

Financial Crisis, Creditor-Debtor Conflict, and Populism*

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Abstract

We study the impact of debtor distress during a financial crisis on support for a populist far-right party. Our empirical approach exploits variation in exposure to foreign currency household loans during a currency crisis in Hungary. Foreign currency debt exposure leads to a large and persistent increase in the far-right vote share. We present evidence that conflict between creditors and debtors over the resolution of the crisis is an important mechanism in the electoral success of the populist far right. Our results shed light on why financial crises are often followed by increased support for populist parties.

JEL codes: D10, D72, E44, F34, G01

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1 Introduction

There has been a surge in support for far-right populist parties since the 2008 financial crisis (Rodrik, 2017). However, the connection between the crisis and the shift in the political landscape is debated.¹ Recent country-level studies find that financial crises tend to be followed by political polarization and a rise in the vote share of far-right parties (Mian et al., 2014; Funke et al., 2016; Bromhead et al., 2012). Nevertheless, the past decade has also witnessed a variety of economic and societal shifts that have affected voting through numerous other channels. As a result, there remains limited causal evidence that financial crises boost support for populist far-right parties, and the underlying mechanisms are not well understood.

In this paper, we examine how debtor distress ensuing from the 2008 financial crisis affects support for a populist far-right party. We focus on the case of Hungary, which experienced a severe household foreign currency debt crisis that coincided with a sudden rise of the populist far-right party Jobbik (Movement for a Better Hungary).² Prior to the financial crisis, many Hungarian households borrowed heavily in foreign currency, primarily Swiss franc. This widespread foreign currency exposure led to a large shock to debt burdens following a large and unexpected exchange rate depreciation. Our analysis uses variation across households and zip codes in exposure to this household foreign currency debt crisis and traces the impact of the crisis on support for far-right populism.

Our main finding is that household financial distress caused by foreign currency debt exposure led to a significant increase in the populist far-right vote share. The unexpected shock to foreign currency debt burdens accounts for 20 percent of the overall increase in far-right support. Moreover, we present evidence that the electoral success of the populist far-right party is driven by a *creditor-debtor conflict* channel. Debt crises create conflicts between creditors and debtors over the resolution of the crisis, and these cleavages may spur support for debtor-friendly populist parties.³ We present evidence that the populist far right exploited these divisions and attracted support by advocating for aggressive debtor-friendly policies.

We begin by describing Hungary’s household credit boom, foreign currency debt crisis,

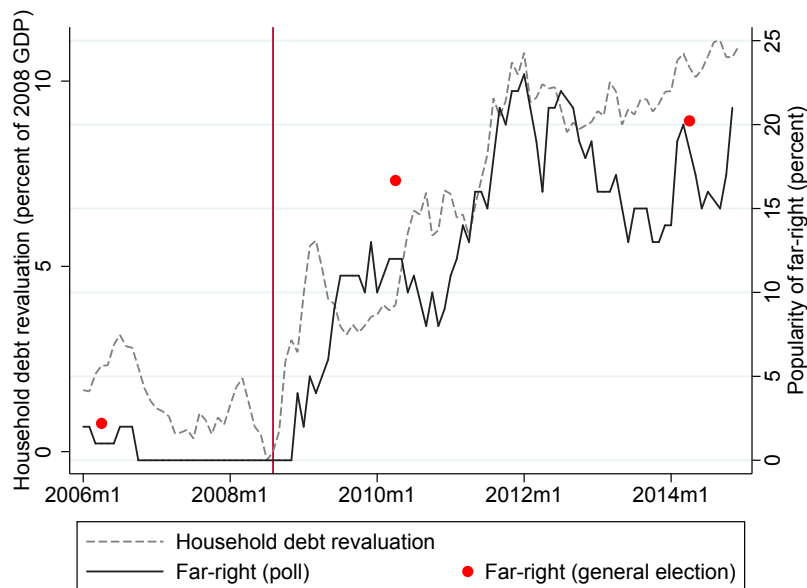
¹For example, in *Crashed*, Adam Tooze traces a direct connection between the 2008 financial crises and political success of populist platforms, and Funke, Schularick, and Trebesch argue that “The Financial Crisis Is Still Empowering Far-Right Populists” in *Foreign Affairs* (2018). On the other hand, others dismiss the connection as incidental, e.g. Grep Ip in the *Wall Street Journal* (“No, the Financial Crisis Didn’t Spawn Populism,” 2018) and Janan Ganesh in the *Financial Times* (“Populism Was Not Sparked by the Financial Crisis,” 2018). As we discuss in the literature review below, the academic literature is also divided on the role of the financial crisis, and economic factors more broadly, in the electoral success of populist parties.

²We also examine the connection between debtor distress and Viktor Orbán’s Fidesz Party and discuss the impact that Jobbik’s success had Fidesz and the broader political landscape in Hungary.

³Frieden (2015) notes that half of the 30 most serious banking crises were associated with major political upheavals.

and political landscape. The household lending boom started in 2000 when the government introduced an interest rate subsidy program for local currency mortgage loans. The program was cut back in 2004, increasing the relative cost of local currency loans and fueling a phase of foreign currency lending. By 2008 more than 60 percent of household debt was denominated in Swiss franc. After a decade of exchange rate stability, the Hungarian forint depreciated by 23 percent between September 2008 and the April 2010 election, increasing household indebtedness by 4 percent of pre-crisis GDP.

Figure 1: Household foreign currency debt shock and support for the populist far right



Note: This figure shows the increase in household debt burdens induced by the exchange rate depreciation (dashed line) and the popularity of far-right based on polling data (solid line) and Parliamentary election data (dots). The household debt revaluation is calculated as the increase in 2008 household debt induced by the exchange rate depreciation, relative to 2008 GDP. The popularity of the far-right in polling data is calculated based on individuals who intend to vote. The vertical line represents September 2008, the month prior to the exchange rate depreciation.

Figure 1 shows that the increase in debt burdens due to the depreciation coincided with a surge in support for the populist far-right party. After receiving only 2.6 percent of votes in the 2006 election, the far right received 17 percent of the votes in 2010 and 20 percent in 2014, making it the “most successful far-right party in the European Union” in the years immediately after the Global Financial Crisis (Scheppele, 2014). The rest of the paper is devoted to establishing that this relation is causal and understanding why the debt crisis increased support for the populist far right.

To quantify the effect of an increase in debt burdens on voting outcomes, we use a difference-in-differences framework, exploiting cross-sectional variation in households' exposure to the exchange rate shock through their debt positions. We build a zip code level panel dataset combining administrative household credit registry data and election outcomes. We define exposure to the foreign currency debt shock at the zip code level as the share of foreign currency denominated household loans before the depreciation. This measure captures variation in the currency *composition* of loans and allows us to hold pre-crisis debt-to-income fixed. This setting allows us to focus on a precisely measured shock to debt burdens and trace how it affects political preferences.⁴

What explains why some households have foreign currency debt while others have local currency debt? Variation in exposure to foreign currency debt primarily comes from the timing of borrowing. Households who borrowed when local currency loans were subsidized have local currency loans, while households who borrowed after the subsidies were curtailed have foreign currency loans. At the regional level, the local currency credit boom was more pronounced in areas with a higher branch density of domestic banks. With the cutback of the subsidy program, foreign banks expanded their branch network and offered foreign currency loans, resulting in higher foreign currency exposure in previously underserved regions. At the individual level, the average characteristics of foreign and local currency borrowers are similar, but foreign currency borrowers have slightly higher education and income. However, zip codes with higher foreign currency exposure have lower average education and income, so we explicitly account for these differences in our empirical analysis.

We find that the zip code level household foreign currency debt shock significantly increases the populist far-right vote share. In terms of magnitudes, a 10 percentage point unanticipated debt-to-income shock raises the vote share of the far right by 1.6 to 3.0 percentage points between 2006 and 2010. Our preferred estimate explains 3 percentage points, or one-fifth, of the overall rise in the far right vote share. The effect of the debt shock is persistent across several post-crisis elections, implying that debtor distress can have a long-lasting impact on political preferences.

We tackle a variety of identification concerns to support our main finding. The evolution of the far-right vote share is similar before the crisis in high and low exposure zip codes, consistent with parallel trends. The estimated effect of foreign currency debt exposure on far right support is robust to a wide variety of controls, is not sensitive to the choice of exposure measure, and is similar in magnitude when estimated on a propensity-score matched sample. Furthermore, we provide evidence that effect of debtor distress is not driven by alternative

⁴Mudde (2015) highlights a challenge with previous work connecting financial crises and populism: “While crisis and globalization have some relationship to the rise of populism, globalization is related to everything and crisis is usually undefined and simply used whenever a populist party becomes successful.”

explanations such as differences in historical extremist attitudes, immigration patterns, local labor market shocks, financial literacy, or house price shocks.

