Sheltering Populists? House Prices and the Support for Populist Parties*

Short title: SHELTERING POPULISTS

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Populist parties, particularly from the right of the political spectrum, have sharply increased their electoral support in recent years, creating great media and scholarly interest. Existing work examining the economic underpinnings of populist support has focused on labor market shocks and the presence or absence of government compensation. In this paper we suggest that the housing market may have been as important as the labor market in defining who switched to populist voting and where they were located. We build on existing work that connects house prices to 'first dimension politics' of redistribution and classic left-right political identification to argue that house prices might also shape preferences on the 'second dimension' of politics: support for populist nationalism versus liberal cosmopolitanism. Using both novel precinct- and individual-level data from Denmark, we show that negative shocks to house prices over the election cycle are strongly associated with shifts to support for the Danish People's Party, a pattern that has amplified over recent elections. We then turn to corroborate this relationship using local housing data in Sweden, Norway, and Finland.

Keywords: housing, populism, radical right, economic voting

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European countries have seen a resurgence of populist voting over the past decade. In many countries, particularly those with proportional electoral systems, this has displaced the traditional mainstream axis of political competition, with both Christian Democratic and Social Democratic parties dramatically losing vote and seat share (Gingrich and Häusermann 2015). Along with this surge in populist voting has come a wave of political science analyses of its causes. Are voters attracted to populist or radical right-wing parties for cultural reasons, related to antipathy towards immigration or ethnic heterogeneity (Gidron and Hall 2017; Inglehart and Norris 2017)? Or instead, is support for populism underpinned by economic discontent - a revolt of the 'left behinds' (Becker, Fetzer and Novy 2017; Colantone and Stanig 2018*a*; Fetzer 2019)?

There has, however, been a rather surprising omission in recent studies of voting for populist right-wing parties. The core economic story of the past two decades in wealthy countries has been the surge of house prices in the early 2000s and the ensuing crash from 2008, followed by a more recent boom associated with quantitative easing (Shiller 2015). Asset markets, especially in housing, the asset most widely held and most sentimentally important to people, have been enormously volatile and have spilled over into the 'real' economy of production and employment (Stroebel and Vavra 2019). Furthermore, the development in housing prices has been geographically unequal, causing the house owners in some areas to become much wealthier, while house owners in other areas have been less fortunate. Indeed, wealth inequality in most European countries is far higher than income inequality (Sierminska, Brandolini and Smeeding 2006).Yet, we know very little about whether there is a direct connection between housing booms and busts and the relative success of populist parties. The only existing work on this connection is Adler and Ansell (2020), which examines single elections in France and the UK. What we do not yet know is whether house prices and populist support are related over time, whether this relationship is concentrated among homeowners, and whether it is confounded by other local economic conditions.

In this paper, we analyse highly disaggregated, dynamic data on housing and populist support in Scandinavia to address these important questions. We connect local housing market dynamics to support for populist right parties over the past two decades in four Nordic countries, Denmark,

Sweden, Norway, and Finland, where such parties have been particularly successful in recent years. We argue that changes in house prices shape changes in local support for populist parties, with support higher in those localities where house price growth has been relatively lower. By contrast, support for these parties has been weakest in localities where house price growth has been relatively high. We argue that this relationship is particularly concentrated among homeowners through the *pocketbook* effect of house prices on their satisfaction with status-quo mainstream political parties, though we also expect some *geotropic* affects of house prices for all residents. Importantly, we argue, and empirically demonstrate, that the effects of housing are not confounded by the composition of local labor markets or by the demographic and ethnic makeup of neighborhoods. Nor are they produced by voters of different partisan persuasions sorting into particular areas.

In order to substantiate these claims we conduct two empirical analyses. We begin with an in-depth analysis of house prices and support for the Danish People's Party using registry data in Denmark. With this data we can explore voting patterns and house price levels and changes at a very low level of aggregation – precincts with electorates of around 3,000 eligible voters. We show, using a variety of generalized difference-in-difference models, that changes in house prices are strongly negatively associated with changes in support for the Danish People's Party. We find that this effect holds across precincts with different levels of mobility, when looking only at within-Copenhagen area variation, and is not apparent in support for non-populist parties. We support these precinct-level analyses with geo-coded survey data to demonstrate the effect at the individual level is concentrated among homeowners.

We then turn to examine whether this finding holds up in the broader Nordic context, examining data at the municipality level in Sweden, Norway, and Finland. Once more, we find strong evidence of a negative relationship between changes in local house prices and changes in support for populist parties. We conclude the paper by summarizing and discussing the scope conditions of our findings.

A Theory of Housing and Populist Support

While political scientists have long studied the emergence of radical right and extremist parties in Europe, the rise of a more electorally significant populism over the past decade has produced a wide-ranging debate as to its causes and likely consequences.[1] Early work on the relative success of the radical right focused on the relative importance of economic factors such as unemployment and economic growth (Jackman and Volpert 1996), political institutions such as electoral system type and party fragmentation (Golder 2003), and cultural forces such as levels of immigration (Coffé, Heyndels and Vermeir 2007). That division into material (economic and political) versus cultural factors remains key to the contemporary debate about the populist resurgence since 2008.

In particular, the most prominent approaches in terms of explaining the new populist wave split into those that see globalization and the credit crisis as key and those that identify migration and counter-cosmopolitan attitudes. In the former case, the differential economic geography of Europe (and within countries) has taken center-stage. Colantone and Stanig (2018*b*) argue that those European regions most highly exposed to Chinese trade competition saw the strongest upswing in voting for populist parties (see also Gingrich 2019). The same authors find a similar pattern at the subnational level in terms of voting for the United Kingdom to leave the European Union in 2016 (Colantone and Stanig 2018*a*). Other scholars focused on the material causes of populism have pointed to varied patterns of government spending and economic performance since the credit crisis. Fetzer (2019) argues that those British regions with greater cuts in government spending were more likely to vote for Brexit and Carreras, Irepoglu Carreras and Bowler (2019) find a similar pattern with regard to relative regional economic performance (see also Dal Bó et al. 2019).

By contrast, cultural and attitudinal approaches argue that populism can be viewed as a counter-reaction to increasing levels of immigration, ethnic diversity, and more generally cosmopolitan attitudes across the industrialized world. Particularly influential has been the approach of Norris

[1] Our definition of populism follows Müller (2017): populists present themselves as the exclusive moral representatives of a 'people,' defined in opposition to a corrupt 'elite' (see also Mudde 2004). This definition is particularly germane in the case of right populist European political parties, our focus here, as opposed to the leftist populism more prevalent in Latin America.

and Inglehart (2019) who see a cultural backlash across Britain, Europe and the USA. At the micro-level Goodwin and Milazzo (2017) show that rising local immigration was correlated with support for Brexit, and Schaub and Morisi (2020) find that local broadband connectivity is associated with higher support for the AfD in Germany and M5S in Italy, with the argument being that the internet disseminates anti-elite discourse. Finally, Gidron and Hall (2017) connect this attitudinal approach to the material dimension by arguing for the importance of perceived relative status, a subjective feeling of pride or resentment, but connected to lived economic experience (see also Kurer 2020).

What much of this new work analyzing populism has in common is a focus on 'place'—a conjecture that local cultural and economic geography shapes individual voting preferences and behavior. The literature has also recently coalesced on a synthetic consensus: it is likely that both economic and ideational forces matter in terms of explaining support for populism. Where people live and how they live connects both of these forces in a theoretically coherent way. However, surprisingly little thought has been placed into thinking about how the housing that people live in and that ties them into their local communities might matter for populist support.

Wealth embodied in housing is quite distinct from labor market incomes in its connection to place. Housing is geographically *specific* in the two meanings of that word - it belongs both to a specific location and it is specific in the sense that investment in housing is illiquid and specific to that use. Investing in housing means investing in a particular location—so the fortunes of that place become intimately connected to the value of housing in that location—and doing so in a manner that is not easily divested—so investment is for the long run. These kinds of long-run ties to particular places make housing an important conduit of place-based attitudes. When the relative status of particular locations rises or falls that is made manifest in the cost of property there. Thus if populism is driven by relative status considerations across locations, for example, comparing declining provincial towns to the booming capital city, it ought to be connected to relative house prices, not simply labor market incomes.

