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HOUSING AND POPULISM

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Abstract: In the last half-decade, populism has become a trademark of western politics. Much literature has been devoted to explaining the rise in populism and most researchers tend to focus on macroeconomic shifts and trends, often overlooking the impact of house price developments on populist appeal at the individual-level. While many researchers realize the great explanatory value of house prices on left-right policy preferences, little research has been done on the relationship between populism and house prices. In this thesis, we apply panel data methods to examine the effect of house prices on populist appeal through a causal mechanism of temporal and geographical relative deprivation. We find no significant evidence that house price decreases lead to rising populist sentiment when controlling for homeownership, present residential area, immigrant background, age, gender, education, and income. Nonetheless we ascertain that age and immigrant background are significant for determining populist sentiment, while education and income do not seem to have an effect contrary to existing literature.

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1. Introduction

In the last half-decade, one of the most notable political developments has been the resurgence of populist parties, mobilizing against cosmopolitan attitudes, elitism, immigration and multi-ethnic societies. Such parties have grown increasingly active increasingly active in several European countries, often securing vote shares that exceed 10 percent, and sometimes even 20 percent (Rydgren 2012, 2018). Examples comprise far-right parties in France and Sweden, ethno-nationalist parties in Poland and Hungary, and far-left parties in Greece and Spain (Margalit 2019). Democracies in general have become more polarized and favourable to populist candidates: Donald Trump's election in the United States, and Britain's decision to exit the European Union emphasize these trends in particular (Adler and Ansell 2020).

The widespread and seemingly growing appeal of populism has sparked debate over both its causes and consequences, generating a large and growing literature. To explain the emergence of populist parties, some scholars have examined economic factors that inflate workers' sense of exclusion in the post-industrial economy (Adler and Ansell 2020), stressing the importance of trade (Colantone and Stanig 2018; Rodrik 2018; and Zaslove 2008), education (Guiso et al. 2017), and employment insecurity (Vlandas and Halikiopoulou 2018; Jackman and Volpert 1996). Other scholars have argued that populism represents a cultural backlash against increasing levels of immigration, ethnic heterogeneity, and cosmopolitan attitudes across industrialized democracies (Norris and Inglehart 2019; Goodwin and Milazzo 2017; Gidron and Hall 2017; Coffé, Heyndels and Vermeir 2007). Past research has also explored the relative importance of political institutions such as electoral system type and party fragmentation (Mudde 2001; Mény and Surel 2002; Golder 2003). Despite different analyses examining material (economic and political) contra cultural forces, there is broad consensus that the populist revolt represents a vocal minority of people 'left-behind' (Becker, Fetzer and Novy 2017).

While recent literature has coalesced to identify both material and cultural forces explaining rising populist sentiment, including increased import competition, technological change, the financial crisis, and immigration (Margalit 2019), existing research has almost entirely overlooked the single most important determinant of everyday individual welfare and the leading cause of macroeconomic volatility during the last two decades: housing (Adler and Ansell 2020). Rising housing prices in the early 2000s precipitated the financial crisis in 2008, demonstrating that asset markets, including housing, have been remarkably volatile, bearing serious effects on labour market

outcomes (Stroebel and Vavra 2019). Moreover, the distribution of economic winners and losers has been largely determined by the housing market. With increased urbanization, metropolitan areas have seen a residential influx, leading to rising housing demand and higher housing prices (van Doorn, Arnold and Rapaport 2019). While homeowners in metropolitan areas have captured economic gains, homeowners in areas of industrial decline have seen relative deprivation of economic capital from stagnating or deflating housing prices. Indeed, wealth inequality is much higher than income inequality in a majority of European countries (Sierminska, Brandolini and Smeeding 2006).

However, there is limited research about the relationship between housing market booms and busts and the relative success of populist parties (Adler and Ansell, 2020). Although there is extensive literature addressing the housing market and the financial crisis (Rajan 2010; Keys, Piskorski, Seru and Vig, 2013) as well as the financial crisis and the emergence of populist parties (Funke and Trebesch, 2017), there is limited literature examining the relationship between housing market dynamics and the emergence of populism. This thesis aims to further reduce that gap in the literature. Firstly, we make use of longitudinal panel data, allowing for causal inferences. Secondly, the data is individual, allowing us to control for the relative deprivation effect on both the individual- and group level in Sweden.

As such, our research question is: *do housing price decreases lead to increased populist support?* Considering the theory of relative deprivation as a driving factor of populism (Adler and Ansell 2020), our hypothesis is that house price declines should generate increased populist support. The theory posits that an individual is more prone to voting populist if they feel that their social group has lost political, social or economic influence compared to a previous timepoint, often times at the benefit of other groups. This effect exists on two levels. On the individual level, homeowners in areas of house price decline or stagnation will be prone to vote populist. On the group level, seeing as house prices reflect the general local economic health (Miller, Peng and Sklarz 2011), all inhabitants of a region suffering from house price decline, regardless of tenancy, will be prone to vote populist.

We use SNES panel data for the periods 2006-2010 and 2010-2014 and housing price increases from Statistics Sweden for the periods 2002-2006, 2006-2010, and 2010-2014. We observe individual *i* in 2006 and 2010 and individual *j* in 2010 and 2014 and their respective SD party sympathy and SD votes in those years with respect to whether they were homeowners in those years. We use panel data methods – fixed and random effects – to relate this to the change in house

prices from 2002-2006, 2006-2010, and 2010-2014 in the municipalities where individuals *i* and *j* live during those respective years. We control for homeownership, present residential area, immigrant background, gender, age, education, and income. Given that we do not control for wealth and that income is an imperfect proxy, we find that our model suggests no significant evidence that house price decreases lead to rising populist sentiment in Sweden. However, we do find that age and immigrant background are significant for determining populist sentiment while education and income do not seem to have an effect contrary to existing literature.

The next section (section 2) provides background information regarding populism as well as recent Swedish housing market developments. Section 2 is followed by a literature review (section 3) of the relationship between housing market dynamics and populism. Section 4 describes the data, section 5 covers the method, section 6 displays the results, section 7 discusses the method and the results, and, finally, section 8 provides a conclusion with suggestions for future research.

2. Background

2.1 Populism and recent developments

Populism has no single fixed definition and is a generally contested concept (Mudde 2004) for reasons including that populism carries a pejorative connotation and that its adherents rarely describe themselves as such (Canovan 1981). Populism also tends to be equated, and sometimes conflated, with certain regional phenomena: xenophobia and anti-immigration in Europe, clientelism and economic mismanagement in South America, and protectionism and social conservatism in the U.S. (Mudde and Kaltwasser 2011). Mudde and Kaltwasser (2011) define populism as a "thin-centred ideology that considers society to be ultimately separated into two homogenous and antagonistic camps, 'the pure people' versus 'the corrupt elite', and which argues that politics should be an expression of the *volonté générale* (general will) of the people." While populist parties may pursue differing policy objectives, they broadly oppose existing political elites and institution, claiming to defend the 'common man' against the 'establishment' and outsider groups, many times immigrants and other minorities (Adler and Ansell 2020; Mudde and Kaltwasser 2011). Critics of populism, however, say that populists subvert democratic norms, be it through undermining the media, infringing on the sovereignty of the judiciary system, or eroding minority rights (Lewis, Clarke, Barr, Holder and Kommenda 2018).

In 1998, populist parties accounted for 7% of the votes across the European continent. In 2018, one in four Europeans supported populists, meaning that populism has more than tripled its support in two decades' time. During this period, the number of Europeans with a populist party in their country's ruling cabinet went from 12 million to over 170 million. This development is not limited to Europe: of the world's seven greatest democracies, populists have been elected to executive office in four: India, Brazil, Mexico, and the Philippines. The number would have been five, had it not been for Joe Biden's victory over Donald Trump in the 2020 U.S. election. Cas Mudde, a political scientist at the University of Georgia, ascribes the populist rise in Europe three principal reasons: the 2008 great recession, which spawned a number of left-wing populists in southern Europe, the refugee crisis of 2014-2019 which fueled the cause of the protectionist right-wing populists, and the transformation of established political parties into populist parties—examples include Fidesz in Hungary and Law and Justice in Poland (Lewis, Clarke, Barr, Holder, and Kommenda 2018).

Seeing as this is a continent-wide development, Scandinavia is not excluded. In Finland, the right-wing populist Finns (formerly the True Finns) were in cabinet from 2015 to 2017, when internal differences split the party (Lewis, Clarke, Barr, Holder and Kommenda 2018). In 2013, the Norwegian right-wing populist Progress Party formed a coalition with the ruling Conservative Party and have been in cabinet ever since (Mudde 2007; Solberg 2018). In Sweden and Denmark, the established parties have isolated the right-wing populists and maintained a *cordon sanitaire* through minority coalitions, although the right-wing populists have forced the opposition to 'tighten their belt' on immigration, granting them what some pundits have called an ideological victory (Teitelbaum 2018; The Economist 2018).