What are the mechanisms through which exposure to the foreign currency debt shock affects political preferences? We first examine the creditor-debtor conflict channel. This explanation emphasizes the opposing views of creditors and debtors on how to resolve the crisis. As creditors might find it easier to organize themselves and influence policy, a populist party might choose to represent the interests of debtors and advocate debtor-friendly policies to win the support of distressed borrowers. Advocating for debtors' interests fits with populists' broader claim to speak for "the people" against "the elite" and signals that they are not captured by the establishment, including the financial sector. Creditor-debtor conflict may, therefore, explain why far-right populist parties are especially successful after financial crises, in contrast with other economic crises (Funke et al., 2016).

Consistent with the creditor-debtor conflict explanation, during the 2010 campaign, the far-right party campaigned on explicit policy proposals to mitigate the financial distress of foreign currency debtors. In particular, Jobbik's platform promised a variety of debt relief measures for foreign currency borrowers. In contrast, other parties either had vague proposals or made no mention of foreign currency debtors in their campaign manifestos. To more systematically investigate whether the far right's rhetoric was pro-debtor, we apply textual analysis parliamentary speeches. Relative to speeches by other parties, far-right speeches were more likely to mention the foreign currency debt crisis, use debtor friendly terms such as "credit victims," and emphasize debt relief measures.

The creditor-debtor conflict channel also has the straightforward implication that foreign currency debtors themselves voted for the populist far right. We provide evidence consistent with this logic. First, we confirm using individual-level survey data foreign currency debtors themselves are more likely to support the far right. Second, we show that the increase in the zip code default rate on foreign currency loans, but not local currency loans, predicts a rise in the far-right share. This suggests that distressed local currency debtors who were adversely affected by the crisis through other channels do not turn to the populist far right.

We also examine several other channels for why debtor distress, and the financial crisis more broadly, may have contributed the rise of far right. General dissatisfaction and declining trust in establishment parties may have increased the appeal of populist parties to distressed borrowers. However, declining trust is not reflected in votes for other anti-establishment parties, turnout, or in the share of protest votes in more exposed areas. Rising inequality also is unlikely to account for the electoral success of the far right, as income inequality was flat in the period around the crisis. Increased financial distress may also have engendered xenophobia. However, examining voting patterns in the 2016 referendum on EU migrant

quotas, we find no evidence that areas exposed to foreign currency debt were more likely to support the anti-migrant position. Overall, creditor-debtor conflict emerges as the most compelling explanation for why foreign currency debtors supported the far right.

Although Jobbik was never part of the government, its success influenced policymaking *indirectly* and played an important role in pushing the previously moderate Fidesz toward right-wing populism. After the 2010 election, the Fidesz government appropriated the foreign currency debt issue by passing several debt relief programs first proposed by Jobbik. However, Jobbik’s influence on Fidesz was broader than the foreign currency loans issue, and Fidesz copied a variety of Jobbik’s other right-wing populist policies. Fidesz’s populist turn ultimately led to the erosion of liberal democratic institutions in Hungary. These dynamics suggest that a rise in the popularity of radical populist parties can have a broader impact on democratic institutions by shifting the range of ideas tolerated in public discourse and influencing the behavior of moderate parties (Abou-Chadi and Krause, 2018).

Our main contribution is to provide causal evidence on how a financial crisis can boost support for populist political parties through the impact on distressed debtors. There is limited causal evidence directly connecting financial crises and support for populism or far-right parties. Most closely related to our study, concurrent work by Ahlquist et al. (2018) uses survey data from Poland and finds that distressed foreign currency debtors were more likely to support a populist right-wing party that promised a generous debt resolution scheme. Stock (1984) and Eichengreen et al. (2017) relate mortgage debt, mortgage interest rates, and the threat of foreclosures to agrarian unrest and populist support in the late 19th century US.⁵ We complement these studies by combining administrative data with a natural experiment to estimate the impact of debtor distress on a sharp recent shift in political preferences.⁶ Our textual analysis highlighting the pro-debtor nature of far-right speeches is also new.

Our paper connects with the broader literature analyzing the rise of populism. Several studies emphasize that trade globalization has contributed to increased support for populist parties through the adverse labor market effects of import competition (Autor et al., 2016; Colantone and Stanig, 2017; Dippel et al., 2015).⁷ We complement this literature by highlighting how *financial* globalization can result in a financial crisis that boosts support for populism. Another strand argues that cultural backlash against progressive values, “distant”

⁵Evans (2003, p. 208) argues that declining prices during the stabilization following the German hyperinflation led to bankruptcies and foreclosures among indebted small farmers, increasing Nazi support in Protestant rural areas.

⁶Doerr et al. (2018) also exploit regional variation to document a connection between banking sector distress, another aspect of financial crises, and far-right voting.

⁷Other studies have explored the impact of other economic trends and shocks such as fiscal austerity, job insecurity, and public finance mismanagement on the support for populism include King et al. (2008), Jackman and Volpert (1996), Healy and Lenz (2014), Fetzer (2018), Galofré-Vilà et al. (2017), Guiso et al. (2017), Geishecker and Siedler (2011), and Daniele et al. (2018).

ruling elites, and convergence in establishment party policies play a more central role in the rise of populist parties, with economy factors being less central (e.g., [Inglehart and Norris \(2016\)](#), [Mudde \(2016\)](#)).⁸ Clearly, there is unlikely to be a single factor that explains the broad rise of populism in Western democracies, and cultural and economic factors are both likely to play a role.

The remainder of the paper is structured as follows. The next section describes the background on the household foreign currency debt crisis in Hungary and the political landscape. Section 3 outlines the data and empirical framework. Section 4 presents the main results, section 5 explores the mechanisms, and section 6 concludes.

2 Context

This section describes the Hungarian household credit boom in the 2000s and the political landscape. We also provide survey evidence on the characteristics of foreign currency debtors and far-right voters.

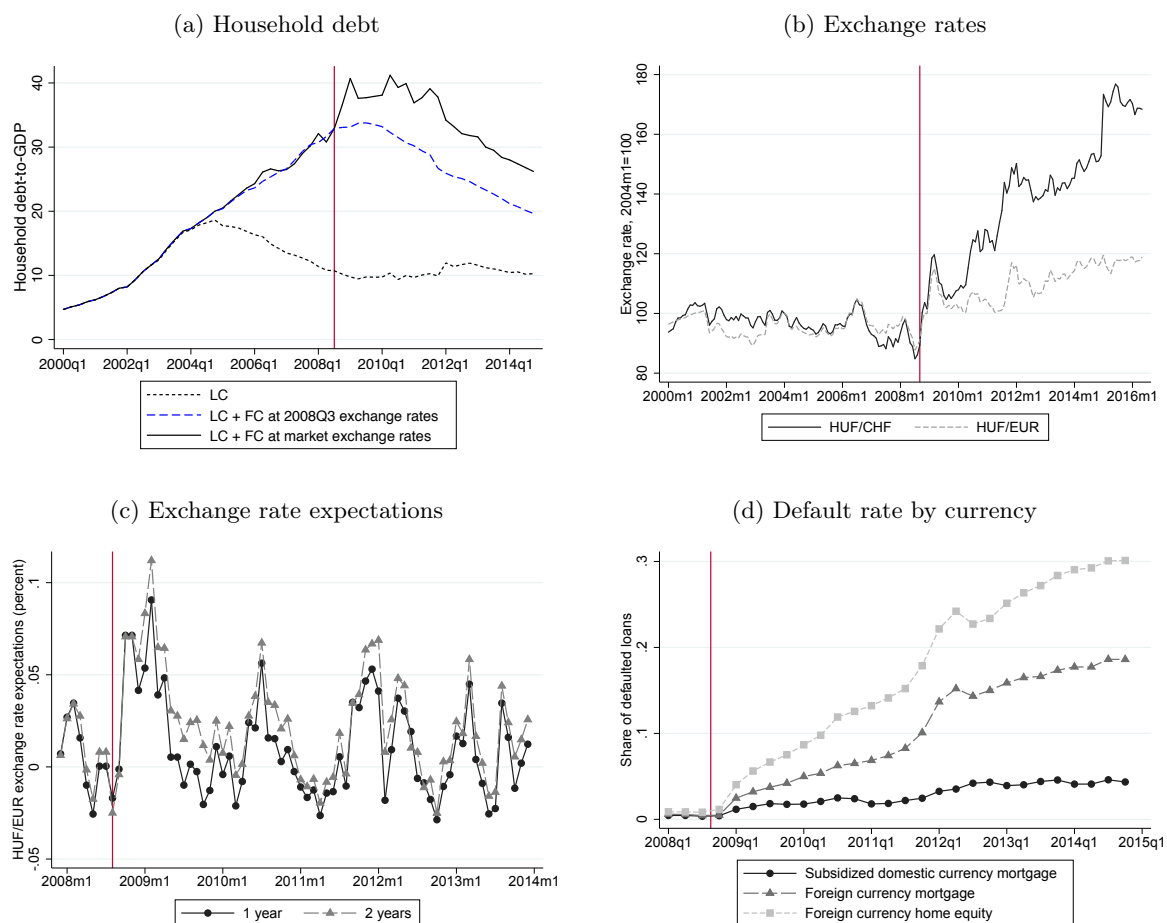
2.1 Household foreign currency lending boom

Figure 2a shows the evolution of housing debt to GDP by currency denomination. Household indebtedness was low at the end of the 1990s but increased rapidly starting in 2000. The initial increase was driven by the introduction of a mortgage subsidy program in 2000. The subsidy significantly lowered the interest rates faced by households on local currency loans, leading to increased borrowing in local currency (LC) ([Farkas et al., 2004](#)).