In recent years, political scientists have begun to examine the role that homeownership and house prices play in affecting political behavior. There is a tradition in political sociology, be-

ginning with Kemeny (1981) of seeing private homeownership as in some sense an alternative to the welfare state. Houses are costly to initially purchase, which may create tax aversion among potential homebuyers seeking to save for a down-payment. Housing also provides a stock of wealth, which might be relied upon during times of lower income—including unemployment and old age—in lieu of social transfers and social insurance (Ansell 2014; Conley and Gifford 2006). Analysis of panel survey data appears to show a negative effect of increasing house prices on support for redistributive and social insurance policies among homeowners (Ansell 2014). Connected to these effects on redistributive attitudes, studies of electoral behavior also typically show homeowners are more likely to vote for economically conservative parties (Studlar, McAllister and Ascui 1990). This is particularly the case when homeowners have positive equity (André et al. 2018).

There is then ample evidence that home ownership and changes in house prices affect political behavior, from redistributive preferences to voting on the economic left-right dimension - the standard 'first dimension' of electoral politics. But does this extend to voting along the 'second dimension' of cultural or group identity preferences that connects to support for populist (as opposed to mainstream) parties? This second dimension is shaped by perceptions of relative group status (Gidron and Hall 2017), often contrasting 'cosmopolitcan elites' in large cities with 'the people' living in smaller towns and rural areas. Recently some scholars have argued that local economic conditions may reflect both individual economic fortunes and more diffuse views about the relative status of one's community (Larsen et al. 2019), often defined ethnically as well as geographically (Hersh and Nall 2016). As we noted above, attraction to populist parties which reject the political and economic status quo and cast aspersions on cosmopolitan, metropolitan elites, reflects both individual experiences of economic misfortune and broader communal experiences of relative decline (Cramer 2016). Accordingly, housing prices, which play a key role in determining both economic fortune and a communal experience of relative decline, may drive support for right-wing populist parties.

Adler and Ansell (2020) argue that housing provides a focal point for both the individual and

communal economic distress that drives much of the populist vote. This is an important intervention; however, their empirical analysis is of single elections in Britain and France using cross-sectional evidence about house prices. Changes in relative status are however a dynamic force - people care about how their area is faring relative to both other areas and to the recent past. We argue that the impact of housing on political attitudes manifests most clearly through over-time changes in relative house prices. By matching local housing data to survey data we are also able to examine whether this relationship is driven by homeowners in particular.

Causal mechanisms

We outline three key channels that connect house prices to voting for populist parties: *pocketbook* effects directly impacting homeowners, *geotropic* effects reflecting communities' relative status, and *mobility* effects concerning the ease of moving from declining to booming areas.Below, we lay out these mechanisms in more detail, showing that there are several good reasons for why housing prices might affect support for right wing populist parties. However, we emphasize that this article will not be able to identify the exact relative important of these mechanisms. Even so, we cast some light on the role of pocketbook and mobility effects by comparing how responsive homeowners and renters are to housing prices.

The standard way of connecting individual economic experience to political behavior is the 'pocketbook' model (e.g., Lewis-Beck 1985). Typically associated with assessing support for incumbent politicians, pocketbook models assume that direct individual economic experience drives vote choice – hence individuals who receive wage increases are more supportive of the incumbent, those who lose their job or suffer pay declines are less supportive.

Our use of the 'pocketbook' model moves beyond simply voting for the incumbent to look at general satisfaction with the political status quo and the mainstream parties that represent it. We view pocketbook effects as an individual's material gain or loss from changes in house prices. We expect that when house prices are rising, homeowners will be happier with mainstream political parties and the political status quo; when they are declining they ought to be less happy and more

inclined to vote for anti-system, populist parties. This pattern should hold not only in terms of absolute house price gains and losses but also for relative (to other regions) gains and losses. Relative gains matter because housing is ultimately a positional good (Ahlquist and Ansell 2017): land is fixed in quantity and well-located property is valuable *precisely* because it cannot be shared. Thus, even if house prices are rising everywhere, homeowners in places with slow growth are pulled ever further apart from those who live in booming areas—increasing the former's resentment of the latter.

There are four key assumptions that need to hold if the pocketbook model is to explain why declining house prices should be associated with rising support for right-wing populist parties. First, rather than simply voting against the incumbent, individuals experiencing declining house prices should be more attracted to non-mainstream parties. Second, these parties should be right-wing, as opposed to left-wing, populist parties. Third, individuals must respond to changes in their wealth in a similar fashion to standard pocketbook model assumptions about responsiveness to income - that is, even though most homeowners do not *directly* experience changing house prices, unless they sell their houses, they must nonetheless punish mainstream parties for perceived declines in wealth (and vice versa, reward them for rising house prices). Fourth, this effect ought to be most concentrated among homeowners as opposed to renters. One might be concerned that rising house prices would feed into rising rents, causing pocketbook dissatisfaction among renters that offsets the benefits felt by homeowners.[2] However, in the Scandinavian cases we examine the rental market is strongly regulated, decoupling the residential property and rental markets (Cuerpo et al. 2014). Hence pocketbook effects should be focused among homeowners. In the empirics below we show these four assumptions hold.

As well as individual pocketbook effects, there may also be 'geotropic' effects of changes in house prices on political behavior (Reeves and Gimpel 2012). Geotropic approaches take local geography and community seriously as a level of aggregation that shapes and channels values and

[2]Many renters will want to enter the housing market at some point. Rising prices also have offsetting pocketbook effects for them. On the one hand they may make it harder to afford an initial downpayment. On the other they may increase the attractiveness of housing as an investment asset.

preferences in ways distinct from an individual's direct pocketbook experiences of house prices.

Why might local conditions matter for vote choice? We argue that a person's community both provides information about the likelihood of various economic outcomes for oneself (a *learning* effect) and matters in and of itself inasmuch as people care about their local community above and beyond their own individual utility (an *altruism* effect) (Kinder and Kiewiet 1981). In terms of learning, there is both statistical learning—if people near me 'look like me' and become unemployed, maybe I am also likely to lose my job; and economic learning—if there is lower demand for goods and services from my region, maybe people won't be able to hire me / buy from me. In terms of altruism, if people care about what happens to their community, above and beyond any individual effect on them, then local economic decline should make them unhappy even if they are completely materially unaffected.

How do house prices affect individual voting behavior through this geotropic mechanism? For homeowners, the learning mechanism operates similarly to the pure pocketbook model above as they update their expectations about the value of their house. But under the learning mechanism, even non-homeowners may be concerned about declining house prices, since they signal that the market doesn't value places like the one in which they live, and hence by extension, 'people like them'. Presuming that this dissatisfaction galvanizes discontent with mainstream parties, local house price declines will drive greater support for right-wing populism. The altruism mechanism is even simpler—if I care strongly about my community and house prices are decreasing (both absolutely or relative to other parts of the country), I feel concerned about a decline in the relative status of my community. This decline may be very visible in the everyday life via, for example, local stores shutting down. Presuming that people then make a mental comparison to those parts of the country doing well, and that those parts are associated with mainstream elites, this provides another channel to greater support for populist right-wing parties.

A final mechanism connects individual and geotropic effects: relative mobility. As the house price differential between different regions and localities rises it becomes harder for people to move between them to seek work, be near family etc. More precisely, it becomes ever harder to

afford to move from a low house price area to a high house price area. This will be particularly pronounced for homeowners who must sell their (lower-valued) property to move permanently. Accordingly, people living in cheaper areas may feel 'locked in' to stagnating or declining regions, amplifying their discontent with their relative status. It may also mean they know fewer people from those expensive areas (and vice versa) as fewer of their friends or relatives are able to move there. Put simply, house price differentials solidify and accentuate existing geographical differences in fortune, status, and satisfaction with the status quo.

In sum, while we expect the pocketbook effect to be the main channel by which changing house prices alter support for populist right parties, geotropic and mobility considerations mean that there are alternate reinforcing mechanisms by which non-homeowners may respond similarly to changes in the housing market. Empirically this means that we expect declining house prices in a region to increase support for right populists *even where* homeownership is low. However, we anticipate the strongest effects to be among homeowners, for whom pocketbook, mobility, and geotropic considerations are most pronounced.