2.2 The Swedish political scene

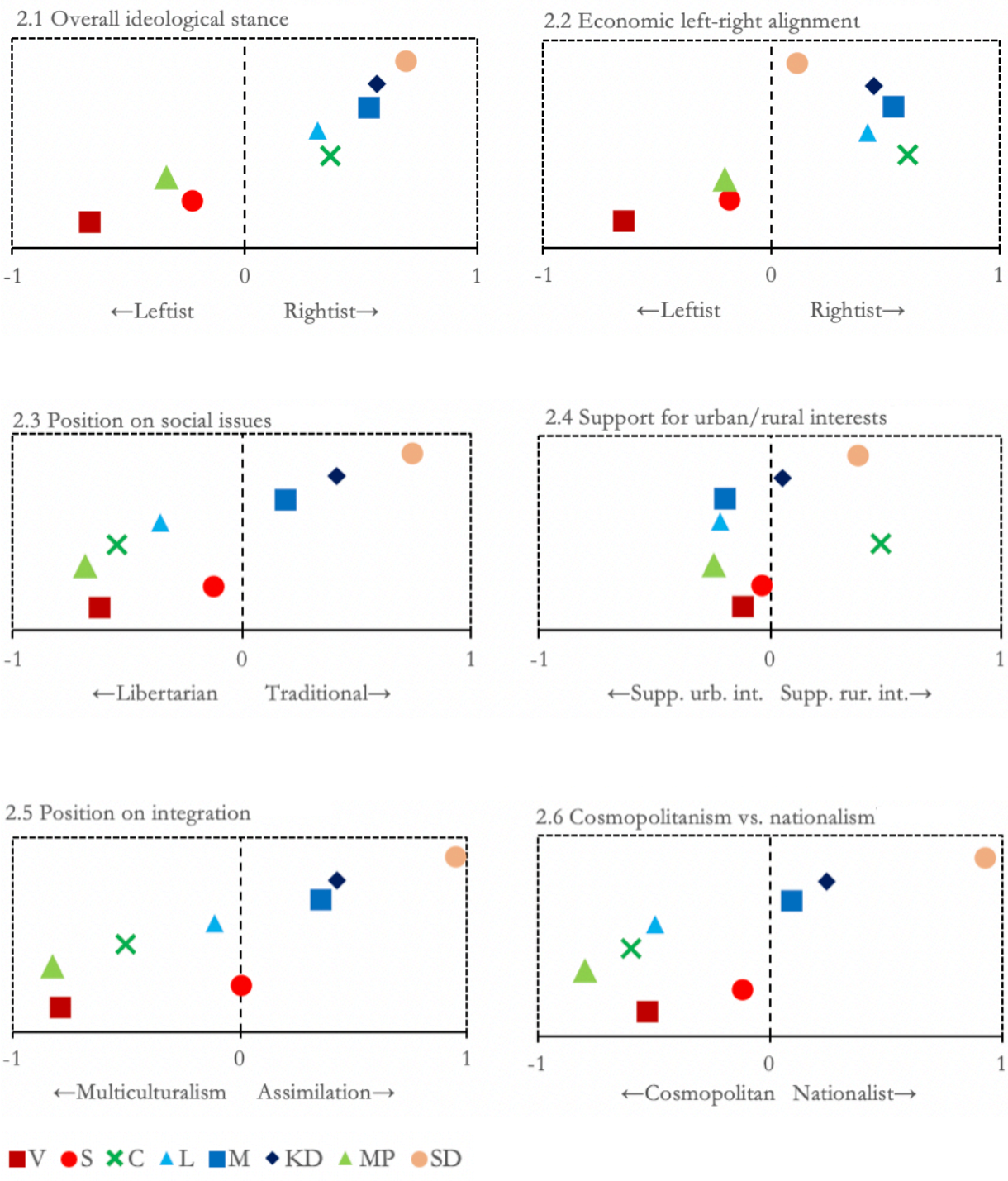
Sweden has a multi-party system, in which no one party tends to win by themselves; there has only been two occasions since 1911 in which one party gained more than 50% of the vote: in 1968 and 1940, both times Social Democratic victories (Statistics Sweden 2014). Instead of pursuing one-party rule, the parties form coalition governments. Today's constellation of parties, discounting the recent upswing of the Sweden Democrats, came about in the election of 1994, and has remained the same since. Since 2004 up until the last election of 2018, two coalitions were clear-cut: the Social Democrats, together with the Green Party and the Leftist Party constituted the center-left "Red-Green" coalition, while the Moderate Party, the Christian Democrats, the Liberals and the Centrist Party constituted the center-right "Alliance" (Alliansen 2004). As the Sweden Democrats have gained support, however, the parties have become increasingly reliant on cross-coalitional cooperation to maintain the *cordon sanitaire* towards SD (Aylott and Bolin 2018). As such, since 2018, the cabinet consists of the Social Democrats and the Green Party, with the Liberals, the Left Party and the Centrist Party as confidence and supply parties. This situation does not only reflect the rise of the Sweden Democrats, but also a general rightward shift of the policy positions of the Swedish public (Statistics Sweden 2014).

Swedish elections occur every four years, with elections for its 290 municipalities, 20 counties, and the nation. All elections take place on the second Sunday in September. The turnout is usually between 80 and 90 percent (Statistics Sweden 2014). From the election results 13,000 municipal-council members, 1,100 county councilors, and 349 members of parliament are appointed.

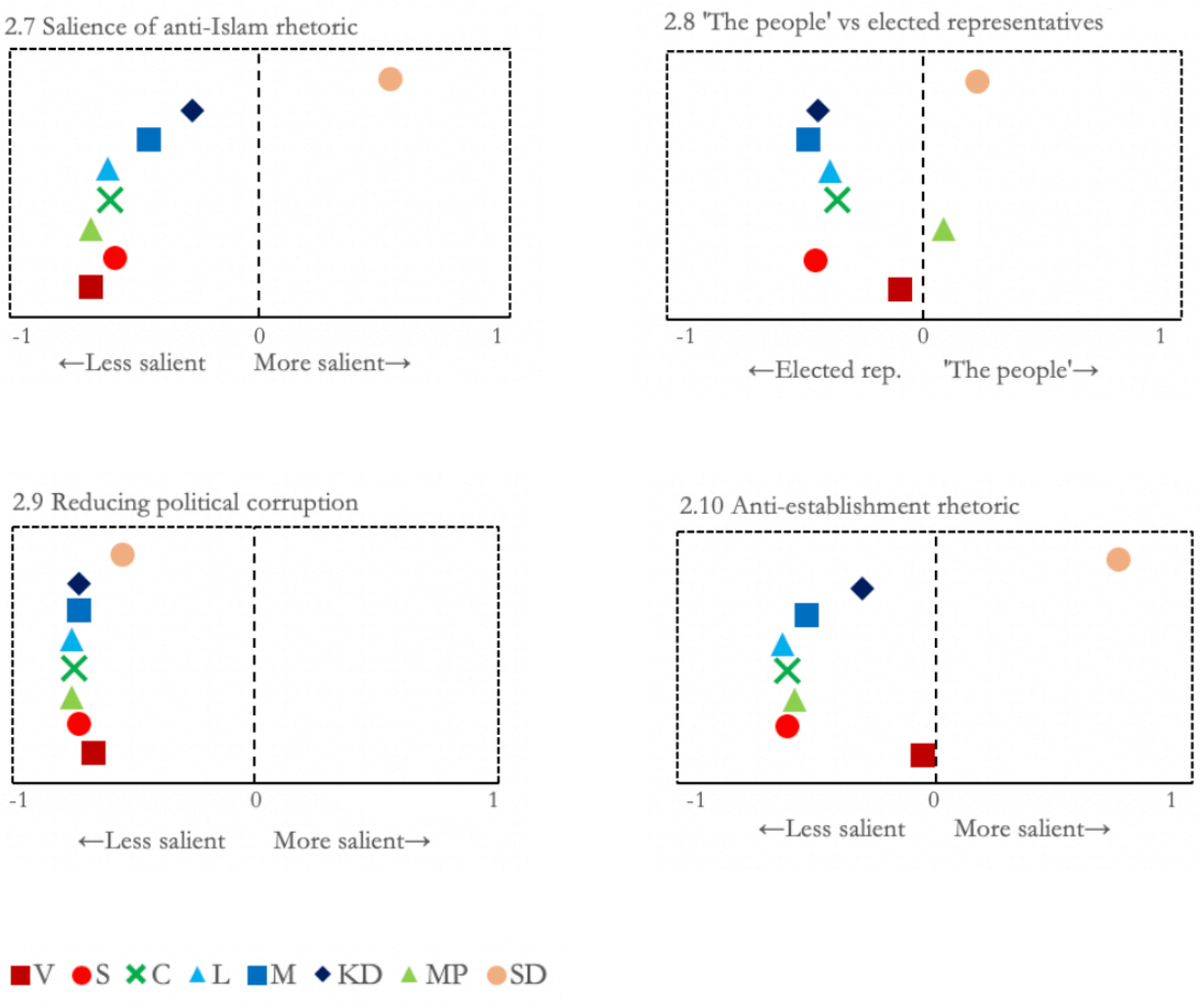
2.3 The Sweden Democrats

The Swedish political scene has over the past three decades witnessed the rise of the Sweden Democrats, a party with its roots in the neo-Nazi movement of the 1980's and -90's. Founded in 1988, their original founders had previously associated themselves with nationalistic and racist organisations like the Progress Party, the Sweden Party, the Swedish white power-movement and Keep Sweden Swedish (ETC 2014). Since the outset, the party has experienced an increasing growth, entering the Riksdag, the national legislature of Sweden, in 2010, and the EU parliament in the subsequent election of 2014 (Statistics Sweden 2014). Today, it is the third largest party in the Riksdag, with 17.5% of the national vote and 62 out of 349 seats in the chamber (Valmyndigheten 2020). Historically, they have defined their ideology as nationalistic (Sverigedemokraterna 2005). In 2011, however, they redefined their ideology to be a "social conservatism with a nationalistic baseline" (Sverigedemokraterna 2011). In their party programme, they establish their principal aim of maintaining social conservatism and safeguarding the welfare state, which generally includes health care, education and the economic safety net (Sverigedemokraterna 2019; Nationalencyklopedin 2021). Several pundits and political scientists have placed the Sweden Democrats in a right-wing populist family of parties (Elgenius and Rydgren 2019; Jungar and Jupskås 2014; Mudde 2018). Furthermore, through questioning of hundreds of political scientists and integration experts in the Chapel Hill Experts Survey (CHES), Polk et al. (2015), Polk et al. (2017) and Polk et al. (2020) collect policy and ideological stances of European political parties. They identify the Sweden Democrat's, along with the other parties', positions on several issues and political dimensions over the past three elections. Some key issues are illustrated in Figures 2.1 through 2.10.