The subsidy program was cut back in 2004, which led to a boom in foreign currency (FC) credit. Because of high fiscal costs of the mortgage subsidy program, the government tightened the eligibility rules and decreased the size of the LC interest subsidy. As a result of the increase in interest rates on domestic currency loans, foreign banks started to offer foreign currency denominated loans with lower interest rates. The FC credit expansion raised household debt to 30 percent of GDP by September 2008 and led to an increase in the share of debt in FC from 5 percent in 2004 to 66 percent in September 2008. The most prevalent foreign currency denomination was Swiss franc (CHF), which accounted for 97 percent of

⁸Though several papers examine the success of the far right in Hungary, we are the first to point to the household foreign currency debt crisis as a central factor. With the exception of [Grajczjár and Tóth \(2011\)](#), previous studies argue that non-economic reasons explain the rise of Jobbik. Other studies argue that Jobbik gained support because of anti-Roma sentiment ([Karácsony and Róna, 2010](#)), ideological reasons ([Rudas, 2010](#)), concerns about corruption in mainstream parties ([Bíró-Nagy and Rona, 2013](#)), declining trust in democratic institutions ([Krekó et al., 2011](#)), and anti-elite and anti-establishment attitudes [Kovacs \(2013\)](#). Though [Grajczjár and Tóth \(2011\)](#) emphasize the economic insecurity of far-right voters, they do not mention the foreign currency debt crisis as a reason for increased economic hardship.

Figure 2: Household debt expansion, exchange rate dynamics, and household default rates



Notes: Panel (a) depicts household debt-to-GDP by currency denomination. The dashed blue line plots the counterfactual household debt level the exchange rate had remained at its 2008Q3 value. Panel (b) shows the HUF/EUR and HUF/CHF exchange rates relative to January 2004. An increase in the exchange rate represents a depreciation of the Hungarian forint (HUF). Panel (c) plots the expected exchange rate depreciation based on Consensus Economics forecasts at 1 (solid line) and 2 year (dashed line) horizons. Positive values indicate an expected depreciation of the HUF. Panel (d) plots 90 days delinquency rates on housing loans by currency denomination and loan type. The vertical line is September 2008, the month prior to the forint depreciation.

household FC debt at the start of the crisis. The remaining debt in FC was denominated mainly in euro.

Both demand and supply side factors contributed to the expansion in foreign currency lending. A crucial factor was the large interest rate differential between local currency loans at market rates (but not at subsidized rates) and foreign currency loans (Rosenberg and Tirpák, 2008; Csajbók et al., 2010).⁹ The expectation of euro adoption also led borrowers to believe that mismatch would be temporary, at least with respect to the euro (Fidrmuc et al., 2013). Moreover, banks seeking to match the currency composition of their assets and liabilities (Brown et al., 2014) and loose foreign monetary policy (Ongena et al., 2018) boosted the supply of foreign currency credit.

Figure 2b plots the dynamics of the Hungarian forint (HUF) exchange rate against the euro (EUR) and Swiss franc (CHF). During the credit expansion phase, the HUF was stabilized within a *de facto* ± 5 band against the EUR (Ilzetzki et al., 2017). The EUR/CHF exchange rate (and, before the euro, the Deutsche mark–Swiss franc exchange rate) was also stable for decades. However, the exchange rate band was abandoned in February 2008, and the HUF depreciated substantially after the outbreak of the crisis in September 2008. Between September 2008 and the April 2010 election, the HUF depreciated by 23 percent against the Swiss franc, and the HUF depreciated by another 30 percent between the 2010 and 2014 elections. Moreover, the large depreciation was not anticipated by market participants. For example, Figure 2c plots data from Consensus Economics, which reveal that experts forecasted that the HUF/EUR exchange rate would remain stable right before the outbreak of the crisis.

The increase in foreign currency household debt burdens led to a significant deterioration of household balance sheets, as Hungarian households had limited income and assets in foreign currencies.¹⁰ Figure 2d shows that the depreciation quickly translated into a rising share of non-performing loans. Between 2008 and 2014, non-performing FC mortgages increased from 0 percent to nearly 20 percent. In contrast, the increase was more modest for LC loans. Given the full recourse environment in Hungary, the rise in default rates implies that the shock led to a severe increase in financial distress for foreign currency debtors.

⁹Swiss franc loans carried lower interest rates, both relative to loans in Hungarian forint (HUF) and euro (EUR). Because the interest rate subsidy program applied only to mortgage loans, the roughly half of mortgages were denominated in FC, whereas almost all home equity loans were in FC.

¹⁰Backé et al. (2007) documents that less than 10 percent of households had foreign currency holdings between 2002 and 2006, and the median positive holding was around 100 EUR. Moreover, the fraction of households working abroad earning income in foreign currency was low before the crisis (Hárs, 2016).

2.2 Political landscape

After the transition from a one-party system to a multi-party system in 1990, Hungary has held elections every four years. Political parties in Hungary are organized at the national level, so we focus on national elections to capture the change in political preferences. The national parliamentary election consists of a majoritarian part, where voters can vote for candidates, and a proportional part, where voters can vote for party lists. The majoritarian component of the election system may motivate supporters of smaller parties to cast their votes strategically for candidates of larger parties. In contrast, strategic voting behavior plays less of a role in voting decisions for party lists, so we focus on votes cast on party lists.

In the period after the transition, there have been two significant extremist far-right parties in Hungary: the *Movement for a Better Hungary* (Jobbik) and the *Hungarian Justice and Life Party* (MIÉP). [Minkenberg \(2013\)](#) reviews radical right-wing parties in Europe and classifies Jobbik and MIÉP as far right. Some observers have classified Jobbik as fascist, as it had a paramilitary wing, the Hungarian Guard, which was banned in 2009 ([Bíró Nagy et al., 2013](#)). Both of these parties are also classified as populist ([van Kessel, 2015](#); [Inglehart and Norris, 2016](#)). For example, Jobbik has claimed to be the only party that genuinely stands up for the interests of the people ([Batory, 2010](#)). We thus consider a vote as far-right populist if it is cast for either Jobbik or MIÉP.¹¹

We examine votes for Fidesz and other center right parties separately from far-right populist parties. Before the 2010 election, Fidesz was generally not considered a populist party.¹² For example [Mudde \(2007\)](#) labels it as an essentially conservative party, while [Norris \(2005\)](#) only mentions MIÉP in an analysis of radical right parties. However, Jobbik’s success in 2010 influenced Fidesz by dividing the right-wing vote, leading Fidesz to gradually move from conservatism toward right-wing populism after the 2010 election ([Inglehart and Norris, 2016](#)). Fidesz not only adopted Jobbik’s position on debt relief for FC debtors, but also copied several other Jobbik policies.¹³

We classify the remaining parties as follows. Votes for the Christian Democrats (KDNP), the Hungarian Democratic Forum (MDF), and the Independent Smallholders, Agrarian Work-

¹¹Though Jobbik was founded in 2003, it quickly became the main party on the far-right. In 2006, it ran jointly with MIÉP and obtained 2.2 percent of the votes. In 2010, they ran separately, and Jobbik received 16.67 percent of the votes while MIÉP received only 0.03 percent.

¹²Recent studies classify Fidesz as populist ([van Kessel, 2015](#); [Rodrik, 2017](#); [Inglehart and Norris, 2016](#); [Mudde and Kaltwasser, 2017](#)).

¹³[Juhász et al. \(2017\)](#) and [Bíró Nagy et al. \(2013\)](#) list several policies that were first proposed by Jobbik but then later implemented by Fidesz. These include: building a fence on the southern border of Hungary, restrictions on Sunday shopping, nuclear power plant expansion, public works program for the unemployed, harsher criminal sentencing, nationalizing private pension funds, and explicitly mentioning Christianity in the new constitution.

ers, and Civic Party (FKgP) are grouped together with Fidesz under the heading “center right.” The Socialist Party (MSZP), Alliance of Free Democrats (SZDSZ), Together (Együtt), Conversation for Hungary (PM), and Democratic Coalition (DK) are grouped as “center-left.” We also examine the vote share of the green party, Politics Can Be Different (LMP), which participated in the 2010 and subsequent elections.

Table 1: Election results and turnout

Election year	Far right	Center right	Center left	Far left	Green	Turnout
1998	5.47	47.74	40.49	4.08	-	56.26
2002	4.37	41.82	47.62	2.16	-	70.53
2006	2.20	42.03	49.71	0.41	-	67.83
2010	16.67	52.73	19.30	0.11	7.48	64.38
2014	20.69	43.55	26.21	0.57	5.47	61.24
2018	19.80	47.36	17.95	0.28	7.31	70.22

Notes: This table reports vote shares received on party lists in parliamentary elections from 1998 to 2018 and turnout in each election.