Before moving to our empirical analysis it is worth considering why we expect this relationship between housing and voting to be focused on right populist parties. One might question whether voting for a right-wing populist party is really a political choice along the cultural 'second dimension' of politics. Might it not also reflect attitudes of welfare chauvinism, i.e. a desire to limit the receipt of public goods to in-groups, defined by nationality or ethnicity? If the policy offer of right-wing populist parties is substantially more generous in terms of social spending than traditional right-wing conservative parties – at least for those voters meeting group-based criteria – and such voters live in declining localities, how is this distinct from a simple materialist story where those in declining areas vote right populist and those in booming areas vote right conservative?

The missing factor in this formulation is of course, left-wing parties, the traditional promoters of greater social spending. The question arises as to why voters in areas with declining house prices support right-wing populist parties rather than socialist or social democratic parties, if social spending is the key factor driving behavior? Or further, why they do not vote for non-traditional

left-wing parties such as greens or left-wing populists?

Our argument is that populist right parties place particular emphasis on the relative status of declining areas vis-à-vis booming, typically metropolitan, regions. Hence they are particularly well-suited to pick up on resentments that are specifically place-based, which are reflected by growing gaps in the relative value that society attaches to particular places—house prices. By contrast, left parties—of material and postmaterial types—tend to emphasize solidarity and are more concerned with poverty and economic inequality per se than relative status. Voters motivated by place-based status concerns are, we argue, more likely to gravitate to the populist right, a conjecture supported by substantial existing evidence (Gest, Reny and Mayer 2018; Gidron and Hall 2017; Iversen and Soskice 2019; Norris and Inglehart 2019). As Rodden (2019) shows, left parties have also become increasingly based *within* cities, as opposed to declining peripheral regions with declining house prices. Finally, the Scandinavian countries we examine lack the successful left-wing populist parties increasingly common in Latin America and Southern Europe (Hopkin 2020).

Summarizing the claims of this section, we argue that local house prices shape support for populist right-wing parties both through direct individual effects and local communal effects. Where prices are rising, citizens feel individually and communally satisfied with the political and economic status quo and continue to vote for mainstream parties. Where prices are decreasing (absolutely or relatively) individuals feel that the status of their local community and their own economic situation is in decline, and they turn to the populist right. Finally, these effects should be most prounced among homeowners.

Empirical Context: Housing and Populism in the Nordic Countries

We evaluate our argument using data on local economic conditions and voting behavior in the Nordic countries (Denmark, Sweden, Norway, and Finland). These four countries are ideal cases for testing the relationship between housing prices and voting for populist parties. For one, all four countries have low levels of income inequality, a strong welfare state, making them least likely

cases in the context of studying the link between economic deprivation and populism. At the same time, these countries have seen an increase in housing prices and support for populist parties, which is geographically unequal. Furthermore, unlike what is the case for most other countries, data on housing prices is available on at least the municipal level for all four countries for more than twenty years back in time.

Although traditionally categorized as five-party systems (Knutsen 2001) largely 'frozen' since the advent of universal suffrage in the 1920s, party systems in the Nordic countries have fragmented since the 1970's (Bengtsson et al. 2014). This fragmentation is partly a reflection of the emergence of right-wing populist parties, but also the emergence of Green and Christian parties. Hence, while originally exceptionally static in international comparison, Nordic party systems have diverged over time and now in most respects resemble party systems in other Western multi-party democracies. In each of these four countries, we focus on the current dominant right-wing populist party. These are the Danish People's Party (in Denmark), the Sweden Democrats (Sweden), the Progress Party (Norway), and the True Finns (Finland). We select these parties based on the classification in Rooduijn (2019), which identifies these parties as right-wing populist. We omit one party in Denmark, Fremskridtspartiet, which Rooduijn (2019) also identifies as right-wing populist, as it left parliament in 2001 and has been practically non-existent since.[3]

These parties belong to a broader European family of right-wing populist parties which also includes France's Rassemblement National, Germany's Alternative für Deutschland, and United Kingdom's UK Independence Party (Rooduijn 2019). This family of modern right-wing populist parties typically offers a 'new winning formula' of authoritarian sociocultural policy and centrist or even left-wing economic policy (De Lange 2016). To be sure, not all classifications agree on which parties can be properly labeled right-wing populist. Specifically, Jungar and Jupskås (2014) argue that while the three of the four parties studied here fit the label, Norway's Progress Party is a somewhat awkward fit, and should be considered a hybrid between a right-wing populist

[3]We do not include data from the 2019 Danish Parliamentary election, because much of the registry data is not yet available, and consequently we also omit two new right-wing populist parties which were formed after the 2015 election. Likewise, we do not include the 2019 Finnish parliamentary election.

and a traditional conservative party. Moreover, for all their present-day political similarities, the history of right-wing populist parties differ between the four countries. The Swedish Democrats originated from the extreme-right milieu, while the Danish People's Party and the Progress party have a background in less extreme right-wing movements. Furthermore, the parties have a very different electoral history. The Progress Party in Norway has a parliamentary history dating back more than 40 years, whereas the Swedish Democrats only gained access to parliament in 2010.

While acknowledging this heterogeneity across countries, our focus on these parties is motivated by their political role within each country. Building on the theoretical framework outlined above, we expect voters to support right-wing populist parties over mainstream parties as a means of expressing political discontent with relatively low local housing prices. Hence, although Norway's Progress Party is not as purely right-wing populist as its Nordic counterparts, its traditional anti-establishment profile still renders it the most natural choice for voters seeking to express discontent. Even so, we expect the Progress Party to be less able to profit on the voters' discontent than the other three right-wing populist parties we examine.

Some Descriptive Statistics

As shown in Figure 1, the nordic countries provide ample variation in housing prices as well as right-wing populist party support. Average housing prices rise steadily in all four countries, with a noticeable boom- and bust-cycle in the run-up to the global financial crisis in the late 2000s. The magnitude of the changes, amounting to two- to five-fold increases, mean that the price of housing has grown sharply relative to wages as well as other goods. These average increases in the price of housing are driven by sharp increases in the most expensive areas, leading to increasingly unequal distributions of housing prices. This is seen for Denmark in the bottom-left of Figure 1, and for the remaining Scandinavian countries in Appendix E.

The same time span has seen a steady rise in support for right-wing populist parties. Whereas in the late 1990s electoral support for populist right wing parties in three of the four countries were small or negligible, by the late 2010s support was at 16 percent. or more. Interestingly, the

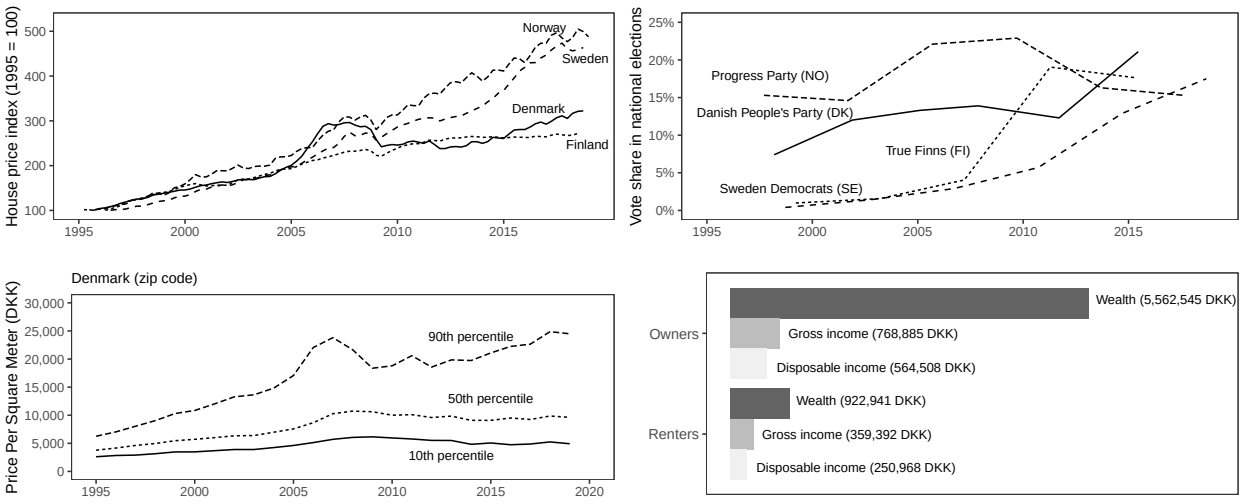

Figure 1: Development of housing prices and support for right populist parties. The top-left figure shows trends in house prices in the Nordic Countries, the top-right figure shows trends in support right populist parties. The bottom-left figure shows the development in house price for the 10th, 50th and 90th percentiles of zip codes in Denmark. The bottom-right figure shows the average wealth and income, by household, for both owners and renters in Denmark using data from Statistics Denmark. Data on house prices for the Nordic Countries (top-left) is from the Bank of International Settlements.

two trends are therefore positively correlated at the macro-level, as housing prices and support for right-wing populist parties rise in tandem. As we will show in the following analyses, however, the sub-national relationship is negative, because support for right wing populist parties have increased more in the places within each where prices have stayed flat.