Figures 2.1 – 2.10: 2019 CHES Swedish party positions



Notes: Figures 2.1 – 2.10 illustrate data from the 2019 Chapel Hill Experts Survey (Polk et al. 2020) and cover the economic, political and ideological positions of parties in Sweden. For Figure 2.2. Economic left-right alignment, parties are categorized according to ideological stance on economic issues including privatization, taxes, regulation, government spending, and the welfare state. Parties on the economic left want government to play an active role in the economy. Parties on the economic right want a reduced role for government. For Figure 2.3 Position on social issues, parties are categorized according to views on social and cultural values. Libertarian or postmaterialist parties favor expanded personal freedoms, for example, abortion rights, divorce, and same-sex marriage. Traditional or authoritarian parties reject these ideas in favor of order, tradition, and stability, believing that the government should be a firm moral authority on social and cultural issues.

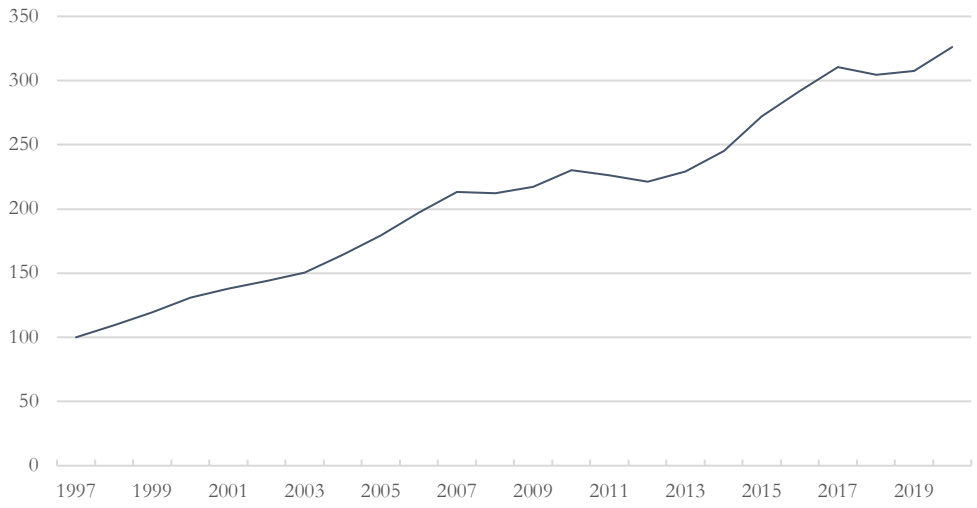


The data helps in the contextualization of the Swedish political scene. Looking at the hallmark signs of European populism—the position on 'the people' versus elected representatives, the anti-Islam rhetoric, the resistance towards multiculturalism, and the salience of anti-establishment and anti-elite rhetoric—the data from Polk, et al. (2020) illustrated in the figures above seems to be in concurrence with the consensus that the Sweden Democrats belong to a right-wing populist family of parties (Elgenius and Rydgren 2019; Jungar and Jupskås 2014; Mudde 2018). While the salience of corruption in SD's political discourse is the highest of all parties, it is still comparable to the rest of the parties, most likely because Swedes do not perceive their public sector as corrupt, and as a result, basing policy and discourse on corruption would not win constituents (Transparency International 2020). The values returned for the left party and environmental party also seem to suggest that there is a degree of populism in their parties, although there is no literature concretely defining them as such.

2.4 Housing market developments in Sweden

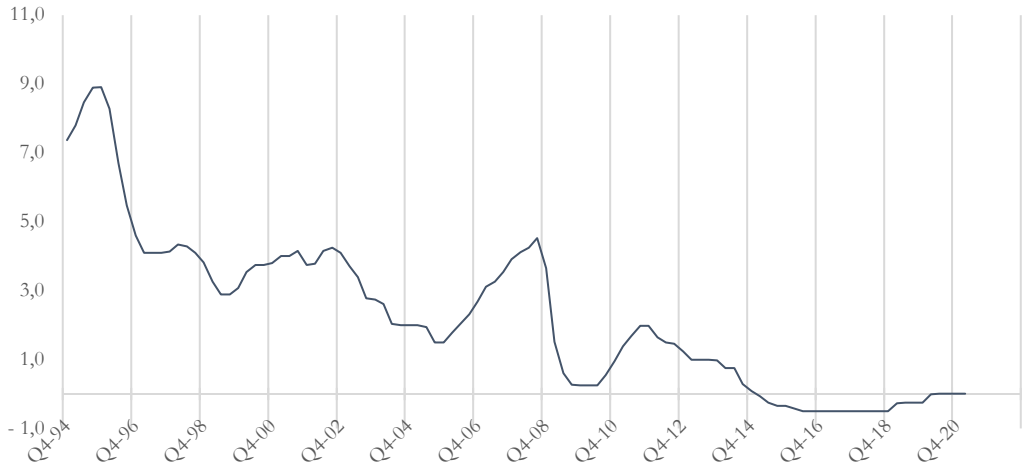
Housing prices in Sweden have consistently broken historical highs over the past 10-15 years. Since after the Swedish housing crash of 1990-1994, house prices have more than doubled, real single-family house prices have more than tripled, and the price increase has been even greater for tenant-owned apartments (Statistics Sweden 2021). Some extreme examples can be observed in the greater cities: In a decade, from 2006 and 2017, square meter prices in the inner city of Stockholm more than doubled, from 45 000 kr/m2 to 92 000 kr/m2; and in central Gothenburg during the same period, square meter prices went from 27 000 kr/m2 to 61 000 kr/m2 (Svensk Mäklarstatistik 2021). In contrast, real house prices fluctuated around a roughly flat long-term trend between the early 1950s to the mid-1990s, at which point the Swedish housing market experienced an exceptionally long and strong boom in house prices following the 20 percent downturn of prices during the housing crash of 1990-1994 (Statistics Sweden 2020). The boom was interrupted by the economic crisis of 2008-09, causing a temporary downturn. However, the market recuperated, and housing prices bounced back, quickly outperforming pre-crash levels (Svensk Mäklarstatistik 2021). The outbreak of the COVID-19 pandemic did little stifling of the trend, only causing a slight downturn of the prices during the first half of 2020. Figure 2.11 shows the property price index for sold one- and two-dwelling houses from 1997 to 2020.

Figure 2.11: Property Price Index for sold one- and two-dwelling houses (1997=100)



Source: Statistics Sweden (2021)

Figure 2.12: Official Swedish Bank Rate 1994-2020



Source: Swedish central bank (2021)

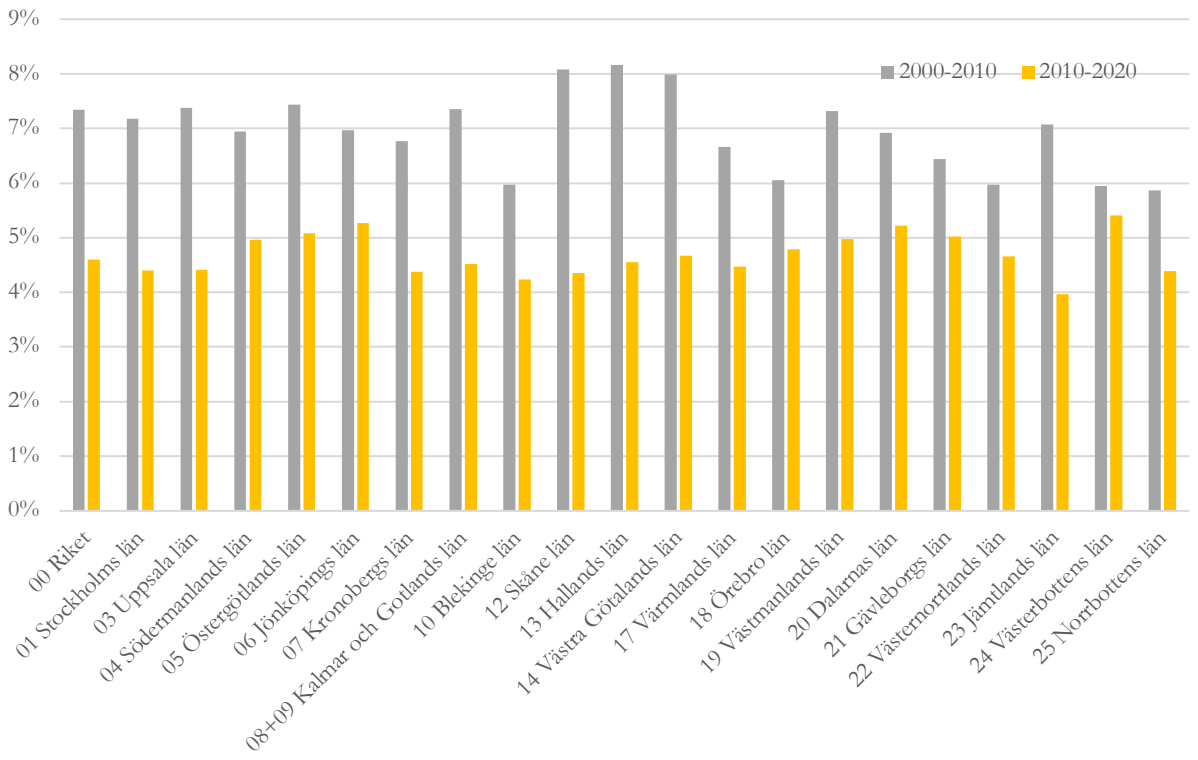
The real house price increase that has affected Swedes since the mid-90's is most commonly attributed to an increase in population density and heightened immigration. However, according to Leonhard (2013), that is not the main factor, or at least not before 2013. Many municipalities have since long reported a shortage of housing (Boverket 2019), but first and foremost, the housing price increase is attributed to an increase in average income. As individuals become wealthier, they want to consume more, bigger and more expensive dwellings, which has driven the great increase in demand (Leonhard 2013). The development of the house prices post-2013 is primarily attributed to the artificially low, declining interest rates displayed in Figure 2.12, which have incentivized mortgage-taking and high indebtedness (Bruzelius 2019). Essentially, house prices have been propped up by bank-created, debt driven purchasing power. Other driving factors for house price increases, which also tend to correlate with low interest rates, are high expectations of the housing market and increased incomes (Bruzelius 2019). Likely brakes on the house price growth rates are recently implemented macro-prudential policies like the loan-to-value cap of 85% since 2010 and the amortization requirements in 2016 and 2018 (Finansinspektionen 2010, 2016, 2018).