Table 1 summarizes the aggregate vote shares for these political blocs in parliamentary elections from 1998 to 2018. The center right, led by Fidesz, won the 1998, 2010, 2014, and 2018 elections, while the center left won the 2002 and 2006 elections. After the crisis, the the far-right parties, led by Jobbik, surged in votes, and the green party emerged. One party at the far left end of the spectrum, the communist Workers’ Party, remained marginal throughout the whole post-transition period.

2.3 Descriptive statistics on foreign currency debtors and far-right voters

What are the characteristics of foreign currency debtors and far-right voters? We draw on two separate surveys to provide descriptive statistics on these groups. The first survey is the Austrian National Bank’s (OeNB) Euro Survey, which contains detailed information on Hungarian households’ balance sheets, including the currency denomination of their debts. The second is the February 2010 Tarki Household Monitor, which contains information on political preferences and a proxy for loan currency denomination. The OeNB Euro Survey is a more reliable source of information on household balance sheets, but it does not contain information on political preferences.

Foreign currency debtors Table 2 uses the OeNB Euro Survey data to compare foreign currency debtors, local currency debtors, and individuals without a loan. Foreign currency debtors are defined as borrowers who have some foreign currency debt. Local currency debtors are defined as borrowers who only have local currency debt.

Table 2: Observable characteristics of foreign currency borrowers in survey data

	FC mean/sd	LC mean/sd	Nonborr. mean/sd	FC-LC difference b/t	Borr.-nonborr. difference b/t
Primary education	0.13 (0.33)	0.20 (0.40)	0.28 (0.45)	-0.07*** (-4.76)	-0.12*** (-13.31)
High school /vocational	0.67 (0.47)	0.63 (0.48)	0.57 (0.50)	0.04* (2.01)	0.09*** (7.79)
College education	0.20 (0.40)	0.17 (0.38)	0.16 (0.36)	0.03* (2.09)	0.03*** (3.82)
Low Income	0.24 (0.43)	0.31 (0.46)	0.37 (0.48)	-0.07*** (-4.05)	-0.10*** (-9.38)
Medium Income	0.26 (0.44)	0.30 (0.46)	0.25 (0.43)	-0.03 (-1.88)	0.03* (2.42)
High Income	0.32 (0.47)	0.26 (0.44)	0.19 (0.40)	0.07*** (3.68)	0.10*** (9.81)
Age	41.77 (11.44)	43.21 (12.95)	50.11 (18.10)	-1.44** (-2.93)	-7.77*** (-22.77)
Have children	0.49 (0.50)	0.41 (0.49)	0.21 (0.40)	0.08*** (3.81)	0.25*** (22.63)
Size of Household	3.10 (1.22)	2.86 (1.24)	2.39 (1.23)	0.24*** (4.95)	0.61*** (20.94)
Employed	0.69 (0.46)	0.61 (0.49)	0.42 (0.49)	0.08*** (4.46)	0.24*** (21.09)
Retired	0.13 (0.34)	0.20 (0.40)	0.39 (0.49)	-0.06*** (-4.16)	-0.24*** (-24.14)
Self employed	0.05 (0.22)	0.04 (0.19)	0.03 (0.17)	0.01 (1.72)	0.02*** (3.60)
Able to save money	0.12 (0.32)	0.12 (0.33)	0.14 (0.35)	-0.00 (-0.21)	-0.03* (-2.51)
Settlement size < 5,000	0.32 (0.47)	0.33 (0.47)	0.29 (0.46)	-0.00 (-0.14)	0.03** (2.75)
Settlement size 5,000-100,000	0.46 (0.50)	0.42 (0.49)	0.40 (0.49)	0.04* (2.15)	0.05*** (4.06)
Settlement size > 100,000	0.22 (0.41)	0.26 (0.44)	0.31 (0.46)	-0.04* (-2.34)	-0.08*** (-7.53)
Observations	1569	1061	5389	2630	8019

Notes: This table shows the average characteristics of local currency borrowers, foreign currency borrowers, and individuals without a loan. The data is from the Austrian Central Bank's Euro Survey Project. We pool together waves of the survey between 2007 and 2011. Foreign currency borrowers are individuals who report having a foreign currency loan. Local currency borrowers are individuals who report having only local currency debt.

+, *, ** indicate significant differences in means at the 0.1, 0.05 and 0.01 levels, respectively.

Table 2 reveals that, compared to LC debtors, FC debtors have higher education, income, and employment rates, though the differences are relatively small (columns 1 and 2). In

addition, FC borrowers are younger than LC borrowers, which is consistent with the later start of foreign currency lending, and they are more likely to live in smaller cities. These patterns are consistent with existing studies on household FC borrowing in emerging European countries, which find that FC and LC debtors are approximately similar (Pellényi and Bilek, 2009; Beer et al., 2010).¹⁴ In contrast to the differences between LC and FC borrowers, the differences between borrowers and non-borrowers in column 5 are more pronounced. This indicates that the credit boom was not concentrated among low-income individuals.

Far-right populist voters Table 3 examines the characteristics of far-right supporters before the 2010 election using the Tárki Household Monitor. Likely far-right voters supporters are more likely to have a vocational degree, but are slightly less likely to have a college degree. Far-right voters have similar levels of household income in 2009 but are more likely to be employed. Interestingly, far-right supporters are *more* likely to have a bank loan in FC, but not in LC, relative to supporters of other parties. This implies that far-right voters are more likely to be exposed to the exchange rate shock through their debt positions. These patterns provide suggestive evidence that financial distress may have led debtors to vote for the far right. The next section lays out an empirical strategy based on administrative data and actual voting behavior at the zip code level to more systematically evaluate this hypothesis.

3 Data and empirical strategy

3.1 Data

We build a new zip code level dataset with information on election results, household debt by currency, and local characteristics. There are 3,475 zip codes in our dataset with an average of 2,312 eligible voters per zip code.

Election data We use zip code level parliamentary election results from the National Election Office for elections between 1998 and 2018. We aggregate polling station level data to the zip code level (see Appendix B.1 for details). The data contains the number of votes cast on party lists, turnout, and the number of invalid (blank) votes. Our primary focus is on the 2010 election, as the election system changed significantly in 2011. This change affected the relative importance of the proportional and majoritarian components, the rules for campaigning, and led to a redrawing of electoral district borders. As some of these changes may have affected voter behavior, we exclude 2014 and 2018 from our baseline sample, but we report

¹⁴The OeNB Euro Survey results are also consistent with the average characteristics of FC debtors, LC debtors, and non-borrowers in the February 2010 Tarki Monitor, as shown in appendix Table A.1.

Table 3: Characteristics of far right voters in survey data

	Far-right mean/sd	Center-right mean/sd	Center-left mean/sd	Other mean/sd
Primary	0.21 (0.41)	0.31 (0.46)	0.25 (0.43)	0.17 (0.38)
Vocational	0.45 (0.50)	0.29 (0.46)	0.32 (0.47)	0.27 (0.45)
High school	0.27 (0.44)	0.27 (0.44)	0.31 (0.46)	0.36 (0.48)
College	0.07 (0.26)	0.12 (0.33)	0.13 (0.33)	0.20 (0.41)
HH income in 2009 (1000 HUF)	2408.51 (1167.16)	2410.09 (1284.35)	2496.71 (1356.15)	2718.35 (1446.71)
Employed	0.54 (0.50)	0.45 (0.50)	0.34 (0.48)	0.49 (0.50)
Retired/student	0.35 (0.48)	0.43 (0.50)	0.59 (0.49)	0.37 (0.49)
HH size	3.14 (1.46)	2.98 (1.59)	2.64 (1.36)	2.92 (1.28)
Loan	0.51 (0.50)	0.40 (0.49)	0.37 (0.48)	0.49 (0.50)
FC loan	0.30 (0.46)	0.22 (0.41)	0.16 (0.36)	0.23 (0.42)
LC loan	0.21 (0.41)	0.18 (0.38)	0.22 (0.41)	0.27 (0.45)
Observations	191	1197	359	86

Notes: This table shows the average characteristics of far right voters and voters for other blocs in the February 2010 Tarki Monitor survey. Foreign currency borrowers are individuals who report having positive loan payments in foreign currency. Local currency borrowers are individuals who report having positive loan payments, but zero foreign currency loan payments.

results for those elections in subsequent analysis. To proxy for attitudes toward immigration, we also use zip code level data on the 2016 referendum on EU migrant quotas.

Household credit registry data Data on household debt by currency is from the Household Register of the Central Credit Information System (KHR). It contains the universe of household loans that were outstanding or originated after April 2012. The previous version of KHR contained only loans in default and is available from 2010. KHR contains information on loan type, month of origination, originated amount, currency denomination, monthly payments and balances, default status, borrower address, and the identity of the bank.¹⁵

¹⁵Borrowers' zip code level address is available for loans outstanding in June 2014. Because some loans were paid back by this time, we do not have address data for all loans. If a borrower has other loans outstanding

We reconstruct the data for the pre-2012 period using the detailed loan characteristics provided in KHR. Since data collection started in 2012, there is no information on household indebtedness for the preceding period (beyond the originated amount). To reconstruct the data at the loan level, we assume an annuity payment structure and complement the credit registry data with bank-month-currency-loan type specific average interest rate data.¹⁶ This allows us to calculate the outstanding debt and payment for each loan in each month from origination until 2012. We validate our approach by comparing the predicted and actual principal in 2012 and find that the two match closely. We also find that aggregate default rates in the credit registry closely match default rates reported from bank balance sheets, indicating that the credit registry provides an accurate picture of credit risk (see Appendix B.1).