In our analysis, the primary focus is on the Danish case, because the data we can obtain on housing markets and electoral outcomes in Denmark is much more detailed. 57 percent of Danes lived in an owned residence, which is below the EU mean of 70 percent (Eurostat 2020). As seen in Figure 1 home owners are better off economically compared to renters; a household of owners have 6.2 times as much wealth and earns 2.3 times as much after taxes compared to renters. Fortunately for renters, the Danish rental market is characterized by strong rent control and a large stock of social housing (Cuerpo et al. 2014). This means that renters typically do not have to worry that increasing housing prices turn into rent hikes. Therefore, we can disaggregate the geotropic and egotropic effects of housing prices more cleanly when comparing the electoral response of Danish

renters and owners (see Appendix E for this and more information on the Danish housing market).

Voting for the Danish People's Party

We measure support for the Danish People's Party (DPP) at national and EU elections from 1998 to 2015. By including both type of elections our measure of support for the DPP becomes more tightly spaced. (We show in Appendix A that our results are robust to excluding EU elections.) This gives us a total of ten elections with six national and four EU elections. We measure DPP support at the electoral precinct level. Each precinct corresponds to a single polling place, and is the smallest unit at which election returns are recorded in Denmark. There are roughly 1,400 precincts and each precinct covers on average 3,000 eligible voters.[4] Our independent variable is the average nominal price of one square meter of housing in DKK 10,000 (ca. EUR 1,350) sold in each precinct's zip code in the quarter of the election. We obtain data on local housing prices from The Danish Mortgage Banks' Federation. They publish quarterly data on the average price per square meter of all non-commercial property sales at the zip code level, which we link to our precinct data by acquiring the zip code of each precinct's polling place. Appendix B presents more details on our matching procedure.

We also construct a large set of control variables from the national Danish population registries. All of these variables are aggregated to the zip code level so that they most effectively control for our housing price measure. We use the zip code median income and the unemployment rate to measure the state of the economy. We use population density, the percent single family homes and percent 10+ family apartment buildings to measure urbanization. We use percent non-western immigrants to measure ethnic diversity. We control for education levels by calculating the percent of 20-65 year olds without secondary education and the percent with a postgraduate degree. Finally, we construct measures of the percent of high-skilled and low-skilled (split into service and manufacturing) jobs in the zip code to measure composition of the labor market. The control variables are described further in Appendix C, while descriptive statistics are found in Appendix D.

[4] In order to make a balanced panel of precincts, we fix the precincts geographical boundaries at the most recent election (2015), and adjust vote returns to match with precincts in the reference election. For details of how returns from the redistricted precincts are calculated, see Søren Risbjerg Thomsen's research note at bit.ly/205OlPi.

Support for the DPP Decreases with Housing Prices

Figure 2 shows the relationship between precinct level support for the DPP and housing prices over time. Three trends stand out. First, there has been a massive increase in support for the DPP, especially near the end of the period. Second, housing prices have become more unequal, with a brief reversion of this trend in the years following the credit crisis (i.e., 2009). Third, it is primarily in the precincts where prices are low that support for the DPP increases.

Figure 3 presents the same data using a simple difference-in-difference set up. The figure shows differences in DPP support over time across two sets of precincts: (1) the ten percent of precincts where prices increased the most from 1998 to 2015 ('Boom areas'); and (2) the ten percent where prices increased the least ('Left Behind areas'). The real housing prices *decreased* by an average of 15 percent in the Left Behind areas, whereas they *increased* by an average of 100 percent in the Boom areas. The level and trend in DPP support is similar across Boom and Left Behind areas in the first two elections, but then as the price differential increases (see the dashed line), the Left Behind areas become more likely to support the DPP relative to the Boom areas. At the last elections the difference in DPP support between Boom and Left-Behind areas is almost 10 percentage points. This within-precinct analysis thus tells the same story as the cross sectional analysis presented in Figure 2. From a causal inference standpoint, it is reassuring that the trends in DPP support across the Boom and Left Behind areas are initially similar, as it suggest that DPP support might have continued to follow the same trajectory if there had been no divergence in housing prices (Angrist and Pischke 2008).

A Generalized Difference-in-Differences Model

While the results presented in Figure 3 are quite clear, they leave out a lot of data, and censor the variation in housing prices by pooling data from different precincts into the Boom and Left Behind areas. To use our data more efficiently, we estimate the following generalized difference-in-differences model:

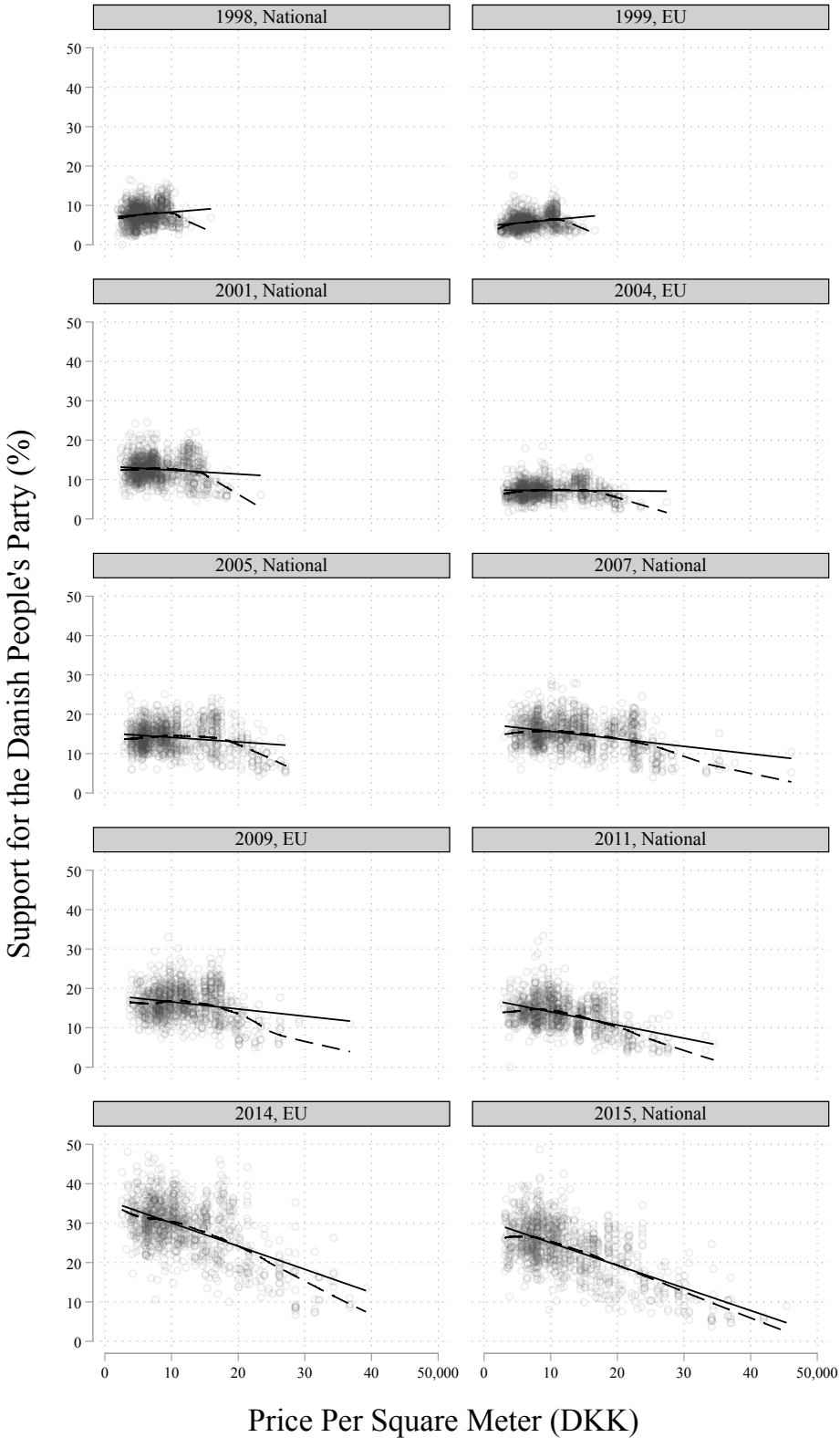

Figure 2: Is there a relationship between housing prices and support for the Danish People's Party? Dots represent precincts. Solid line is linear fit and dashed line is a lowess fit.

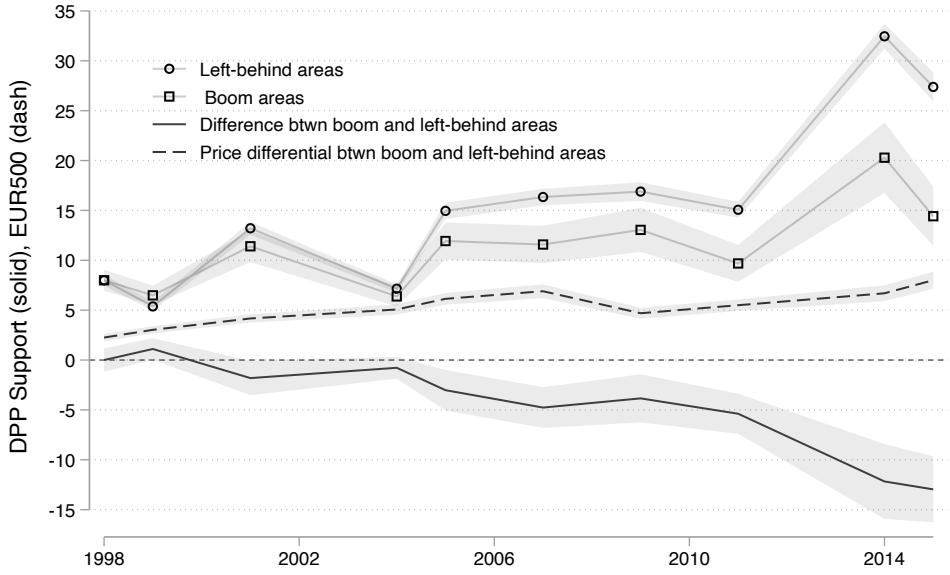

Figure 3: Is there a relationship between housing prices and support for the DPP? Average support in and across 'Boom' and 'Left Behind' areas over time. Dashed line is difference in price per square meters. Shaded areas are 95 percent confidence intervals estimated with clustering at the zip-code level.

$$\Delta DPP_{ij} = \beta \Delta Prices_{ij} + \Delta \mathbf{X_{ij}} \gamma + \theta_j + \epsilon_{ij}, \tag{1}$$

where ΔDPP_{ij} is changes in support for the Danish People's party in precinct i at election year j, $\Delta Prices_{ij}$ is changes in the housing prices in the precinct's zip code, $\mathbf{\Delta X_{ij}}$ is a vector of zip code level controls and θ_j are election year fixed effects. We take account of autocorrelation in the error term (ϵ_{ij}) by clustering the estimated standard errors at the zip code level (i.e., the level where our housing price variable is measured). We use a first-difference specification rather than fixed effects to more effectively deal with the substantial temporal autocorrelation in housing prices (Angrist and Pischke 2008). (We show later that including precinct fixed effects yields similar results.) The key coefficient of interest is β which estimates what happens to DPP support when prices increase by 10,000 DKK. Notably, this specification implies a relative comparison, not an absolute one. Given the distribution of housing price changes, β should be interpreted not as a comparison of price increases versus decreases, but rather as one of strong versus weak

growth in house prices. Estimating an effect that relies on a relative comparision, fits well with our theoretical argument, which highlighted that support for populist party is driven by a sense of relative decline.

Table 1 presents estimates from our model without any precinct-level controls. This gives us an estimated coefficient for housing prices of -3.0, implying that an increase in a precinct's housing prices of 10,000 DKK per square meter will decrease support for the DPP with roughly 3 percentage points. Figure 2 showed that the bivariate relationship between local housing prices and DPP support became stronger over time. We also find this over-time difference when using these more advanced estimation methods. In particular, the effect size doubles following the financial crisis in 2007 (see Appendix G for a discussion of this trend in the effect size)..

Importantly, the generalized difference-in-difference model removes all precinct-specific and time-invariant shocks as well as time-varying shocks that are constant across precincts. This means that our model effectively controls for a host of confounders, such as macroeconomic conditions and geography. Even so, potential threats to causal inference remain. If relative increases in housing prices are the result of some underlying precinct-level variable that also affects support for the DPP, our estimates will be biased. The flexibility of our panel data and the richness of demographic information that can be drawn from the Danish population registries makes it possible for us to address this potential threat to causal inference in different ways. First, we employ a number of detailed controls for changes in the urbanization, ethnic diversity, economic standing and labor markets of the different precincts. These controls are included in columns two through five of Table 1. The controls are described in detail above. The controls make little or no difference in the estimated effect size.

We want to dwell on three parts of the results in Table 1. First, while median income is negatively associated with DPP support its inclusion does not affect the estimated effect of house prices. Second, by controlling for the economic trajectory of local areas, such as changes in the unemployment rate and median income, we also control for changes in the business environment which could confound our results - i.e., whether local businesses are closing. Third, the effect re-

mains statistically and substantively significant even after controlling for the composition of local labor markets and education. Low-skilled workers are typically located outside of big cities, where housing prices are lower, and recent studies have found that the concentration of low-skilled workers is a powerful predictor of support for populist parties (Colantone and Stanig 2018*a*; Dal Bó et al. 2019), making it a potentially important confounder. However, it appears that labor markets and asset markets have distinct impacts on right populist support.

Table 1: Support for the Danish People's party and Housing Prices

	(1)	(2)	(3)	(4)	(5)
Housing Prices (DKK 10,000)	-3.0	-3.0	-3.0	-3.0	-3.0
	(0.3)	(0.3)	(0.3)	(0.3)	(0.4)
Log(Population Density)		-1.1	-1.1	-1.3	-1.0
		(1.3)	(1.3)	(1.3)	(1.5)
Single Family Homes		-0.1	-0.1	-0.1	-0.1
		(0.1)	(0.1)	(0.1)	(0.1)
Ten Family Apartments		-0.4	-0.4	-0.5	-0.5
		(0.2)	(0.2)	(0.2)	(0.2)
Non-western Immigrants			0.0	-0.0	0.0
			(0.1)	(0.1)	(0.1)
Unemployment Rate				-0.1	-0.0
				(0.1)	(0.1)
Median Income				-3.7	-3.2
				(2.1)	(2.2)
Postgraduate degree					0.0
					(0.0)
Without Secondary Education					0.0
					(0.0)
Low Skilled Service					0.1
					(0.0)
Low Skiled Manufacturing					-0.0
					(0.1)
High Skilled and Manager					-0.0
					(0.1)
Year FE	✓	✓	✓	✓	✓
Observations	9878	9808	9808	9808	7659
RMSE	2.526	2.521	2.521	2.521	2.550

Clustered standard errors in parentheses.