2.5 Are there housing winners and losers in Sweden?

In 2019, Sweden had a homeownership rate of 63.6%, meaning that 63.6% of dwellings were owner-occupied (Eurostat 2021). In Europe, that places the country on the 6th lowest rate, followed by France and the U.K. This ratio of Swedish homeowners have had their household balance sheets affected directly by the housing price developments of recent years. And while the average

homeowner has been positively affected, there are variations. No municipalities have experienced a stagnation or deflation of their real house prices, but different regions have experienced different rates of house price growth, as shown in Figure 2.13.

Figure 2.13: Average yearly percentage change of house price index 2000-2020



Source: Statistics Sweden (2021)

As the name suggests, the theory of relative deprivation, the core theory of this paper, concerns itself with *relative* levels of development. This means that even in times of country-wide economic prosperity, if the spread in prosperity is great enough, individuals or communities in the bottom percentiles can feel deprived. Looking at Figure 2.13, the spread of house price growth rates in Sweden's counties from 2010-2020 is double that of 2000-2010 (Statistics Sweden 2021), meaning that the gap in growth rates from top performers to bottom performers has increased over the past 10 years. Seeing as some counties' growth rates have increased by several percentage points, like Skåne county and Halland county (containing Malmö and part of Gothenburg, respectively) while others have remained largely the same, like Norrbotten county, there is a case to be made that the housing market has rendered some homeowners losers and others winners.

3. Literature review

3.1 The link between housing and economic policies

Social science housing research has seen growing interest over the past four decades. Kemeny (1981) posited a macro-level trade-off between homeownership and the welfare state. In the paper, he argues that homeowners face a front-loading of costs which naturally puts them in a classically liberal fiscal position: they are in favor of high inflation (diminishing value of debt and higher capital gains on the home) and low taxation (because of their high housing costs). The findings of André and Dewilde (2014) and Ansell (2014) support this hypothesis and demonstrate not only that homeowners are less supportive of redistribution, but that lower age, greater extent of financialization and lower income lead to increased support of redistribution. This is, according to the authors, due to the home functioning as an asset contributing to the owner's total wealth, which is something Nadeau, Foucault, and Lewis-Beck (2010) dub a *patrimonial* (ownership) mechanism. In their studies, they find a strong correlation between high-risk assets and rightist preferences in three studied elections in France between 1978-2002. Furthermore, Jiang (2018) provides evidence that economic self-interest associated with homeownership affects voter turnout in local elections in the United States. In general, the existing literature points to the home functioning as a part of an individual's total wealth, which, to a degree dependent on their indebtedness, leads them to have rightist fiscal preferences.

3.2 The complexity of populism

The findings so far have mostly focused on economic self-interest or material issues, what Adler and Ansell (2020) call the first dimension of policy issues. These serve as indicators of an individual's position on the left-right spectrum. But populism resists the left-right classification (Mudde and Rovira Kaltwasser 2011). Instead, Mudde and Rovira Kaltwasser stipulate that the core belief of populism is that of a society divided into two camps: the 'pure people' versus the 'corrupt elite'. Indeed, populist parties have existed on both the left, right and center of the political spectrum (Ucen 2004; Munro 2020). In the U.S., identity issues like ethno-nationalism, anti-immigration and anti-Europeanism are at the forefront; in Europe, the policies tend to be centered around multiculturalism and immigration; and in South America, the left-wing populist message is mostly about corruption and, in the northern countries, subordination to the U.S. (Mudde 2007). As a result of this variation, when populism is in play, individuals may vote against their economic

self-interest because their reasons transcend the classical reasons of rational greed (Kitschelt and Rehm 2014). A famous example of this is the 2016 U.S. election where a great number of working-class Americans voted for Donald Trump, a billionaire candidate from the Republican party, the members of which are renowned for their opposition to redistribution and their fealty to classical liberalism (Encyclopaedia Britannica 2021).

Why, then, do people vote for populists? Social phenomena tend to be complex and enlist a pluralism of explanations, rather than one single factor. As such, multiple theories on the reasons behind the populist appeal exist. On a group level, one can look at economic changes for a simple explanation. Autor, Dorn, Hanson and Majlesi (2020) propose trade shocks as a possible reason. The authors show that a simulated smaller trade shock from China's entrance of the WTO 2001 would have resulted in a democratic Pennsylvania, Michigan and Wisconsin in the 2016 U.S. election, rendering Hillary Clinton victorious. Colantone & Stanig (2018) draw similar conclusions from import shock effects on the Brexit referendum of 2016. Looking at unemployment, Algan, Guriev, Papaioannou, and Passari (2017) find that a decrease in employment rate lead to a substantial increase of the percentage of leave votes in the Brexit referendum. Related to this, Scheve and Slaughter (2001) observe a correlation between low-skilled natives and immigration resistance and argue that the correlation is due to concerns over labor market competition and employment insecurity. Reiterating Luce (2017) who sums it all up, it seems that, in general, populism in the U.S. and E.U. is a symptom of a larger development in the global economy: growing downwards pressure on the western middle class following the 2008 financial crisis, globalization and the shift of the economic center from west to east has eroded the security of the once healthy middle-class. As a result, individuals in the middle-class have had to readjust their expectations of income, welfare, retirement, and the cost of education and housing (Luce 2017).

Margalit (2019), however, contends that the aforementioned traditional economic reasons for populism are superficial, and only possess *outcome* significance, meaning that they explain, for instance, only the extra 3.8% of "Leave" votes which resulted in Brexit, or the added slight percentage margin which let Rassemblement National enter the second round of the 2017 French national elections. They do not, according to Margalit (2019), possess *explanatory* significance, meaning that they do not explain the base 48% of Leave voters, or base 20% of RN voters, and hence do not explain the reasoning and motivations of the average populist voter. Instead, the author lends credence to "soft" explanations, like cultural grievances, and stresses that cultural grievances lead to a stronger sense of economic dissatisfaction (Sniderman and Hagendoorn 2007;

Brader, Valentino, and Suhay 2008; Margalit 2012). Examples of these cultural grievances include anxiety over changing demographics and a declining predominance of white people, as well as a 'dilution' of native culture (Kaufmann 2018). Authors like Eribon (2013), Cramer (2016) and Gest (2016) show that cultural distance from the most influential groups of society feeds into individuals' sense of being economically left behind or deprived, which results in, for example, a resentment towards the 'cosmopolitan elite' and a belief that immigrants place a great burden on the national budget. In this case, however, there is an issue of selection effects which has not been completely examined—it is not clear whether worsened *economic* circumstances lead to increased *cultural* grievances, or if worsened *cultural* circumstances lead to increased *economic* grievances. In any case, the existing literature on populism suggests that the populist rationale is part about peoples' sense of economic insecurity, and part about being relegated to the economic, political and cultural margins of society.

3.3 Relative deprivation and the housing market

Capturing both economic and cultural grievances, the findings of Gest, Reny and Mayer (2017) give support for the theory of relative deprivation. On an individual level, asking U.S. and U.K. citizens, Gest, Reny & Mayer (2017) find that support for the Republican party, the Tea Party, UKIP, the BNP and a theoretical populist party is driven by a sense of economic, social and political deprivation; relative to thirty years back, voters of these parties feel like their social 'group' (e.g. white, rural men) is worse off financially and possesses less political influence. These perceptions of deprivations were all intercorrelated. With a democratic ideal being progress —an example is the American dream that one should do better than your forbearers (Barone 2021)— it is no surprise that populists use nostalgia in their messaging as a tool for winning constituents who may feel deprived (Mudde 2004).