The reconstructed credit registry covers 80.5 percent of housing debt in aggregate financial accounts. Loans that were terminated before April 2012 are missing from the credit registry. This affects two types of loans. First, loans that were originated early in the boom and loans with shorter maturity are more likely to be missing. We restrict the baseline sample to mortgage and home equity loans because these have longer maturities, and they also represent the majority of household debt. Second, the Early Repayment Program (ERP) initiated by the government at the end of 2011 enabled households with FC mortgage and home equity loans to prepay their loans. Participating loans are missing from the credit registry, as they were repaid before the start of data collection. The aggregate participation rate in the program was 23 percent of all FC housing debt.

We use three approaches to address the problem of missing loans. Our baseline approach is to allocate the missing loans proportionately with observed loans. We multiply household debt and the number of loans in a zip code by the ratio between the aggregate statistics and the aggregated credit registry data for each currency denomination.

The second approach estimates participation in the ERP using a shift-share approach. We use a separate dataset maintained by the National Bank of Hungary with the universe of loans for three major banks with a combined lending market share of 24 percent. We then assume that the participation rate in each zip code for loans issued by another bank b is the participation for these three major banks times the ratio between the aggregate participation rate for bank b (which was reported by all banks) and the three banks. Because this method allocates missing loans reasonably smoothly across zip codes and the quantity of missing loans is modest compared to observed loans, our results are highly robust to this adjustment.

after June 2014, we use that address information.

¹⁶Aggregate statistics show that more than 90 percent of the domestic currency mortgage loans were subsidized. Because of this, for domestic currency mortgages we use the subsidized interest rates to calculate payments and debt balances.

As a third approach, we proxy zip code participation in the ERP using the volume of new local currency borrowing during the ERP window (October 2011 to February 2012). This period saw a spike in local currency borrowing to take advantage of the ERP and refinance into an LC loan. Our estimates are also robust to using this adjustment. Further details on these latter two approaches are provided in Appendix B.

Other data sources We use several other administrative data sources for control variables. The T-Star database contains yearly settlement (municipality) level data on a wide range of characteristics, such as demographics, unemployment, and income. We also use data from the 2011 census, which contains settlement-level information on educational attainment and ethnic composition. There are 3,152 settlements in Hungary, so the settlement level control variables are at a slightly coarser level of aggregation than the zip code level variables.¹⁷ We also use Hungarian Corporate Income Tax Data, matched with KHR’s firm credit registry, to measure settlement-level employment shares by sector and the share of firms with foreign currency debt exposure before the crisis.

Summary statistics Table 4 presents descriptive statistics from our zip code level dataset. Zip codes are weighted by the number of eligible voters in 2006. The average FC loan share was 63 percent in September 2008, and the average FC debt revaluation by 2010 relative to disposable 2008 income is 8.7 percentage points. The mean far-right vote share in the 2010 election was 15 percent, almost equalling the average vote share for the incumbent center-left.

3.2 Measuring exposure to the depreciation

Our baseline measure of zip code level exposure to the FC debt revaluation shock is the share of FC loans in total loans at the start of the crisis:

$$FCS_i = \frac{N_{FC,i}}{N_{LC,i} + N_{FC,i}},$$

where $N_{FC,i}$ is the number of FC loans in zip code i in September 2008 and $N_{LC,i}$ is the number of LC loans.¹⁸ While we also present results for other measures of exposure, the FC share is appealing because it allows us to hold total household debt fixed and use variation only in the currency composition of debt. Figure 3 shows the zip code level map of FCS .

¹⁷Typically, settlements have only one zip code. Some settlements that constitute larger cities have multiple zip codes.

¹⁸Since 97 percent of FC debt was denominated in Swiss franc, abstracting away from the variation in foreign currencies does not affect our results.

Table 4: Zip-code level descriptive statistics

Main variables	N	Mean	SD	p10	p90
FC share, <i>FCS</i>	3475	.63	.089	.52	.73
FC debt share	3475	.66	.094	.54	.77
FC loans per capita	3475	.057	.019	.035	.079
LC loans per capita	3475	.035	.015	.019	.05
Debt revaluation to income	3475	.087	.032	.052	.13
Control variables	N	Mean	SD	p10	p90
Debt to income	3475	.59	.21	.36	.86
Per capita number of loans, 2008	3475	.089	.03	.054	.12
Vocational share	3475	.2	.055	.12	.26
High school share	3475	.27	.068	.17	.35
College share	3475	.15	.095	.053	.27
Log per capita income	3475	7.7	2.1	6.2	12
Log number of eligible voters, 2006	3475	9.4	1.8	6.9	12
Unemployment rate, 2007	3475	.073	.058	.023	.15
Share of people age 18-29	3475	.16	.014	.15	.18
Share of people age 59+	3475	.22	.033	.18	.25
Dependent variables	N	Mean	SD	p10	p90
Vote share, far-right, 2010	3475	15	7.3	8	26
Vote share, center-right, 2010	3475	50	13	31	65
Vote share, center-left, 2010	3475	17	6.4	8.9	26
Vote share, far-left, 2010	3475	.11	.4	0	.28
Turnout, 2010	3475	64	6.1	56	72

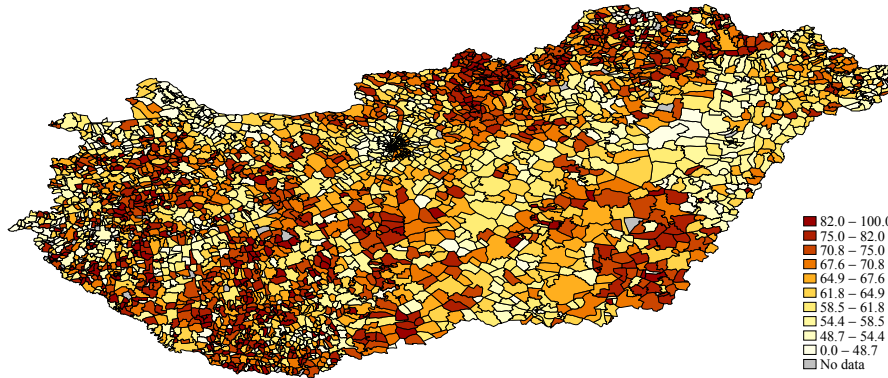
Notes: This table presents descriptive statistics for the main zip code level variables used in the analysis. Observations are weighted by the number of eligible voters in 2006.

The coloring corresponds to the deciles of *FCS*. Borrowing in FC was prevalent, and, even in the lowest deciles of exposure, nearly half of all loans were denominated in FC.

Variation in household FC debt exposure stems mainly from the timing of borrowing. Households who borrowed in the first phase of the credit boom have subsidized LC loans, while the majority of households that borrowed after 2003 have FC loans. Though foreign banks were present in Hungary already in the 1990s, they focused on the corporate sector, and domestic banks served the retail market. The LC credit boom was thus more pronounced in regions with higher branch density of domestic banks. With the cut back of the government subsidy program, foreign banks expanded their branch network to attract retail customers (see Figure A.1), and offered FC loans in previously underserved regions.

What is the correlation between zip code level household FC debt exposure and other zip code characteristics? Table 5 presents results from regressions of FCS_i on zip code level characteristics. Each row represents one bivariate regression. The estimates are weighted by

Figure 3: Share of foreign currency loans in September 2008



Note: This figure shows a zip code level map of the share of foreign currency denominated mortgage and home equity loans in September 2008, *FCS*. The shading represents the deciles of the foreign currency loan share.

Table 5: Correlates of the zip code level foreign currency loan share

	Coefficient	Standard error	N	R^2
Debt to income, 2008	-0.063**	0.0099	3475	0.040
Per capita number of loans, 2008	-0.083	0.13	3475	0.002
Vocational share	0.59**	0.047	3475	0.140
High school share	-0.38**	0.044	3475	0.084
College share	-0.42**	0.045	3475	0.200
Log per capita income, 2007	-0.011**	0.0019	3475	0.063
Log number of eligible voters, 2006	-0.013**	0.002	3475	0.073
Unemployment, 2007	0.42**	0.067	3475	0.076
Share of people age 18-29	0.84**	0.33	3475	0.017
Share of people age 59+	0.15	0.21	3475	0.003
Debt per capita, 2004	-0.75**	0.053	3475	0.320
Employment share of exporters, 2007	-0.068**	0.015	3475	0.025
Employment share of manufacturing, 2007	0.012	0.021	3475	0.001
Employment share of firms with FC debt, 2007	0.0095	0.014	3475	0.000
Corporate foreign currency share of debt	-0.056**	0.018	2867	0.023

Notes: Each row in this table reports a bivariate regression where the dependent variable is foreign currency share of loans in September 2008 and the independent variable is listed in the first column. The regressions are weighted by the number of eligible voters in 2006. Standard errors are clustered at the subregion level (175 units).

