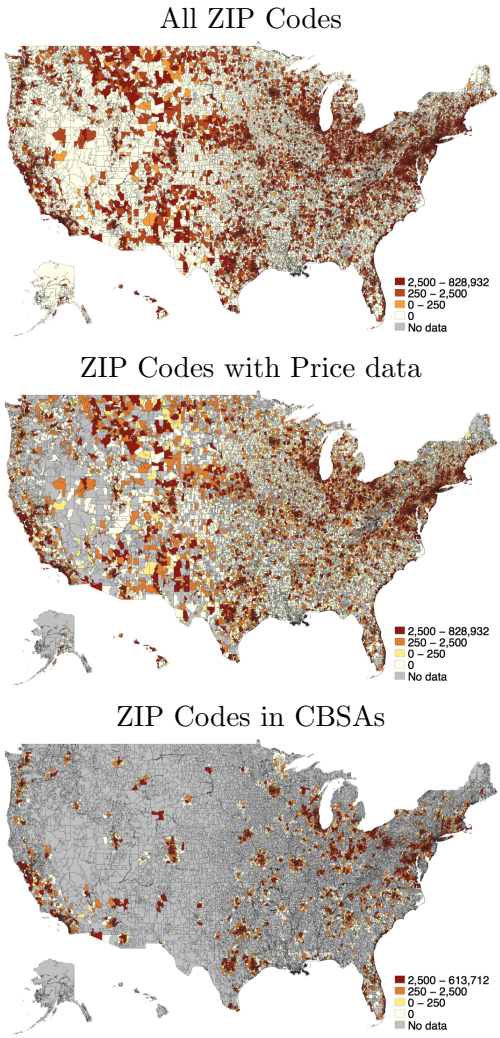


ZIP Codes in CBSAs



Notes: Contributions in 1990 dollars from Federal Election Commission data.

Fig. A.2: 2012 Senate Campaign Donations with areas Covered by Price Data and in CBSAs with Elasticity



Notes: Contributions in 1990 dollars from Federal Election Commission data.

9 Appendix B: Robustness Checks

Table B.1: Instrumental Variables: House Prices and Contributions, log-log

IV: Stage 2

DV =ln($ Contributed)			
	Total	Dem	GOP
President			
ln(Price)	0.748***	1.290***	0.240
	(0.240)	(0.356)	(0.212)
N	38814	29299	34859
House			
ln(Price)	0.346	1.124***	-0.375*
	(0.224)	(0.283)	(0.222)
N	74516	59172	67015
Senate			
ln(Price)	0.350	0.642**	0.0460
	(0.274)	(0.287)	(0.282)
N	60435	44585	49208

IV: Stage 1

DV =ln(House Price)			
Sample	Pres	House	Senate
Elasticity $\times ln(P_t)$	-0.16409***	-0.19083***	-0.18144***
	(0.0230)	(0.0259)	(0.0247)
N	38814	59172	60435
F-Stat	50.95	54.98	54.16

Notes: Robust standard errors clustered at the CBSA level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Year and ZIP code level fixed effects included. The instrument uses national price trends interacted with the elasticity of supply of each city from Saiz (2010). Each observation is a ZIP code by election year.

Table B.2: Instrumental Variables: House Prices and Contributions, Tobit

IV: Stage 2

	DV = $ Contributed		
	Total	Dem	GOP
President			
ln(Price)	28.638***	24.739***	3.929***
	(1.849)	(1.714)	(1.305)
N	45727	45727	45727
House			
ln(Price)	9.785***	11.826***	-1.435***
	(0.764)	(0.589)	(0.500)
N	84920	84920	84920
Senate			
ln(Price)	6.345***	5.422***	-0.124
	(0.792)	(0.679)	(0.587)
N	84920	84920	84920

Notes: Robust standard errors clustered at the CBSA level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. The model estimates a tobit. Year and ZIP code level fixed effects included. The instrument uses national price trends interacted with the elasticity of supply of each city from Saiz (2010). Each observation is a ZIP code by election year.