How does this relate to housing? As previously mentioned, the house functions as an asset in the total wealth of an individual homeowner (André and Dewilde 2014; Ansell 2014). Consequently, on an individual level, house price changes result in wealth changes, which, according to the theory of relative deprivation, lead to changes in populist appeal. Adler and Ansell (2020) find that a deflation of a home's value results in an increased populist appeal on an individual level. Furthermore, they find a relation between house prices and populist appeal on a *geotropic* level, meaning that the effects carry onto other local non-homeowners. House prices are related to consumer confidence and, in extension, consumption, due to the wealth effect (Case, Quigley and

Shiller 2001). House prices are thus closely linked to economic growth, and in the case that Miller, Peng and Sklarz (2011) put forth, they influence the *local* economy. Following this logic, Adler & Ansell (2020) posit that the house prices of a region serve as a proxy for the region's economic prosperity and health. Their findings lead them to conclude that if a region suffers from house price stagnation, a geotropic "splash" effect renders the inhabitants more likely to vote for a populist candidate, regardless of them owning a house or not. Furthermore, considering the "soft" cultural issues proposed by Margalit (2019), an argument is to be made that house prices not only capture local economic health, but also local cultural prosperity. Housing demand does not only reflect job opportunities but also attitudinal and lifestyle choices of the population. Consequently, housing demand, in extension, reflects a cultural attraction (Boyd 2021). Regions suffering from a cultural decline will by this logic see an effect on the house prices, although there is currently very little empirical analysis on the subject.

4. Data

To establish a relationship between housing and populism, we required available and comprehensive housing data on the municipal level and electoral and party preference data with a salient populist dimension. As such, we analyse local economic conditions and voting behaviour in Sweden from 2006-2014. Low levels of income inequality and a strong welfare state make Sweden a fitting case to examine when investigating the relationship between economic decline and populism. Sweden has also experienced an increase in housing prices and populist support that is geographically disproportionate.

Party system fragmentation has become a symptom of Nordic politics since the 1970s, with the emergence of right-wing populist parties as well as Green and Christian parties. Nordic party systems have thus diverged and are at present like other Western multi-party democracies. In Sweden, party system fragmentation has welcomed the Sweden Democrats (Swedish: *Sverigedemokraterna*, SD). We have selected the SD as the populist party based on Elgenius and Rydgren (2019), Jungar and Jupskås (2014), and Mudde (2018) as well as the CHES classification (see figures 2.1-2.10 in section 2.3) which identifies policy positions that would render said party as right-wing populist. This selection will be tested, however, through correlations between party liking and agreeing with hallmark populist statements (see appendix). The traditional anti-establishment profile of the SD, prominently exemplified through their isolation in the Riksdag by other parties' joint policy of non-cooperation, presents a legitimate choice for voters seeking to express political discontent. Although the Christian Democrats (Swedish: *Kristdemokraterna*, KD) and the Moderate Party (Swedish: *Moderaterna*, M) signaled an end to this unofficial *cordon sanitaire* and began negotiations with the SD following the 2018 election and the subsequent disintegration of the center-right Alliance, the SD remain a highly divisive party when invoked in policy discourse.

4.1 The Swedish National Election Studies (SNES) data

The Swedish National Election Studies Program (SNES) at the University of Gothenburg was established in 1954 to investigate electoral democracy, representative democracy, opinion formation, and voting behaviour. SNES has administered surveys of the Swedish electorate every election year since 1956. Studies have also been conducted to address referenda outcomes in 1957, 1980, 1994, and 2003, and also each election to the European Parliament since 1995. All studies are based on large samples, between 3000 and 4000 persons, and have low levels of non-response.

For this reason, the Swedish election studies are among the most comprehensive material for systematic studies of voting behaviour.

We use SNES data from 2006 to 2018. This data consists of two-wave panels, with half of the sample surveyed twice and the other half of the sample changing in each wave. Data collection is conducted both before and after each election. This rotating panel structure allows us to control for individual fixed effects as well as time trends in the preferences for party choice during this period. As such, we can see how housing prices causally affect support for the SD. In 2018, the survey was redesigned, and the authors decided not to reinterview the first-wave respondents from 2014. Consequently, we have two survey sets which are panel data and include a prominent enough populist appeal to analyze, 2006-2010 and 2010-2014. The 2018 SNES is cross-sectional, but has a greater set of populist identifiers, so that is used for the initial correlations.

To draw causal inference from estimated relations, we require an exogeneity assumption that the identifying variation is not systematically related to the outcome of interest. We therefore have to pay attention to one particular problem: estimates of the effect of housing prices on SD support may capture omitted factors affecting both the dependent and independent variables. For example, wealthier individuals are more likely to live in a more affluent residential area and are therefore less likely to prefer anti-establishment parties. A clear advantage that addresses this second concern is that we use panel data as opposed to cross-sectional or repeated cross-sectional data on individual preferences. Panel data allows us to control for individual factors that are constant over time.

4.2 Housing price data

Our primary data on housing prices is made available by Statistics Sweden (Swedish: Statistiska Centralbyrån). More precisely, we look at average prices for all sold one- and two-dwelling buildings on a county level. A data limitation that follows from this selection is that the data does not capture the price developments of apartments in multi-dwelling buildings, which comprise 20% of all owner-occupied dwellings. This limitation, however, is mitigated by the fact that the price developments correlate by a factor of 88.2% with the data from Swedish Brokerage Statistics (Swedish: Svensk Mäklarstatistik). Swedish Brokerage Statistics receive reporting from all Swedish brokerage firms on sale prices, including apartments, and SBS collaborate with Statistics Sweden (Swedish: Statistiska centralbyrån, SCB), who control data quality and produce publications. The reason why we chose the Statistics Sweden data on average prices for one- and two-dwelling

buildings as our primary data instead of the data from SBS is because the data from Swedish Brokerage Statistics is only comprehensive enough in 125 out of 290 municipalities.

4.3 Variable descriptions

We observe individual *i* in 2006 and 2010 and individual *j* in 2010 and 2014 and their respective SD party sympathy and SD votes in those years with respect to whether they were homeowners in those years. We relate this to the change in house prices from 2002-2006, 2006-2010, and 2010-2014 in the municipalities where individuals *i* and *j* live during those respective years.

Table 1. Descriptive Statistics

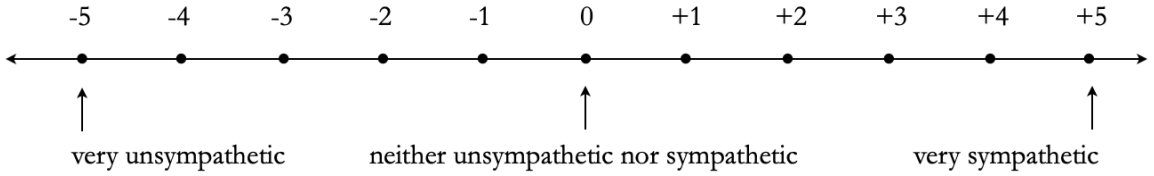
Variable	Obs	Mean	Std. Dev.	Min	Max
Party sympathy					
SD	3596	-3.311	2.582	-5	5
C	3634	.412	2.291	-5	5
M	3687	1.028	3.022	-5	5
V	3645	-.918	2.834	-5	5
L	3651	.622	2.358	-5	5
S	3699	1.038	2.613	-5	5
MP	3678	.533	2.668	-5	5
KD	3641	-.168	2.437	-5	5
Party choice					
V	4388	.054	.225	0	1
S	4388	.326	.469	0	1
C	4388	.066	.248	0	1
L	4388	.072	.258	0	1
M	4388	.28	.449	0	1
KD	4388	.054	.226	0	1
MP	4388	.082	.275	0	1
SD	4388	.046	.21	0	1
Present residential area					
Rural area	5011	.169	.375	0	1
Smaller urban area	5011	.234	.423	0	1
Larger urban area	5011	.436	.496	0	1
City	5011	.161	.367	0	1
Gender					
Male	7038	.502	.5	0	1
Female	7038	.498	.5	0	1
Age					
18-21 years old	7038	.073	.26	0	1
22-30 years old	7038	.234	.424	0	1
31-40 years old	7038	.214	.41	0	1
41-50 years old	7038	.144	.351	0	1
51-60 years old	7038	.133	.339	0	1
61-70 years old	7038	.125	.331	0	1
71-85 years old	7038	.076	.266	0	1
Education					
Lower secondary	6947	.194	.395	0	1
Upper secondary	6947	.477	.5	0	1

Postsecondary	6947	.058	.234	0	1
Tertiary	6947	.271	.444	0	1
Income					
Very low income (15 lowest percentile in sample)	6705	.118	.323	0	1
Low income (16-35 percentile in sample)	6705	.162	.368	0	1
Medium income (36-65 percentile in sample)	6705	.33	.47	0	1
High income (66-85 percentile in sample)	6705	.224	.417	0	1
Very high income (15 highest percentile in sample)	6705	.166	.372	0	1
Homeownership					
Renter	3448	.363	.481	0	1
Homeowner	3448	.637	.481	0	1
Immigrant background					
No immigrant background	7038	.941	.236	0	1
Immigrant background	7038	.059	.236	0	1

4.3.1 Dependent variables

We consider two dependent variables, namely an ordinal scale of party sympathy for the SD and whether the SD were voted as the electoral party choice to the Riksdag. We perform correlations between various hallmark populist statements and party sympathy for different parties to test whether the SD are a valid proxy for populist appeal. The statements capture the populist anti-elite sentiment laid out by Mudde (2004) and also the belief in a corrupt political system. Examples include "most politicians only care about the interests of the rich and powerful," and "the people, and not the politicians, should make the most important political decisions" (*volonté générale*). Respondents are prompted with the statement, and asked to state to what degree they agree on the following five-point scale; 1 (strongly disagree), 2 (somewhat disagree), 3 (neither agree nor disagree), 4 (somewhat agree), 5 (strongly agree).