+, *, ** indicate significance at the 0.1, 0.05 and 0.01 levels, respectively.

the number of eligible voters in 2006, and the standard errors are clustered at the subregion-level (175 regions).

Zip codes with a high share of FC loans tend to have lower population, lower income, higher vocational share, lower college share, and higher pre-crisis unemployment. At the same time, the per capita number of loans and per capita debt are not related to FC exposure, while debt-to-income is negatively correlated with FCS . The differences for most variables are small, and R^2 values are generally also small, with the exception of the education shares. Our main estimation strategy will control for these observables to ensure that the results are not driven by a differential composition of observables in exposed areas.

3.3 Empirical specification

Our empirical specification examines whether the populist far-right vote share increased more following the exchange rate depreciation in zip codes with higher exposure to household foreign currency debt:

$$FarRightShare_{it} = \beta FCS_i \times Post_t + \alpha_i + \delta_t + \eta_{ct} + \gamma X_{it} + u_{it}, \quad (1)$$

where $FarRightShare_{it}$ is the vote share of the populist far right in zip code i and election year t , FCS_i is the share of foreign currency loans in September 2008 in zip code i , $Post_t$ is a post-2008 dummy that equals one after 2008 and zero otherwise, and α_i and δ_t are zip code and election year fixed effects, respectively. We also control for county-by-election-year fixed effects, η_{ct} . There are 20 counties in Hungary, and these county-year fixed effects control for time-varying, unobservable shocks to political preferences across larger regions. The parameter of interest is β , which measures the effect of foreign currency debt exposure on the far right vote share.

The control variables in X_{it} are pre-crisis zip code characteristics interacted with election-year dummy variables. The control variables are log population in the settlement (municipality), the share of the population age 18-29 and age 60+, log after-tax income per capita, unemployment relative to working-age population in 2007, education shares, per capita number of loans, and debt-to-income. Controlling for the number of loans and household debt-to-income implies that we are comparing two zip codes with the same pre-depreciation debt level, using only variation in the currency *composition* of household loans.

The key identifying assumption for consistent estimation of β is that there are no time-varying, zip code level shocks to political preferences that are correlated with household foreign currency debt exposure, conditional on (X_{it}, η_{ct}) . The regressions are weighted by the number of eligible voters in 2006. We estimate robust standard errors clustered at the

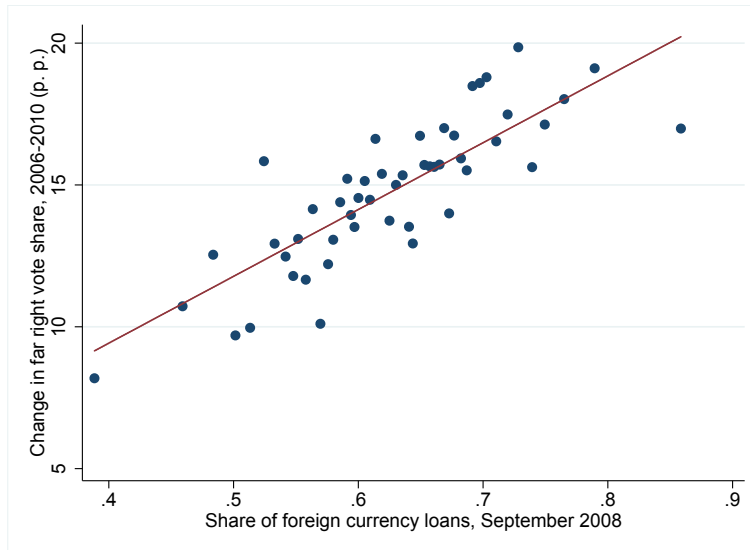
subregion level (175 regions). Given that our estimation uses nearly 3,500 zip codes, clustering at 175 subregions is conservative. We can reject at traditional significance levels that a coarser level of clustering is appropriate using the test proposed by [Ibragimov and Müller \(2016\)](#).

4 Results

4.1 Main result

Figure 4 summarizes our main result. We plot binned bivariate means of the change in the populist far-right vote share from 2006 to 2010 against the household FC loan share. Both variables are measured at the zip code level. Zip codes with a higher share of foreign currency loans see a stronger increase in the far-right vote share. The relation is strong and linear, which supports the assumption of linearity in equation (1).

Figure 4: Foreign currency loan exposure and the rise in the populist far-right vote share



Note: This figure shows binned bivariate means of the zip code level household foreign currency loan share in September 2008 and the change in the zip code level far-right vote share from 2006 to 2010.

The baseline results from estimation of (1) are presented in Table 6. The specifications are estimated using election years from 1998 to 2010. The first column in Table 6 shows the point estimate controlling for zip code fixed effects, county-election fixed effects, and education shares. We emphasize that controlling for education shares is important, as education is a strong predictor of far-right populist support. The point estimate on the household FC debt share is positive and highly significant. The estimate implies that moving from a zip code

where all debt is in LC to a zip code where all debt is in FC increases the far right vote share by 5.2 percentage points. The estimates on the education share variables are also interesting. Areas with a higher vocational education share have higher far-right support, whereas areas with a higher share of college-educated individuals have a lower far-right vote share.

Our preferred specification is reported in column 2 of Table 6. It adds our additional baseline control variables, including pre-crisis household debt-to-income, income, and unemployment rate. The estimate with this specification is 4.4. Once we control for educational attainment, the coefficient is reasonably stable to additional controls. To the extent that unobserved selection is correlated with these covariates, this suggests that controlling for educational attainment accounts for most potential omitted variable bias (Altonji et al., 2005).

In column 3, we include 175 subregion fixed effects interacted with election-year fixed effects. This provides a tighter specification that controls for unobserved shocks at a level of aggregation that approximately corresponds to local labor markets (Pálóczi et al., 2016). Subregion-time fixed effects also account for subregional differences, such as cultural or economic differences, that may be correlated with shocks to far-right support. The estimate in column 3 is essentially unchanged with this control, which shows that our results hold using variation in exposure to FC debt *within* local labor markets. Column 4 shows that the effect of FC debt exposure is also robust to the inclusion of zip code specific linear time trends.

Interpretation of the magnitudes The estimate from our preferred specification in Table 6 column 3 is economically meaningful, in addition to being statistically significant. Moving from zero to full foreign currency debt share exposure implies an increase in debt relative to pre-crisis income of 14.9 percentage points. The *FCS* estimate in column 3 thus implies that a 10 percentage point increase in debt-to-income increases the far right share by 3.0 percentage points ($10 \times 4.4/14.9$).

What fraction of the overall rise in the far right vote share does household foreign currency debt exposure explain? The average foreign currency debt share is 63 percent, so foreign currency debt exposure explains approximately 2.8 percentage points (0.63×4.4) of the 14 percentage points increase of far-right vote share between 2006 and 2010, which is 20 percent of the increase. According to this estimate, foreign currency debt exposure led to 142 thousand additional far-right votes in the 2010 election (2.8 percent of 5.1 million voters). This effect is economically significant, given that there were approximately 740 thousand foreign currency housing loans outstanding in 2008.

Impact of foreign currency debt exposure over time In Figure 5, we split zip codes into four equal population quartiles by *FCS_i* and plot the unconditional average populist far

Table 6: Effect of household foreign currency exposure on the populist far-right vote share

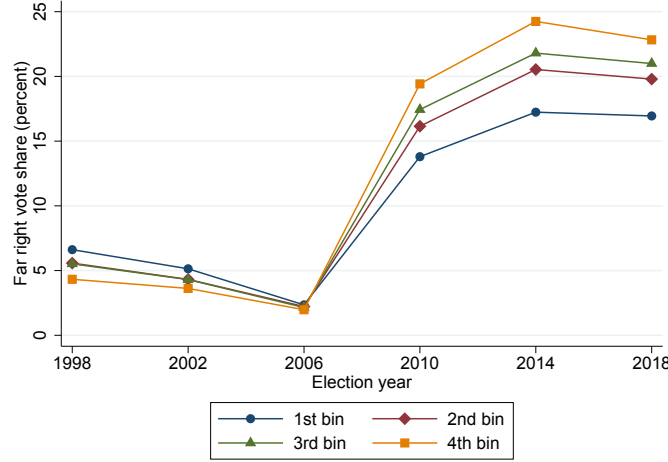
	(1)	(2)	(3)	(4)
FC share×Post	5.171** (1.279)	4.397** (1.174)	4.187** (1.079)	4.567** (1.372)
Vocational share×Post	24.48** (6.160)	16.78** (6.177)	19.72** (5.217)	13.59* (6.612)
High school share×Post	4.003 (4.693)	-15.10** (5.273)	-1.702 (3.141)	-12.86* (5.814)
College share×Post	-23.08** (6.122)	-28.30** (6.023)	-19.80** (2.412)	-21.99** (5.925)
Log income, 07×Post		-0.258 (0.208)	0.0199 (0.222)	-0.312 (0.228)
Unemp. rate, 07×Post		-19.02** (5.099)	-16.65** (4.876)	-16.79** (5.903)
Young share, 07×Post		15.08+ (8.965)	7.113 (7.664)	15.47 (11.08)
Old share, 07×Post		-10.21* (4.009)	-20.96** (4.250)	-9.331* (4.636)
Election FE	✓	✓	✓	✓
Zip code FE	✓	✓	✓	✓
County-election FE	✓	✓		✓
Controls		✓	✓	✓
Subregion-election FE			✓	
Zip code linear trend				✓
R^2	0.910	0.913	0.933	0.969
Observations	13900	13900	13900	13900

Notes: This table presents regression estimates of equation (1) at the zip code level using election years from 1998 to 2010. Post is a variable that equals 1 in the 2010 election and zero in previous elections. FC share is the share of foreign currency loans in total housing loans in a zip code. Unreported controls are the number of loans in 2008 per eligible number of voters, debt-to-income in September 2008, and log settlement population. Regressions are weighted by the number of eligible voters in 2006. Standard errors are clustered at the subregion level.