Statistical control is no panacea. If unobserved forces that put precincts on a trajectory of increasing housing prices are related to decreases in support for the DPP, then we might be confounding the effect of housing prices with these unobserved forces. To check this, we regress past changes in support for the DPP on current changes in housing prices including year fixed effects

in our fully controlled model. Figure 4 presents the effect of changes in housing prices on one, two, three, four, and five period lags of changes DPP support as well as the effect on concurrent changes in support for the DPP. Current changes in housing prices are unrelated to the past trend in DPP support, mirroring what we found in Figure 3. This is reassuring, as it suggest that trends in DPP support are parallel across precincts where housing prices will increase and those where they will decrease - the key identifying assumption in generalized difference-in-difference models.

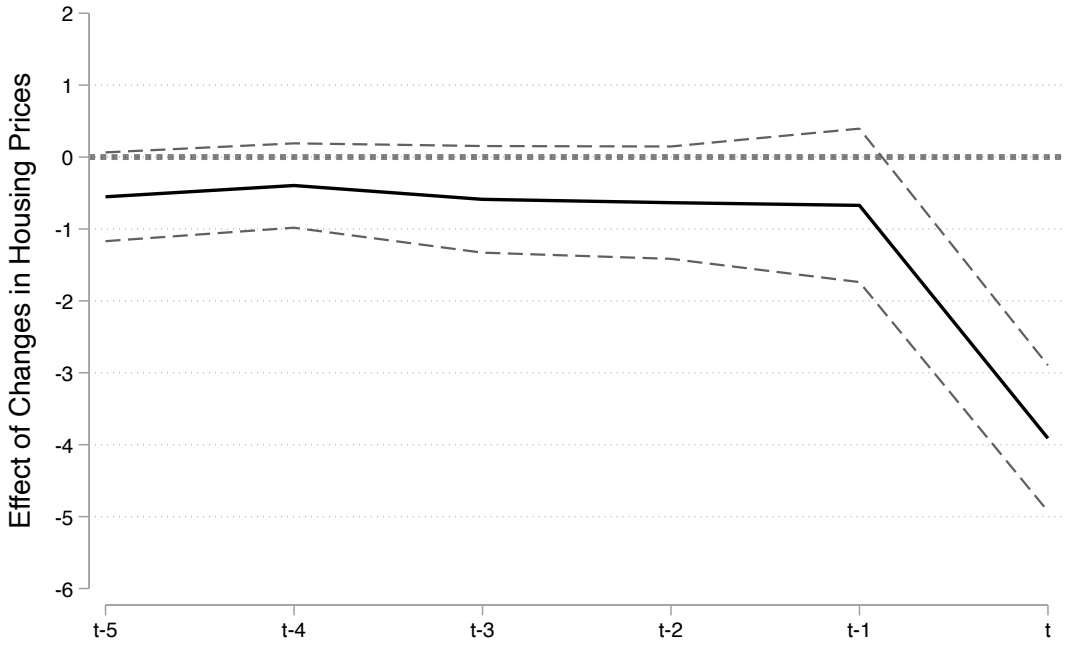

Figure 4: Do changes in housing prices predict past changes in support for the Danish People's party? Estimated effects with 95 percent confidence intervals using full set of controls.

How large is the estimated effect of housing prices? The coefficient in our fully controlled model is -2.9. This implies that an increase in prices per square meter of 10,000 DKK, a little less than two standard deviations, decreases support for the DPP by 3 percentage points, half a standard deviation. This is quite a large effect. In their article on global competition and Brexit, Colantone and Stanig (2018*a*) find that going from the 10th to the 90th percentile on their import shock variable increases support for Leave by 4.5 percentage points. In comparison, going from 10th to the 90th percentile in housing prices implies an increase in support for the DPP of 5 percentage points. This in spite of the fact that variation in DPP support is constrained by the party rarely

getting more than 25 percent of the vote in a precinct.

Addressing Some Alternative Explanations

Below, we briefly describe a number of additional analyses that bolster our claim that housing prices affects support for the DPP. We try to rule out the possibility that our effects are driven by an increased salience of the urban-rural divide, selection of DPP supporters into low house-price areas, an unobserved confoundet, precinct-specific linear trends in DPP support, increased support for left-wing parties or non-incumbent parties. We lay out these findings briefly below, but refer the reader to the Appendix for detailed results.

One concern is that our models conflate the effect of housing prices with diverging electoral trends between urban and rural areas (e.g, Cramer 2016). While we try to control our way out of this problem, it is difficult to perfectly capture the 'ruralness' of an area. To deal with this problem more effectively, we subset our data to precincts within the capital region of Copenhagen, which contains no rural areas, relying on variation in housing prices between more suburban and more urban areas instead. In Appendix H we show that the estimated effect of housing prices in the capital region match those found for the country as a whole.

Another concern is that our results are driven by DPP supporters moving into areas with low housing prices. To deal with this issue, we show in Appendix I that the effect of housing prices is stable across levels of mobility; it persists even in areas with minimal in- and outgoing residential flows. This suggests that the result is driven by a change in the local electorates' preferences rather than a change in the electorates' composition.

We also control for precinct-level trends in DPP support by including precinct fixed effects in our first difference model. In effect, we thus examining whether DPP support decreases more when housing prices in a precinct increase more than they usually do. In Appendix J we show that even in this more restrictive model, we identify a sizeable effect of housing prices on DPP support.

We also estimated how likely it is that our effects are driven by a missing control variable (Cinelli and Hazlett 2020). These tests are reported in Appendix F, and indicate that such a variable

needs to explain away 17 percent of the residual variance in either the dependent or independent variable to reduce the effect of changes in housing prices to zero. To put this into context, an unobserved confounder needs to be twenty times as strong as median income, the strongest observed confounder, to disappear the housing price effect.

Finally, we try to explore whether our findings can be explained by other thories of voter behavior. We rule out that voters simply embrace more (first-dimension) left-wing parties when housing prices become relatively lower, finding no effect of housing prices on support for socialist or social democratic parties. We also rule out that our findings simply reflect retrospective voting. While we do find that incumbents do worse when housing prices are relatively lower, the estimated effect of housing prices on support for the DPP is much larger than the estimated effect on incumbent parties. This suggest that both incumbent and non-incumbent mainstream parties lose out to the DPP when prices are decreasing. We present these analyses in Appendix K.

Evidence from individual-level data: Is the effect driven by homeowners?

A key disadvantage of our precinct-level analysis is that we are not able to distinguish between those who own their home and those who rent. As mentioned above, whether housing prices affect only homeowners or also renters is important, because it gives us an indication as to why people are affected by relative changes in local housing prices. Are they motivated by pocketbook or mobility concerns – that their house has not inecreased in value, locking them in to their current place of residence – or social grievances – that their community has been shut out of the housing wealth boom.

To answer this question we link our zip code variables to post-election surveys from the Danish National Election Studies. We include surveys from 2007, 2011 and 2015 as these are the only ones where respondents were asked to identify which zip code they lived in. Crucially, respondents were also asked in these surveys who they voted for and whether they owned or rented their home. We then estimate a linear probability model of voting for the Danish People's Party. We use housing prices, the zip code variables from the precinct-level analysis and year fixed effects as regressors.

In some models we also include a small number of demographic controls at the individual level - the respondents' gender, age, income, educational-level and marital status - to control for some of the more obvious differences between home-owners and renters (see Appendix E for details on these differences.). We cluster standard errors at the zip code level.

Table 2: Support for the Danish People's party: An Individual-level Approach

	(1)	(2)	(3)
Housing Prices (DKK 10,000)	-2.4	-2.9	-3.3
	(1.3)	(1.3)	(1.4)
Renter			0.9
			(2.5)
Housing Prices (DKK 10,000) × Renter			0.8
			(1.2)
Demographic controls		✓	✓
Zip-code controls	✓	✓	✓
Year FE	✓	✓	✓
Observations	6869	6869	6869
RMSE	30.743	30.397	30.389

Standard errors clustered on zip codes in parentheses.
Demographic controls: Age, gender, income, education and marital status.
Zip-code controls: See precinct-level analysis.

Table 2 shows that we can replicate the precinct-level findings using the individual-level data. As such, when housing prices increase by 10,000 DKK per square meter in the respondent's zip code, they are approximately three percent less likely to vote for the Danish People's party. This result holds both with and without the inclusion of individual-level demographic controls.