Party sympathy is treated as a continuous variable and extracted from a question about the degree to which respondents are sympathetic to the SD. The respondents were asked to rate the SD along a linear scale: from (-5) strongly unsympathetic to (0) neither unsympathetic nor sympathetic and finally (5) strongly sympathetic.



Using feeling thermometer ratings for the SD as a repeated measure helps examine populist support even when said support cannot directly translate into voting behaviour because respondents are affected by outside forces such as tactical voting or stigma. Increased populist sympathies – even when not translated into votes for populist parties – can carry an indirect effect on the party system by indicating disapproval with the status quo and incentivizing mainstream parties to pursue more populist rhetoric and policy-agenda. Party sympathy also better reflects identification with policies and public image, which is what we measure when examining populist appeal. Additionally, party sympathy as a measure significantly increases sample size by including in the analyses all respondents who replied to this question, rather than only those who voted for the SD.

We use a second dependent variable – party choice to the Riksdag during elections 2006, 2010, and 2014 – to confirm that populist support and populist voting are robustly correlated. We construct a binary variable where SD = 1 if the respondent voted for the SD and SD = 0 if the respondent did not vote for the SD during the election years. We also recode party sympathy into a binary variable where all values below and including zero correspond to SD = 0 and all values above zero correspond to SD = 1. We compare results from the two different dependent variables. Finally, we include results for the effect of housing price increases and homeownership for other parties in the Riksdag.

4.3.2 Independent variables

Although median house prices are better suited to avoid the influence of outliers, the primary data from Statistics Sweden report only the average real price per square meter. We therefore use the average purchase price of housing in SEK for each municipality. We then create a house price change variable that measures the percentage change in the average house price for each municipality between 2006 and 2014. These measures allow us to analyse the relationship between house price levels and changes and SD support in Sweden between 2006 and 2014.

We also use reported housing tenure – extracted from the question "do you own or rent the property where you currently live" – as a main independent variable and control for present residential area to cover the rural-urban dimension. We interact homeownership and housing price increase to ascertain how house price increases affect homeowners specifically regarding their populist sympathies.

5.4 Potential issues

The ideal data set for us would contain a perfect measurement of a representative group of Swedish people, together with a comprehensive list of political viewpoints and their individual house values and development over the years. Some of these things, we have used as a proxy. In this section, we expand on the potential issues that may arise when scrutinizing our chosen method, issues primarily related to our dependent variable for populist support and our independent variables related to house price developments.

Using SD as a proxy for populist support prompts us with some limitations. No party is purely populist. Most have some sort of footing in concrete policies. Because of this, the motivations of the average SD-voter may or may not be populist, and while we adjust for background variables which tend to capture some of these, the SD have hundreds of policy positions, all which may resonate with individuals enough to cause them to cast their vote in favour of them. While we could have used various populist statements as proxies for populist support, these statements were formulated differently across surveys, and were not consistently stated in all panel surveys.

When looking at house price developments, we use four-year periods due to a limitation to our data. This period may be too short to give the feeling of- and thus to be a proxy for relative deprivation. The house price difference we are using only measures the purchase prices of one-or-two dwelling houses and not apartments. This may lead to a positive suburban bias as the inner cities are dominated by apartments. If immigration and a great influx of citizens has a positive effect on the house prices, then the home prices of inner cities will be systematically lowered. Moreover, although we control for income, we do not control for wealth, which indicates that our model is subject to omitted variable bias.

5. Method

In the following section, we present our chosen method for approaching the research question. First, we apply a fixed effects model to estimate the effect of housing on populist support when the dependent variable is degree of party sympathy for the SD. We then compare degree of party sympathy to actual electoral party choice to the Riksdag and apply a Linear Probability Model (LPM) by recoding degree of party sympathy into a binary variable. We also compare results across other parties in the Riksdag. Finally, we perform a Hausman-Taylor test to ascertain whether to apply a random effects model.

5.1 Model specification

Existing studies have focused on analysis of aggregate election outcomes and house prices, presenting strong arguments for an association between housing market dynamics and voting behaviour. With most studies focusing on aggregate outcomes through either cross-sectional or time-series analyses, panel data methods in particular have had limited application.

We use a within-subject design to follow individuals over time and connect changes in house prices and homeownership to support for populist parties. Given that panel data are often regarded as the ideal basis for causal inference in observational settings (Mutz 2018), our model specification should identify the causal effect of house price changes on populist support.

We estimate a multiple linear regression model with individual and year fixed-effects. The fixed effects design holds constant time-invariant factors and identifies the specific change in populist sentiment that is associated with changing house prices. The year fixed effects generate estimates for baseline changes in populist sentiment associated with that particular year. We estimate equations of the following form:

$$y_{it} = x'_{it}\beta + c_i + \delta_t + u_{it} \qquad (1)$$

where y_{it} is party sympathy for individual i in year t, x'_{it} is a *K*-dimensional row vector of time-varying explanatory variables (housing price increase, home-ownership, housing price increase and home-ownership interaction variable, present residential area, other control variables including

gender, age, education, and income), β is a *K*-dimensional column vector of parameters, is individual-specific effects, δ_t are time-specific effects, and u_{it} is the idiosyncratic error term.

Including a term that is constant over time for each individual, we hold constant all time-invariant factors. The year-specific term δ_t controls for time-varying factors that affect all individuals, providing room for analysis regarding the individual-level relationship between housing prices and populist support.

When the dependent variable is electoral party choice to the Riksdag, said dependent variable is binary and can only take on two values, namely SD = 1 for electoral party choice or SD = 0 for not an electoral party choice. Because this dependent variable expresses the probability of populist party preference given the independent variables, we require LPM to interpret the results.

The LPM specifies that any change in a covariate affects the probability of electing SD to the Riksdag, ceteris paribus. The model also predicts that the parameters affect the probability of populist party preference linearly, indicating that the partial effect of each covariate on the explained variable is constant.

5.2. Critical discussion

We require that our data follows the assumption that time-varying covariates do not correlate with the time-varying error term in order to obtain an unbiased estimate of the relationship between housing prices and populist support when using fixed effects.

This assumption is weaker than the strict exogeneity assumption required for pooled OLS models and therefore more achievable. However, there exist potential pitfalls and limitations of FE estimations. First, unobserved time-varying heterogeneity – omitted variables that affect both housing and populist support – can bias results. Second, FE models with individual-specific fixed effects cannot estimate the coefficients of time-constant covariates such as gender because gender is time-constant and is therefore excluded from the estimation.

Considering the LPM, the Bernoulli structure of the error terms means that the error terms cannot follow a normal distribution, meaning that the inference through t-tests and F-tests cannot be performed via standard form (Wooldrige 2018). Furthermore, the error term distribution is heteroskedastic and inefficient because the Gauss-Markov homoskedasticity assumption is violated

(we correct for these violates via robust standard errors). Another difficulty is that the predicted values require a range [0, 1] for probability interpretation.

Probit and logit models are non-linear models that are used in the literature and are considered more sophisticated than the LPM as the linearity assumption between the dependent and the independent variables is not required. However, despite certain drawbacks, the LPM has a simple structure, allowing to more easily interpret covariate effects.

6. Results

6.1. Fixed effects model

In the first regression of our model (1), we examine solely the relationship between party sympathy for the SD and house price increases and homeownership with individual fixed effects. We assume that the sample is obtained by random sampling and we use clustered robust standard errors at the individual. Since panels are not nested within clusters at the municipal level, we cannot cluster robust standard errors at the municipal level. We see that for every 1% increase in house prices, SD support decreases by 0.388 sympathy units on a scale between -5 and 5 for a homeowner. Although the results are significant at the 5% level, the goodness-of-fit (R-squared) is at the low level of 0.032.

With controls for present residential area, immigration background, age, education, and income in model (5) with individual-specific and time-specific fixed-effects, every 1% increase in house prices generates a 0.00478 decrease in SD support. After including additional controls in model (5), the coefficient for house price increase is no longer significant, suggesting that SD support cannot be explained by the model and although the goodness-of-fit (R-squared) has improved, 0.059 remains a low level.

Table 2. Fixed effects regression, effect of housing price increase on SD party sympathy.