+, *, ** indicate significance at the 0.1, 0.05 and 0.01 levels, respectively.

right vote share in each election separately by quartile. Figure 5 shows that the *levels* of far right support were similar in high and low exposure zip codes in elections between 1998 and 2006, which indicates that high *FCS* areas did not have an initial predisposition for far

Figure 5: Evolution of the populist far-right vote share across quartiles of foreign currency debt exposure



Notes: This figure presents the average far right vote share in each quartile of foreign currency debt exposure. Far right vote shares are from parliamentary elections from 1998 to 2018. Specifically, we sort zip codes into four equal population bins by the foreign currency loan share, FCS_i , and compute the average far right vote share in each bin for parliamentary elections from 1998 to 2018.

right support. The absence of differential changes in the far right share prior to 2010 provide support for the parallel trends assumption. Starting in the 2010 election, high exposure areas then see a much sharper rise in the far right vote share. Zip codes in the highest quartile of exposure saw a rise in the far right vote share from 2.0 percent in 2006 to 19.4 percent in 2010. Meanwhile, the far right vote share in the lowest quartile rose from 2.4 percent in 2006 to 13.7 percent in 2010.

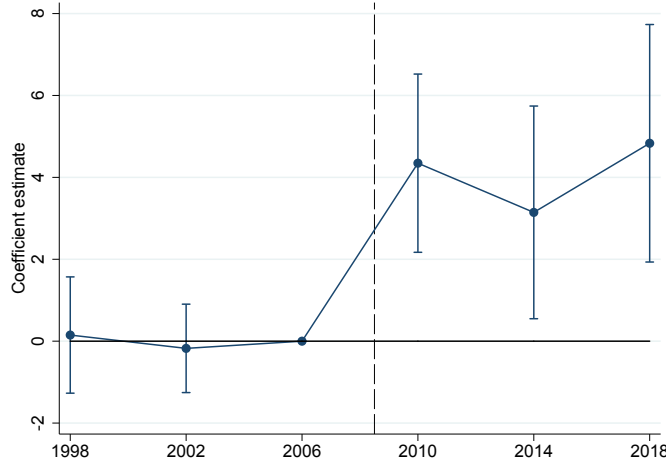
Figure 6 examines the impact of FC debt exposure on the far right share over time more formally. The figure plots estimates of $\{\beta_j\}$ from:

$$FarRightShare_{it} = \sum_{j \neq 2006} \beta_j FCS_i \times \mathbf{1}[j = t] + \alpha_i + \delta_t + \eta_{ct} + \gamma X_{it} + \epsilon_{it}, \quad (2)$$

where $\mathbf{1}[j = t]$ is a dummy variable that equals one in year t and 0 otherwise. Year 2006 is the reference election year.

Figure 6 shows that the estimates for the pre-crisis period are close to zero and insignificant. The far-right vote share then increases sharply in more exposed zip codes after the depreciation starting in 2008, and the effect persists through the 2014 and 2018 election. Financial distress experienced by debtors in the crisis thus has a persistent impact on political preferences. One explanation for the persistence may be that the act of voting for a candidate

Figure 6: Effect of foreign currency debt exposure on the populist far-right vote share



Notes: This figure shows the dynamic effect of the zip code foreign currency share on the far right vote share for parliamentary elections from 1998 to 2018. The figure plots the sequence of estimates $\{\hat{\beta}_y\}$ from the following regression:

$$FarRightShare_{it} = \sum_{y \neq 2006} \beta_y (FCS_i \times Year_y) + \alpha_i + \delta_t + \eta_{ct} + X_{it}\Gamma + \varepsilon_{it}.$$

Error bars represent 95% confidence intervals from standard errors clustered at the subregion level (175 units).

leads to a more favorable opinion of the candidate in the future, as suggested by [Mullainathan and Washington \(2009\)](#).

4.2 Robustness

4.2.1 Alternative specifications

Table 7 shows that that alternative definitions of household foreign currency debt exposure yield similar results as our baseline *FCS* measure. Column 1 shows the point estimate is similar when we use the share of FC denominated *debt* instead of the share of loans in FC. In column 2, we use the number of FC loans per capita as the measure of exposure. We also control for the fraction of LC loans per capita. The point estimate on the number of FC loans per capita implies that increasing the FC loan penetration in a zip code by 10 percentage points leads to a 1.52 percentage point increase in the far right vote share. In contrast, the coefficient on the number of LC loans per capita suggests that LC borrowers were less likely to vote for the far-right. LC debtors were less exposed to personal financial distress, and far-right debtor-friendly proposals primarily targeted FC debtors, as we discuss in section 5.

Table 7: Robustness to alternative specifications

	OLS			PS matched	ERP	ERP
	(1)	(2)	(3)	sample	adjustment: 3-banks	adjustment: Refinance
	(1)	(2)	(3)	(4)	(5)	(6)
FC debt share×Post	3.648** (1.073)					
FC loans per capita×Post		15.19** (4.331)				
LC loans per capita×Post		-19.34** (6.181)				
Debt revaluation to income×Post			15.99* (6.887)			
FC share×Post				5.439** (1.362)	3.485** (1.211)	4.036** (1.349)
Election FE	✓	✓	✓	✓	✓	✓
Zip code FE	✓	✓	✓	✓	✓	✓
Controls	✓	✓	✓	✓	✓	✓
County-election FE	✓	✓	✓	✓	✓	✓
R^2	0.913	0.913	0.913	0.913	0.913	0.913
Observations	13900	13956	13956	9676	13828	13908

Notes: This table shows the results of zip code level regression where the dependent variable is the share of far-right votes. Controls include the number of loans in 2008 per eligible number of voters, debt-to-income in September 2008, per capita income in 2008, education shares, age shares, and log settlement population. Column 2 excludes the debt-to-income and per capita number of loans controls, as this specification measures the effect of adding one extra FC loan per capita. All controls are interacted with election-year fixed effects. Regressions are weighted by the number of eligible voters in 2006. Standard errors are clustered at the subregion level (175 units). +, *, ** indicate significance at the 0.1, 0.05 and 0.01 levels, respectively.

Column 3 in Table 7 uses the change in debt induced by the depreciation relative to the pre-crisis household income as the measure of debtors' financial distress. Specifically, we compute the difference between debt burdens in April 2010 at market exchange rates and the counterfactual debt level if the exchange rate had remained at its pre-crisis level. The estimate implies that an unexpected 10 percentage point increase in household debt-to-income leads to a 1.6 percentage point increase in the far right vote share. In contrast to the *FCS* measure, this debt revaluation measure is uncorrelated with education and negatively correlated with local pre-crisis unemployment (see Appendix Table A.2). Thus, this measure provides another useful way to ensure that our results are not driven by lower education in high *FCS* areas.

As some zip code observable characteristics are correlated with FC debt exposure, we verify that our findings are not sensitive to limited overlap in the covariate distributions of

more exposed and less exposed zip codes. To do this, we split zip codes into treatment and control groups based on whether *FCS* is above or below the median. Using our baseline controls, we then estimate the propensity score and keep only treated zip codes in which the propensity score distance to the nearest control zip code is sufficiently low. Table A.3 confirms that high and low *FCS* zip codes in this matched sample are similar in terms of observable covariates. In particular, the [Imbens and Wooldridge \(2009\)](#) normalized difference statistics are generally low, indicating that high and low *FCS* samples are well balanced. Column 4 presents results from re-estimating (1) on the propensity-score matched sample. We include all of our baseline controls to account for any remaining observable differences across these zip codes that may affect the far right vote share. The estimate on this matched sample remains highly significant and rises slightly to 5.4.

Finally, columns 5 and 6 in Table 7 show that the results are robust to two approaches described in section 3.1 to account for loans missing due to the 2011 Early Repayment Program (ERP). Column 5 estimates the fraction of missing loans using information from a separate database of loans for three large anonymous banks. Column 6 estimates the fraction of missing loans using the volume of borrowing during the ERP period. The point estimates are close to the baseline coefficient estimates, indicating that our results are not affected by loans missing in our data due to the ERP.