The final column of Table 2 estimates an interaction between housing prices and being a renter as opposed to a homeowner. The interaction effect is statistically insignificant and small. As such, the model implies that the estimated effect of housing prices is -2.5 for renters and -3.3 for home owners. At the same time, the marginal effect for renters is not statistically significant ($p \approx 0.12$) while it is statistically significant for home-owners ($p < 0.05$). This difference in statistical significance may simply reflect that there are fewer renters than homeowners – only 30 percent of respondents rent.

In conclusion, the effects of declining house prices appear most robust for homeowners and less so for renters, though we are unable to reject the hypothesis that homeowners and renters respond similarly. Our findings thus provide mixed support for whether individual or geotropic

factors are at play. That homeowners appear strongly affected by house price changes provides strong support for the pocketbook mechanism, but since we cannot be sure homeowners and renters behave differently, we are also left with some support for the geotropic mechanism. To adjudicate further between the different mechanisms would require more data and, as of yet unavailable, panel surveys to pick up within-respondent changes.

Some additional individual-level results

The individual-level data leveraged here also allows us to examine some other potential mechanisms underlying our findings. We briefly describe these results here, but refer the reader to Appendix L for detailed analysis.

First, the individual level data can be used to study vote-switching patterns. That is, what kind of voters decide to move to the Danish People's party when housing prices in their area fall behind prices in other areas? In particular, our analysis show that it is primarily former right-wing party voters that move towards the DPP, and only to a lesser extent those from the mainstream left. Second, we find that those who own a home in an area with higher housing prices report having a higher levels of home equity, suggesting that voters are aware that there is a personal economic benefit to owning a home in a high-price area. Finally, we find that housing prices are not, or at least only weakly, related to anti-immigration attitudes. This suggests that our housing price measure is not indirectly picking up differences between people who are pro- and anti immigrant, which would be problematic as anti-immigration sentiment is one of the most important individual-level drivers of support for right-wing populist parties. It also suggests that the economic grievances created by lower housing prices do not spill over into anti-immigration attitudes but rather activate other aspects of 'second dimension' politics, such as the relative status of stagnating small towns versus the booming neighborhoods of Copenhagen.

Voting for Populist Parties in Sweden, Norway, and Finland

Are the results unique to Denmark or do they represent a more general pattern? To find out, we now turn to Sweden, Norway, and Finland. The dependent variable in these analyses is the vote share

for the dominant right-wing populist party in each country. We do not have access to precinct-level data for these countries. Instead, we use data on the municipal level. There are currently 290 municipalities in Sweden, 422 in Norway and 295 in Finland (excluding the autonomous region Åland). While the number of municipalities has been constant in Sweden during the period of analysis, there has been mergers of municipalities in Finland and Norway. In Finland, we have been able to transform the data, so all variables in all years correspond to the 295 currently existing municipalities. This has not been possible in Norway, and the number of municipalities therefore vary over time. For all three countries, we examine the last four national parliamentary elections.

In our analysis of Finnish elections we leave out the 15 municipalities with a majority of ethnic Swedes, since ethnically Swedish voters are particularly hostile to the right populist True Finns, whose policies advocate for a more homogeneous "Finnish" national identity. They have, for instance, advocated for an end to compulsory Swedish tuition.

Our main independent variable is the average price of one square meter of residential housing in nominal prices.[5] To make the results more comparable, we convert the price in SEK in Sweden and in NOK in Norway to EUR using a fixed exchange rate of 0.1 and 0.12 respectively. The data from Sweden has been provided by Swedish Realtors Association (*Svensk Mäklarstatistik AB*), while the data from Norway and Finland are obtained from the national statistical agencies. It should be noted that there is missing data on housing prices in years without any house sales.

We also use a number of control variables, approximating the control variables used in the Danish analysis, however, we were not able to obtain data on the composition of the labor market for these countries. All control variables are from the respective national statistical agencies and are described in Appendix C. Descriptive statistics are found in Appendix D.

Support for Populist Parties Decreases with Housing Prices across the Nordics

Figure 5 shows the relationship between housing prices and the vote for populist parties at the last four parliamentary elections in Sweden, Norway, and Finland. The general trend across countries is similar to what we found in Denmark, namely that support for populist parties increased the most

[5] In Appendix M we have replicated the analysis using real prices.

in areas where housing prices were relatively lower, and that this relationship becomes stronger over time. The negative relationship between prices and right-wing populist support is strongest in Sweden and weakest in Norway, with Finland being somewhere in between. As expected, the majority ethnically Swedish municipalities in Finland do not fit this pattern as they tend to have low housing prices and low levels of support for the True Finns across the four most recent elections.

We model the relationship between housing prices and support for populist parties using a first difference model with year fixed effects and time-varying controls. (This is similar to the precinct-level analysis in Denmark.) The key estimates from these models, the effect of housing prices on populist party support, are presented in Figure 6. For comparison, we also plot the estimates from Denmark. Estimates from the full regression models for Sweden, Norway, and Finland are reported in Appendix N.

The results for Sweden are similar to Denmark, with estimates between -2 and -1, implying that as prices per square meter in a municipality increase with 1,000 EUR, the Sweden Democrats lose one or two percentage points of support in that municipality. The estimated effects in Finland are a bit larger than in Sweden and Denmark, but they are less precisely estimated. The estimated effects for Norway are also in the same direction, with lower housing prices being related to more support for the Progress party, but the effects are smaller than for Denmark and Sweden, and in the most restrictive model, the effect is not statistically significant.

One reason for the relatively weak effect in Norway could be that the Progress Party is not a purely right-wing populist party (Jungar and Jupskås 2014). It has existed for a long time, since 1973, and has been in government from 2013-2020. Research shows that anti-establishment parties that participate in governing coalitions often lose their appeal (Van Spanje 2011). As a result, the Progress Party might not be able to capitalize on the Norwegian voters' frustrations with lower local housing prices in the same way as the remaining Nordic populist parties.