	(1)	(2)	(3)	(4)	(5)
House price increase	-6.130**	-2.422	-2.358	-2.177	0.00478
	(2.701)	(3.446)	(3.449)	(3.458)	(3.692)
Homeowner	-0.388**	0.0747	0.0735	0.0759	0.316
	(0.192)	(0.301)	(0.302)	(0.302)	(0.328)
Homeowner and house price increase interaction variable	0.335	-2.448	-2.333	-2.470	-5.561
	(3.194)	(3.554)	(3.555)	(3.561)	(3.785)
Smaller urban area			0.302	0.316	0.200
			(0.284)	(0.282)	(0.289)
Larger urban area			0.205	0.222	0.144
			(0.287)	(0.286)	(0.300)
City			0.246	0.279	0.308
			(0.351)	(0.351)	(0.381)
Immigration background				-0.690	-0.965**
				(0.456)	(0.424)
22-30 years old					-0.807**
					(0.392)
31-40 years old					-1.259**
					(0.535)

41-50 years old					-1.324**
					(0.602)
51-60 years old					-1.615**
					(0.662)
61-70 years old					-1.940***
					(0.733)
71-85 years old					-2.078**
					(0.815)
Upper secondary education					0.00305
					(0.605)
Post-secondary education					0.227
					(0.728)
Tertiary education					-0.0605
					(0.704)
Low income (16-35th percentile)					0.299
					(0.362)
Middle income (36-65th percentile)					0.380
					(0.326)
High income (66-85th percentile)					0.0299
					(0.315)
Very high income (15th highest percentile)					0.00987
					(0.322)
Observations	2,254	2,254	2,253	2,253	2,133
R-squared	0.032	0.038	0.039	0.042	0.059
Individual fixed effects	YES	YES	YES	YES	YES
Year fixed effects	NO	YES	YES	YES	YES

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

In Table 3 below, we compare results between the recoded party sympathy dependent variable (model 1) and the electoral party choice to the Riksdag (model 2). We notice that none of the outcomes are significant and that there is a change in signs when comparing recoded party sympathy to electoral party choice to the Riksdag.

Table 3. Fixed effects regression, effect of housing price increase on SD party sympathy and SD party vote.

	(1)	(2)
House price increase	0.237	-0.149
	(0.423)	(0.279)
Homeowner	0.0299	0.00164
	(0.0386)	(0.0254)
Homeowner and house price increase interaction variable	-0.510	0.0766
	(0.467)	(0.267)
Smaller urban area	0.0544	0.00842
	(0.0460)	(0.00665)
Larger urban area	0.0357	-0.00481
	(0.0409)	(0.00870)
City	-0.00232	-0.00145
	(0.0521)	(0.00978)
Immigration background	-0.0412	-0.0907
	(0.0850)	(0.0626)
22-30 years old	0.0179	0.0367*

	(0.0471)	(0.0212)
31-40 years old	0.0148	0.0501
	(0.0685)	(0.0408)
41-50 years old	0.0148	0.0502
	(0.0786)	(0.0494)
51-60 years old	0.0128	0.0417
	(0.0883)	(0.0564)
61-70 years old	-0.00409	0.0532
	(0.0982)	(0.0638)
71-85 years old	-0.0104	0.0775
	(0.110)	(0.0726)
Upper secondary education	-0.0766**	-0.0256*
	(0.0388)	(0.0147)
Post-secondary education	-0.0205	-0.0379*
	(0.0739)	(0.0197)
Tertiary education	-0.100	-0.0551**
	(0.0628)	(0.0272)
Low income (16-35th percentile)	0.105**	-0.00814
	(0.0522)	(0.0181)
Middle income (36-65th percentile)	0.0529	-0.00527
	(0.0492)	(0.0200)
High income (66-85th percentile)	0.0438	-0.0186
	(0.0516)	(0.0210)
Very high income (15th highest percentile)	0.00971	-0.0303
	(0.0555)	(0.0298)
Observations	2,133	2,133
R-squared	0.039	0.041
Individual fixed effects	NO	NO
Year fixed effects	NO	NO

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

In Table 4 below, we compare results between party sympathies for the different party sympathies in the Riksdag and the effect of house prices and homeownership on party sympathy for said parties. We notice that outcomes are significant at the 5% level for *Liberalerna* (L) and *Miljöpartiet* (MP) and that both indicate that there is a negative relationship between house price increases and party sympathy for L and MP. Moreover, the effect of the change in party sympathy is large in magnitude.

Table 4. Fixed effects model, effect of housing price increases and homeownership on party sympathy in Sweden.

	(1) V	(2) S	(3) C	(4) L	(5) MP	(6) M	(7) KD	(8) SD
House price increase	-1.234	1.377	-5.397	-0.434	8.405***	-6.582**	-6.336*	0.00478
	(3.010)	(3.344)	(3.291)	(3.174)	(3.236)	(3.208)	(3.253)	(3.692)
Homeowner	-0.511*	-0.413	0.0536	0.742**	0.253	0.143	-0.368	0.316
	(0.291)	(0.302)	(0.323)	(0.306)	(0.324)	(0.321)	(0.328)	(0.328)
Homeowner and house price increase interaction variable	4.001	3.881	-0.354	-8.624**	-8.237**	0.106	4.558	-5.561
	(3.474)	(3.829)	(3.751)	(3.604)	(3.763)	(3.769)	(3.576)	(3.785)
Smaller urban area	0.271	0.110	0.0469	-0.115	-0.0165	0.0507	-0.168	0.200
	(0.250)	(0.252)	(0.276)	(0.257)	(0.226)	(0.278)	(0.266)	(0.289)
Larger urban area	0.404	0.0969	0.0674	0.0552	-0.0237	0.0956	-0.127	0.144
	(0.279)	(0.270)	(0.299)	(0.253)	(0.255)	(0.283)	(0.292)	(0.300)
City	0.253	-0.185	-0.500	-0.456	-0.275	-0.401	-0.830**	0.308
	(0.464)	(0.427)	(0.471)	(0.416)	(0.383)	(0.412)	(0.396)	(0.381)
Immigration background	-0.315	0.893*	-0.234	-0.264	0.718	-0.406	0.529	-0.965**
	(0.531)	(0.527)	(0.579)	(0.483)	(0.456)	(0.624)	(0.362)	(0.424)
22-30 years old	0.0978	-0.646*	1.439***	0.734*	-0.778	0.0540	0.387	-0.807**
	(0.408)	(0.371)	(0.420)	(0.380)	(0.533)	(0.515)	(0.409)	(0.392)
31-40 years old	0.409	-0.533	1.559***	0.990*	-0.978	0.0336	0.272	-1.259**
	(0.537)	(0.526)	(0.590)	(0.540)	(0.691)	(0.700)	(0.591)	(0.535)
41-50 years old	0.367	-0.418	1.805***	0.898	-0.848	-0.405	0.419	-1.324**
	(0.616)	(0.594)	(0.665)	(0.630)	(0.756)	(0.776)	(0.670)	(0.602)
51-60 years old	0.0566	-0.697	1.973***	1.016	-1.151	-0.0514	0.357	-1.615**
	(0.666)	(0.665)	(0.733)	(0.698)	(0.834)	(0.858)	(0.753)	(0.662)
61-70 years old	0.171	-0.429	2.344***	1.360*	-0.872	0.0816	0.560	-1.940***
	(0.731)	(0.735)	(0.820)	(0.784)	(0.907)	(0.932)	(0.828)	(0.733)
71-85 years old	0.462	-0.761	2.145**	1.461*	-1.063	0.0428	0.119	-2.078**
	(0.781)	(0.795)	(0.876)	(0.834)	(0.956)	(0.988)	(0.896)	(0.815)
Upper secondary education	0.355	1.024**	-1.142*	-0.677	-0.450	0.338	0.391	0.00305
	(0.517)	(0.507)	(0.633)	(0.650)	(0.810)	(0.667)	(0.588)	(0.605)
Post-secondary education	-0.244	0.432	-1.266*	-0.912	0.116	0.0885	0.429	0.227
	(0.810)	(0.855)	(0.762)	(0.813)	(1.064)	(0.892)	(0.845)	(0.728)
Tertiary education	0.610	1.304*	-1.393*	-0.978	0.767	0.227	0.681	-0.0605

	(0.726)	(0.744)	(0.740)	(0.750)	(1.017)	(0.845)	(0.801)	(0.704)
Low income (16-35th percentile)	-0.593*	-0.169	-0.247	-0.153	0.266	-0.144	0.0965	0.299
	(0.311)	(0.336)	(0.356)	(0.320)	(0.321)	(0.346)	(0.293)	(0.362)
Middle income (36-65th percentile)	-0.411	-0.000176	0.0769	0.0349	0.302	0.379	0.228	0.380
	(0.272)	(0.283)	(0.298)	(0.279)	(0.301)	(0.279)	(0.272)	(0.326)
High income (66-85th percentile)	-0.663**	-0.185	0.234	0.249	-0.00613	0.383	0.235	0.0299
	(0.270)	(0.275)	(0.299)	(0.287)	(0.302)	(0.290)	(0.288)	(0.315)
Very high income (15th highest percentile)	-0.554*	-0.119	0.0923	0.347	0.339	0.525	0.0816	0.00987
	(0.307)	(0.322)	(0.345)	(0.312)	(0.351)	(0.329)	(0.308)	(0.322)
Observations	2,116	2,128	2,113	2,117	2,125	2,126	2,109	2,133
R-squared	0.067	0.080	0.055	0.034	0.164	0.043	0.023	0.059
Individual fixed effects	YES	YES	YES	YES	YES	YES	YES	YES
Year fixed effects	YES	YES	YES	YES	YES	YES	YES	YES

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

6.2. Random effects model

We performed a Hausman test where we specified the null hypothesis that the preferred model is random effects contra the alternative fixed effects. The Hausman test determines whether the idiosyncratic error term is correlated with the regressors. The Hausman test gave a value of 0.2089 which is greater than 0.05 and therefore insignificant, meaning that we could not reject the null hypothesis and that random effects may be used.

In model (1), we examine solely the relationship between party choice for the SD and house price increases and homeownership. We see that for every 1% increase in house prices, the coefficient for SD support is negative 7.428. Although the results are significant at the 1% level, the goodness-of-fit (R-squared) is at the low level of 0.032. Moreover, the results are insignificant for homeowners. After including additional controls in model (5), the coefficient for house price increase and homeownership remains insignificant, suggesting that SD support cannot be explained by the model.