Table B.3: Instrumental Variables: House Prices and Contributions, Number of Donations, Tobits

	No. Zip Code Contributions			No. Min Zip Code Contributions			No. Max Zip Code Contributions		
	Total	Dem	GOP	Total	Dem	GOP	Total	Dem	GOP
<u>President</u>									
ln(Price)	65.258***	64.785***	0.294	28.148***	31.676***	0.868**	14.992***	17.700***	2.094*
	(3.396)	(3.844)	(1.283)	(1.692)	(2.283)	(0.424)	(1.165)	(1.420)	(1.199)
N	45734	45734	45734	45734	45734	45734	45734	45734	45734
Uncensored N	38853	29609	34992	26372	17390	20829	10186	6053	6626
Mean DV	19.068	11.240	7.829	4.986	3.508	1.479	0.868	0.437	0.431
<u>House</u>									
ln(Price)	13.475***	17.341***	-3.219***	3.930***	5.052***	0.137	1.905***	4.108***	-0.355
	(1.140)	(0.918)	(0.712)	(0.363)	(0.405)	(0.265)	(0.528)	(0.485)	(0.482)
N	84933	84933	84933	84933	84933	84933	84933	84933	84933
Uncensored N	74560	59342	67085	39551	24269	28241	36562	22459	27143
Mean DV	15.206	7.203	8.003	1.629	0.833	0.796	2.137	0.926	1.212
<u>Senate</u>									
ln(Price)	11.290***	9.745***	0.217	5.328***	5.501***	1.195***	1.316*	0.186	1.098*
	(1.128)	(1.057)	(0.716)	(0.465)	(0.623)	(0.322)	(0.673)	(0.666)	(0.625)
N	84933	84933	84933	84933	84933	84933	84933	84933	84933
Uncensored N	60556	44968	49488	28093	17324	18623	25451	15693	17466
Mean DV	8.594	4.626	3.968	1.101	0.617	0.483	1.419	0.678	0.741

Notes: Robust standard errors clustered at the CBSA level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Year and ZIP code level fixed effects included. The instrument uses national price trends interacted with the elasticity of supply of each city from Saiz (2010). Each observation is a ZIP code by election year. The dependent variable equals the number of contributions, the number of minimum contributions ($\leq$ \$200), and the number of maximum contributions (accounts for the donation limit in each year in Table A.1.) in each ZIP code.

Table B.4: Instrumental Variables: House Prices and Contributions in U.S. House & Senate, Midterm Years Only

IV: Stage 2

DV = Zip Code Contributions in Thousands of Dollars

	Total	Dem	GOP
House			
ln(Price)	9.232***	9.629***	-0.397
	(3.308)	(2.305)	(1.546)
N	39193	39193	39193
Mean DV	7.312	3.332	3.979
Senate			
ln(Price)	3.041*	3.033***	0.00801
	(1.678)	(1.022)	(0.919)
N	39193	39193	39193
Mean DV	4.780	2.273	2.507

Notes: Robust standard errors clustered at the CBSA level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Year and ZIP code level fixed effects included. The instrument uses national price trends interacted with the elasticity of supply of each city from Saiz (2010). Each observation is a ZIP code by election year.

Table B.5: Instrumental Variables: House Prices and Contributions, Dropping 2016

IV: Stage 2

DV = Zip Code Contributions in Thousands of Dollars

	Total	Dem	GOP
President			
ln(Price)	25.20***	18.63***	6.568**
	(5.419)	(4.162)	(2.658)
N	39218	39218	39218
Mean DV	20.874	10.051	10.823
House			
ln(Price)	8.100**	9.041***	-0.941
	(3.517)	(2.422)	(1.630)
N	78411	78411	78411
Mean DV	7.323	3.333	3.991
Senate			
ln(Price)	4.369**	4.239***	0.129
	(1.708)	(1.223)	(0.883)
N	78411	78411	78411
Mean DV	4.786	2.377	2.409

Notes: Robust standard errors clustered at the CBSA level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Year and ZIP code level fixed effects included. The instrument uses national price trends interacted with the elasticity of supply of each city from Saiz (2010). Each observation is a ZIP code by election year.

Table B.6: Instrumental Variables: House Prices and Contributions, Using Lagged National House Prices

IV: Stage 2

DV = Zip Code Contributions in Thousands of Dollars

	Total	Dem	GOP
President			
ln(Price)	28.68***	25.42***	3.265*
	(5.659)	(5.157)	(1.920)
N	45727	45727	45727
Mean DV	22.53	11.61	10.92
House			
ln(Price)	9.414***	10.18***	-0.765
	(3.436)	(2.529)	(1.496)
N	84920	84920	84920
Mean DV	7.48	3.47	4.00
Senate			
ln(Price)	4.868***	4.683***	0.185
	(1.794)	(1.360)	(0.891)
N	84920	84920	84920
Mean DV	4.93	2.50	2.42

Notes: Robust standard errors clustered at the CBSA level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Year and ZIP code level fixed effects included. The instrument uses national price trends interacted with the elasticity of supply of each city from Saiz (2010). The instrument in this specification interacts the national price from the year before the election with the elasticity estimate. Each observation is a ZIP code by election year.