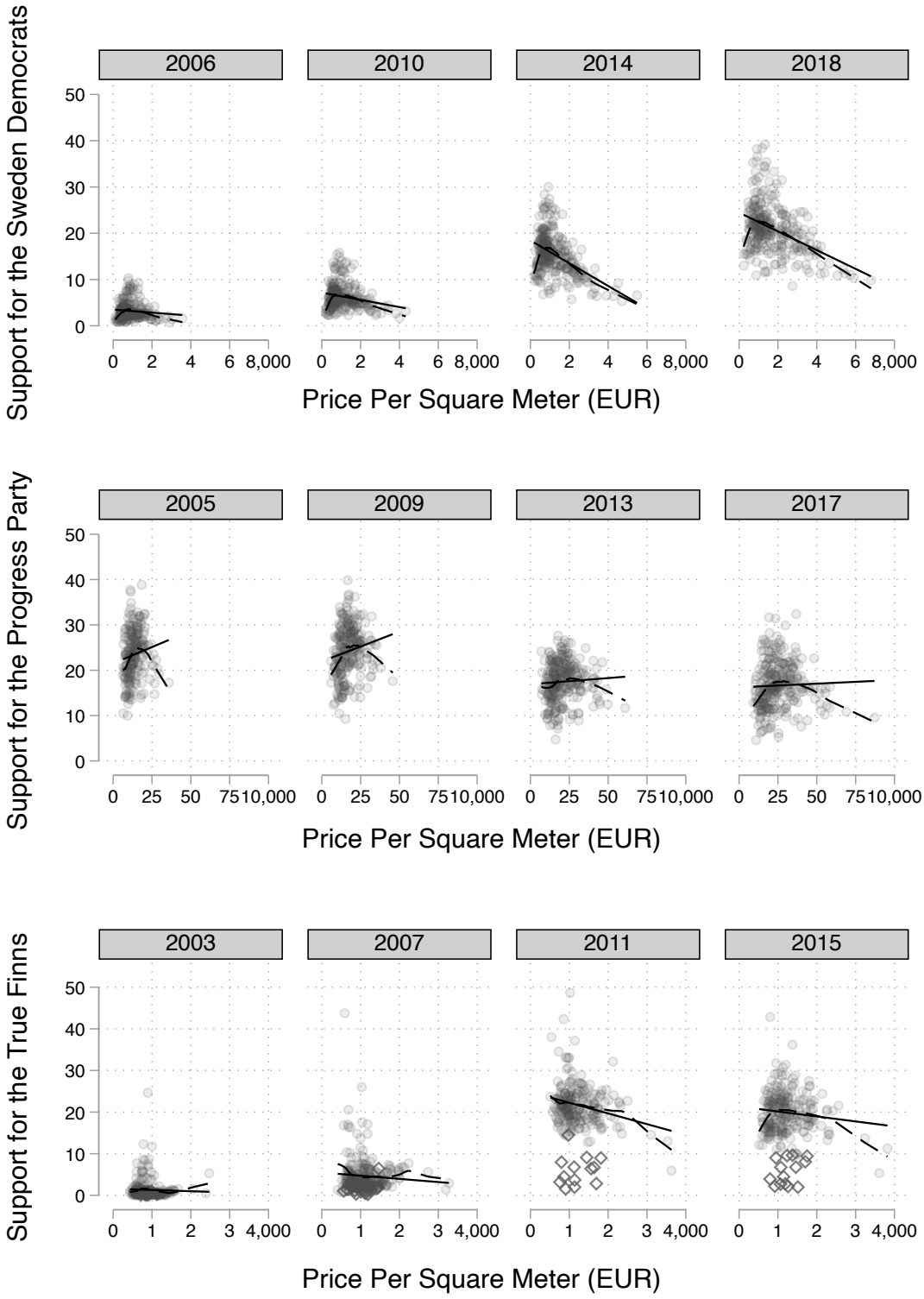

Figure 5: Is there a relationship between housing prices and support for the populist parties in Sweden, Norway, and Finland? Dots represent municipalities. Solid line is linear fit and dashed line is a lowess fit. For Finland circles represents majority Finnish municipalities, while diamonds represents majority Swedish municipalities. Both the linear fit and the lowess fit are based only on majority Finnish municipalities.

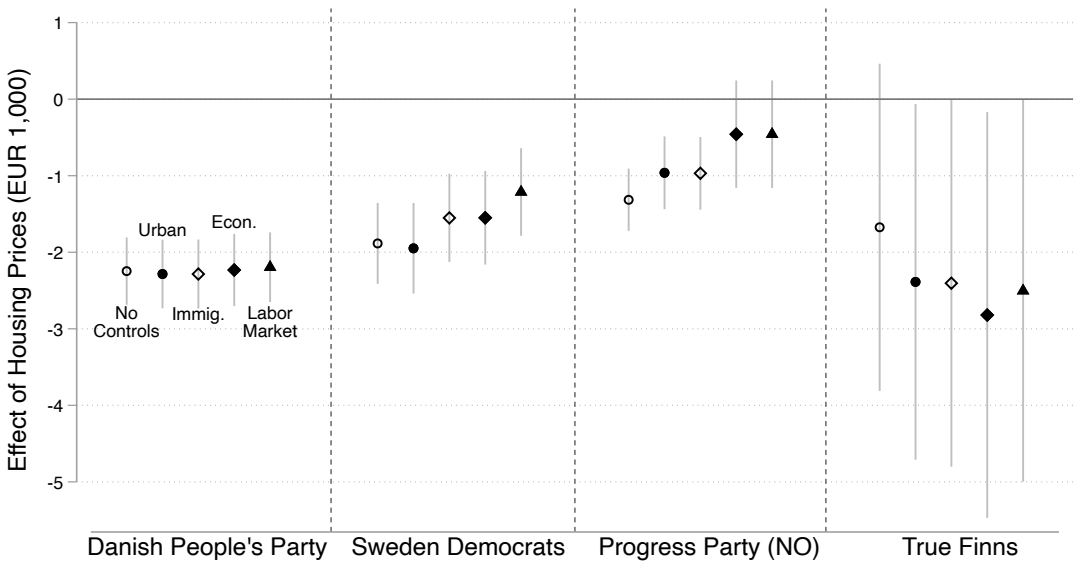

Figure 6: Estimating the effects of housing prices on support for right wing populist parties across the Nordic countries with 95 percent confidence intervals. First difference models that become more restrictive going from left to right. See Appendix N for details on the controls.

Conclusion

In the past two decades we have seen dramatic developments in both the political and the economic sphere in Europe. Right-wing populist parties have increased their vote shares and disrupted traditional political systems. Simultaneously, there has been a highly unequal surge in housing prices, creating a wealth boom in some areas, while leaving other areas behind. Focusing on four Nordic countries, this paper connects these two developments and shows that areas which did *not* experience a surge housing prices became the strongholds of the right-wing populist parties.

Why are housing prices linked to the electoral fate of right-wing populist parties? We have argued that dissatisfaction with being left out of the housing boom leads to a rejection of mainstream political elites and their cosmopolitan values, which, in turn, makes the more socially conservative and welfare chauvinistic right-wing populist parties more palatable. This dissatisfaction can both be motivated by *pocketbook* concerns, where people object to being personally left out of the housing wealth boom, and *geotropic* and *mobility* concerns, whereby people object both to their community being 'left out' and to their being 'locked out' of booming regions. While we have not

been able to fully adjudicate between these three causal channels, we have shown that homeowners are most strongly affected by house price changes, suggesting that the concerns people have are not purely *geotropic*.

While we have shown that the results are consistent across the Nordic countries, one may wonder whether this is a more general phenomenon. We have good reasons to suspect that the patterns are found in many wealthy democracies, particularly in Europe. The Nordic world is not alone in experiencing a geographically uneven surge in housing prices. In fact, some of the largest increases in house prices in later years are found in Budapest and Warzaw (Linhart et al. 2020). This suspicion is supported by recent empirical studies. Adler and Ansell (2020) show that stagnating house prices are related to right-wing populist voting in France and the UK, while other studies have found that a negative shock to the level of wealth is related to populist voting in Eastern Europe, particularly in Poland and Hungary (Ahlquist, Copelovitch and Walter 2020; Gyongyosi and Verner 2020). Furthermore, the home ownership rate in Denmark is low in an European comparison (Eurostat 2020). This, combined with the finding that the effect is more pronounced amongst home owners, lead us to speculate that the association might be stronger in other European countries.

In other wealthy democracies the patterns we demonstrate may be less pronounced. Germany, for example has not experienced the same stark, but unequal surge in housing prices as elsewhere in Europe. Other countries lack a tradition of right-wing populism. Countries such as Canada and Australia have little experience with populist parties, while other countries, mainly in Latin America, mostly have experience with left-wing populist parties. These countries may, at least for now, be outside our scope of inference.

The results in this paper might seem surprising in light of earlier research which has found limited support for the notion that economic deprivation fuels support for populist causes (Mutz 2018). However, the places which are left out of the housing wealth boom are not economically deprived in a traditional sense. In Denmark, for instance, comparing the zip codes with the 10 percent most and least expensive housing we find minimal differences in unemployment, and median

income differing only by € 6,000, less than one standard deviation.

Rather than a traditional economic divide between 'haves' and 'have nots', the divide over housing wealth is a division within the middle class. Political scientists have in recent years begun to examine political splits within the middle-class, typically in terms of their labor market status, for example their employment trajectories (Kurer 2020) or whether they work in the private or public sector (Rosenfeld 2020). We argue that relative wealth matters too in splitting the middle class and that homeowners cannot simply be lumped together. Someone buying a median house in 1998 in central Copenhagen would have seen her housing wealth increase by € 400,000 by 2015, adjusted for inflation. By contrast in Næstved, one hours drive away, they would have made just € 2,400. Our findings thus reflect a voter response not to economic deprivation per se, but rather to the massive and rapidly increasing wealth inequality that characterizes the past two decades in the industrialized world. The new salient political split of the coming years may not be between workers and managers but instead between a provincial 'petite bourgeoisie' and an urban 'bohemian bourgeoisie'.

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sity of Warwick, University of Chicago, University of Bonn, the LSE, University of Geneva, the Institute for Advanced Study in Toulouse.

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