Table 5. Random effects regression, effect of housing price increase on SD party sympathy.

	(1)	(2)	(3)	(4)	(5)
House price increase	-7.428***	-3.702	-3.110	-2.965	-2.146
	(2.095)	(2.614)	(2.620)	(2.618)	(2.688)
Homeowner	-0.332**	0.105	0.0315	0.0212	0.187
	(0.168)	(0.237)	(0.238)	(0.238)	(0.240)
Homeowner and house price increase interaction variable	1.254	-2.292	-2.693	-2.814	-3.538
	(2.609)	(2.956)	(2.961)	(2.958)	(3.086)
Smaller urban area			-0.0318	-0.0151	-0.00161
			(0.160)	(0.160)	(0.158)
Larger urban area			-0.467***	-0.444***	-0.251*
			(0.151)	(0.152)	(0.151)
City			-0.705***	-0.664***	-0.312
			(0.194)	(0.195)	(0.196)
Immigration background				-0.429**	-0.457**
				(0.194)	(0.194)
22-30 years old					-0.412**
					(0.181)
31-40 years old					-1.165***
					(0.266)
41-50 years old					-1.428***
					(0.193)
51-60 years old					0.0777
					(0.207)
61-70 years old					-0.0536
					(0.181)
71-85 years old					-0.356*

					(0.188)
Upper secondary education					-0.464**
					(0.202)
Post-secondary education	-7.428***	-3.702	-3.110	-2.965	-2.146
	(2.095)	(2.614)	(2.620)	(2.618)	(2.688)
Tertiary education	-0.332**	0.105	0.0315	0.0212	0.187
	(0.168)	(0.237)	(0.238)	(0.238)	(0.240)
Low income (16-35th percentile)	1.254	-2.292	-2.693	-2.814	-3.538
	(2.609)	(2.956)	(2.961)	(2.958)	(3.086)
Middle income (36-65th percentile)			-0.0318	-0.0151	-0.00161
			(0.160)	(0.160)	(0.158)
High income (66-85th percentile)			-0.467***	-0.444***	-0.251*
			(0.151)	(0.152)	(0.151)
Very high income (15th highest percentile)			-0.705***	-0.664***	-0.312
			(0.194)	(0.195)	(0.196)
Observations	2,254	2,254	2,253	2,253	2,133
R-squared	0.032	0.038	0.039	0.042	0.059
Random effects	YES	YES	YES	YES	YES
Year fixed effects	NO	YES	YES	YES	YES

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

7. Discussion

The results of the regressions for both the FE and RE models are insignificant given full controls and have a low R-squared, indicating that we cannot reject the null hypothesis that house price increases have no effect on populist support for homeowners. We can thus cannot conclude that house price decreases cause populist sentiment to rise.

One of the weakness with FE model is that we cannot estimate the coefficients of time-invariant covariates at the same observation level as the fixed effects. This means that we do not include a gender dummy variable in FE estimations because this variable is time-constant and thus excluded from estimation with individual-specific fixed effects. For this reason, future research could potentially involve estimating more group differences as we did in the RE estimations. Another problem with FE estimation is reverse causality, where populist support may translate into populist voting and therefore affect housing prices by policy effectuated by the party in parliament. However, this does not seem very likely.

We include an interaction variable between homeownership and housing price increases in order to determine whether homeowners are affected by house price increases to vote less populist. This particular interaction is required because we expect that there is a different effect on the populist voting from a house price change depending on whether you are actually a homeowner. That the coefficient is insignificant for the interaction variable suggests that the joint effect of homeownership and house price change on populist sentiment is not statistically higher than the sum of both these effects individually.

That we cannot reject the null hypothesis that house price increases have no effect on populist support for homeowners for our particular mode specification indicates that the sample size may be too small to draw significant conclusions from the model. Secondly, there may be no significant relationship between housing price increases and SD support in Sweden according to this model. This is primarily because we do not control for wealth, where income is an imperfect proxy. When we control for income the sign of the coefficient for the interaction variable changes from positive to negative, indicating that our regression model is subject to omitted variable bias. Moreover, in the fixed effects model, insignificant results in model (2) when year fixed effects are included suggest that there is no heterogeneity across time.

Furthermore, given that data on real ownership is not included in our regressions, we do not know whether a homeowner has financed their house with a loan. As loan financing means less equity at least in the short term, the relationship between homeownership and populist support is biased. Ownership of a second home may also affect said relationship because diminishing marginal returns from owning multiple properties may have a confounding effect, generating bias depending on where the home is located.

We find that non-immigrants tend to vote for the SD at a 5% significance level, which is expected given the literature on anti-immigration attitudes for populist parties as well as the SD political rhetoric. However, education and income are not significant predictors of SD party sympathy, which is unlike what we see in other populist outcome studies pertaining to, for example, sympathies for Donald Trump or Brexit. Finally, age is also a significant predictor of SD party sympathy.

We see that there is a difference between party sympathy and actual votes because recoding party sympathy into a binary variable, where values above and not including 0 constitute a vote and values below and including 0 constitute no vote, affects results disproportionately as relatively strong party sympathy (likely above level 3) is required to secure a vote. Furthermore, other factors such as stigma or tactical voting may affect voting behaviour differently than party sympathy in a more general sense.

Moreover, we notice that the interaction variable is significant for parties L and MP. *Liberalerna* push for a more open housing market in Sweden, with less regulations and processes. As such, housing market dynamics are a focal point among their voter demographic and with a clear emphasis on housing prices, homeowners are more likely to structure their voting pattern accordingly. For instance, if housing prices are declining in a region, homeowners are more likely to vote for *Liberalerna* because with fewer regulations, lower taxation and more entrants in the market, house values are expected to rise. Comparatively, *Miljöpartiet* are focused on building more in areas that suffer from deprivation, especially in segregated communities. More buildings in a region that make it attractive can increase house value and improve the position of a region, which explains why *Miljöpartiet* secures party sympathy from the general housing attitudes of homeowners.

Additionally, there are difficulties regarding isolating housing tenure according to time, namely whether owning a house affects political attitudes immediately after the purchase date or given a

certain period of time. Finally, housing as a causal factor for populist attitudes can be criticized as being a relatively low priority compared to, for example, employment insecurity or immigration. We suggest that future research could possibly employ a policy that affects housing prices as an instrument for exogenous variation.

8. Conclusion

The aim of this paper has been to study the relationship between housing prices and populist support. We have argued that housing market dynamics affect populist support, but are generally overlooked in the literature on populism. Based on SNES panel data between 2006 and 2014 and our model specification with fixed and random effects, we have not found that decreasing housing prices lead to increased populist support. This result is the outcome of model and data limitations, namely missing data pertaining to information on wealth as well as other issues relating to omitted variable bias and reverse causality. We have nonetheless ascertained that age and immigrant background are significant for determining populist sentiment while education and income do not seem to have an effect contrary to existing literature.

In light of our results, we suggest that the relationship between housing market dynamics and populist support should be further studied, with more rigorous panel data methods including more sample years without gaps between elections. We suggest also that housing market dynamics and populist support can be analyzed via statements relating to specific populist attitudes (e.g. anti-establishment, political trust measures) rather than a certain political party proxy given that respondents hold certain party judgments that have a confounding effect.

10. References

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11. Appendix

11.1 Appendix: Correlations between party support and populist statements

	Party sympathy (1 = very unsympathetic, 5 = very sympathetic)							
	C	M	V	L	S	MP	KD	SD
Statement (1 = strongly disagree,5 = strongly agree)								
"Politicians do not care about the people."	**-0.323***	**-0.049***	**-0.109***	**-0.272***	**-0.203***	**-0.274***	0.028	**0.356***
	(0.000)	(0.003)	(0.000)	(0.000)	(0.000)	(0.000)	(0.097)	(0.000)
"Politicians can be trusted"	**0.174***	0.015	**0.092***	**0.150***	**0.175***	**0.162***	-0.004	**-0.191***
	(0.000)	(0.381)	(0.000)	(0.000)	(0.000)	(0.000)	(0.821)	(0.000)
"The politicians are the biggest problem in Sweden"	**-0.311***	0.015	**-0.184***	**-0.249***	**-0.270***	**-0.302***	**0.048***	**0.376***
	(0.000)	(0.372)	(0.000)	(0.000)	(0.000)	(0.000)	(0.005)	(0.000)
"To have a strong leader is good for Sweden, even if the leader stretches the rules in order to get things done"	**-0.112***	**0.126***	**-0.130***	**-0.107***	**-0.081***	**-0.215***	**0.129***	**0.271***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
"The people and not the politicians should make the most important political decisions"	**-0.254***	**-0.044***	**-0.020**	**-0.221***	**-0.145***	**-0.136***	0.006	**0.303***

	(0.000)	(0.010)	(0.225)	(0.000)	(0.000)	(0.000)	(0.713)	(0.000)
"Most politicians only care about the interests of the rich and powerful"	**-0.329***	**-0.356***	**0.243***	**-0.384***	**0.104***	0.030	**-0.254***	**0.127***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.073)	(0.000)	(0.000)
"How widespread do you think corruption such as bribe taking is among politicians in Sweden?"	**-0.213***	**-0.031**	**-0.062***	**-0.180***	**-0.199***	**-0.180***	-0.007	**0.240***
	(0.000)	(0.068)	(0.000)	(0.000)	(0.000)	(0.000)	(0.686)	(0.000)

Robust standard errors in parentheses *** p<0.01, ** p<0.05, *p<0.1