4.2.2 Robustness to alternative explanations

Persistent extremist attitudes Persistent far-right attitudes that are correlated with foreign currency debt exposure pose a potential threat to identification. Several studies argue that far-right attitudes are persistent ([Voigtländer and Voth, 2012](#); [Avdeenko and Siedler, 2015](#); [Fontana et al., 2017](#)). However, these attitudes may need to be “activated” and may therefore only manifest themselves during crises ([Cantoni et al., 2017](#); [Ochsner and Roesel, 2017](#)). To address this endogeneity concern, we conduct a placebo test using data on the first secret ballot election in 1939. Six far-right parties received 25 percent of the votes in 1939, so this election allows us to capture historical extremist attitudes.¹⁹

Columns 1 and 2 in Appendix Table A.4 show that the foreign currency share, measured in September 2008, is uncorrelated with the 1939 far right vote share.²⁰ The unconditional correlation between the far right vote share and *FCS* is marginally significant and negative,

¹⁹The six far-right parties participating in the 1939 election were the Arrow Cross Party, National Front, United Hungarian Nationalist Socialist Party, Christian National Socialist Party, Hungarian National Socialist Agricultural Labourers’ and Workers’ Party, and far-right candidates without a party affiliation. Appendix B.1 provides further details.

²⁰Although support for the far right was widespread, the government prevented far-right parties from appearing on the ballot in about half of the electoral districts (see Appendix B.1 for details). We therefore present results using only electoral districts where the far right was on the ballot and using all districts.

which goes against the persistent extremist attitudes concern. In columns 3 and 4, we regress the change in the far-right vote share between 2006 and 2010 on the 1939 far-right vote share. There is limited evidence that far-right attitudes dating back to the 1930s predict the rise of the far-right in 2010. As a result, controlling for the 1939 far-right share does not meaningfully change the estimate on *FCS*. In columns 5 and 6, we interact the 2008 foreign currency share with the 1939 far right vote share. The interaction term is positive but small in magnitude, indicating that the effect of foreign currency exposure is stronger in regions with higher historical far-right attitudes.

In Table A.4A column 7, we take another approach to control for historical extremist attitudes. We control for the far-*left* vote share in 1998. Far-left and far-right parties might be reasonably close from the viewpoint of populist voters. Indeed, a higher far-left vote share in 1998 predicts higher far-right vote share in 2010. Yet, the effect of household foreign currency debt exposure remains quantitatively similar. Taken together, these results suggest that the foreign currency debt crisis did not simply “activate” latent far-right attitudes.

Roma minority and immigration Fears about immigration and the scapegoating of minority groups may also have contributed to the rise of the far right.²¹ Though the immigration rate was relatively low in the period leading up to the 2010 election, Hungary has a sizable Roma minority.²² Several studies attribute the success of Jobbik to their openly racist anti-Roma rhetoric (e.g., [Karácsony and Róna \(2010\)](#)).

In column 1 of Table A.5, we address these potentially confounding factors by controlling for local minority population shares. In addition to the Roma minority, we distinguish between minorities from surrounding countries and immigrants from other regions. Our main result is robust to controlling for the population shares of minority groups. Of course, voters may be influenced by anti-immigrant and anti-minority rhetoric without living in proximity to minorities. Nevertheless, a higher local presence of minority groups has been shown to influence voting for right-wing parties, so this provides a useful robustness check.

Financial literacy Less financially literate households may be more likely to borrow in foreign currency and may also be more inclined to support a populist far-right party. So far we control for education and income, which partially proxy for financial literacy. Column 2 in Table A.5 uses two additional settlement level proxies for financial literacy to corroborate

²¹Several studies find a positive relationship between exposure to immigrants and far right voting ([Halla et al., 2016](#); [Dustmann et al., 2018](#)). However, [Steinmayr \(2016\)](#) shows using data from Austria that exposure to refugees can also lower local support for the far right.

²²Our main focus is on the 2010 election, so our results are not driven by the the impact of the refugee crisis, which started in 2013. Immigration was not a major issue in the 2010 election campaign, and mentions of immigration in parliamentary speeches was very low before 2015 (see Appendix Figure A.2).

our previous findings. The first proxy is the pre-crisis default rate, measured in September 2008, which captures potentially declining lending standards. The second is the share of home equity loans in total FC loans, which proxies for mis-selling and high-risk lending according to observers of the Hungarian credit boom (Bethlendi, 2015). Controlling for these variables does not meaningfully change our results. The coefficients on these control variables indicate that declining lending standards may also have contributed to increased far-right support.

Local labor market and house price shocks Local labor market shocks may separately affect political preferences (Geishecker and Siedler, 2011; Autor et al., 2016; Colantone and Stanig, 2017; Dippel et al., 2015), and might also be correlated with households' foreign currency debt exposure. Table A.5 column 3 shows that our results are robust to controlling for two-digit industry employment shares to capture sector-specific shocks. We also control for the local employment share of firms with FC debt in 2007 to capture for firm balance sheet distress from FC debt.²³

In column 4 we directly control for the change in the settlement-level unemployment rate between 2008 and 2010. This measure captures a variety of shocks that raised unemployment, beyond sectoral or corporate foreign currency debt related shocks. Controlling for the increase in the unemployment rate leads to quantitatively similar estimates on the FC share. The increase in the unemployment rate itself is positively, but not significantly, related to the rise in the far-right vote share. Column 5 controls for the change in subregional (175 units) house prices. The point estimate decreases slightly but remains significant. It is important to emphasize, however, that since household FC debt exposure depresses local economic activity and house prices, controlling for unemployment and house prices over-controls for the effect of financial distress induced by foreign currency debt (see Verner and Gyöngyösi (2018)). A larger decline in house prices also predicts a larger increase in the far-right share. Finally, column 6 in Table A.5 includes all control variables from the far-left vote share in 1998 to house price growth. The coefficient is quantitatively similar as in our baseline specification in Table 6, indicating that our results are not driven by a variety of alternative hypotheses.

5 Mechanisms

So far we have documented that household financial distress from foreign currency debt exposure increases the populist far-right vote share. In this section, we examine the channels

²³Foreign currency lending was also prevalent in the corporate sector (Bodnár, 2006, 2009; Endresz et al., 2012). Firm foreign currency exposures weakened firm balance sheets and depressed investment during this period (Endrész and Harasztosi, 2014). The decline in the number of observations in column 3 is due to the fact that there are no firms registered in the smallest settlements.

through which this crisis influenced political preferences. While it is challenging to definitively identify the exact mechanisms for why distressed debtors turned toward the far-right populist party, our goal is to present additional narrative and empirical evidence that sheds light on which mechanisms appear to be the most important.

5.1 Creditor-debtor conflict

5.1.1 Theory

The creditor-debtor conflict hypothesis centers around the how the burden of adjustment to the crisis is distributed across creditors and debtors. Fully noncontingent debt contracts impose the burden adjustment to adverse economic shocks entirely on debtors, even though debtors tend to have the least capacity to absorb losses. Debt relief can introduce ex post state contingency that increases welfare by mitigating inefficient foreclosures and negative demand externalities. For example, [Bolton and Rosenthal \(2002\)](#) show that debt relief after a negative shock improves ex post efficiency and may even improve ex ante efficiency. Debt relief can thus be supported by majority voting.²⁴

Although debt relief can even benefit creditors under certain conditions, debt relief is often not a Pareto improvement. Disputes about the resolution of the crisis, therefore, manifest themselves in different policy preferences. Debtors prefer debt relief, debt restructuring, and other debtor-friendly interventions, while creditors oppose these measures and demand full repayment ([Mian et al., 2014](#)). Since creditors are often less dispersed, they may find it easier to organize themselves and influence policy makers ([Olson, 2009](#)). This creates a niche for a political party to win support from debtors by advocating debtor-friendly policies.²⁵ The role of creditor-debtor conflict in the political economy of adjustment to crises has a long history, going back at least to the 19th century populist movement in the United States. [Frieden \(2015\)](#) discusses several episodes where creditor-debtor conflict was central to the political economy of adjustment to a debt crisis.²⁶

Why do populist parties benefit from creditor-debtor conflict? These parties are often political outsiders. Advocating debtor friendly policies connects with the claim that they speak

²⁴In the US, states with higher farm financial distress passed legislation that helped debtors both after the Panic in 1819 ([Rothbard, 2002](#)) and in the 1930s ([Alston, 1984](#)). Similarly, US representatives whose constituents experienced a sharper increase in default were more likely to support the Foreclosure Prevention Act in 2008 ([Mian et al., 2010](#)).

²⁵This mechanism is related to the model in [Guiso et al. \(2017\)](#), where populist parties promise policies that benefit workers with uncertain income.

²⁶A central pillar of Franklin Roosevelt's first 100 days was abandoning the gold standard and the abrogation of Gold clauses in debt contracts. Gold clauses allowed creditors to demand repayment in gold or gold equivalent. The abrogation of Gold clauses alleviated the impact of the depreciation of the dollar on debtors.

for “the people” by representing the interests of debtors against the financial sector. Debtor-friendly redistributive policies also allow politicians to signal that they are not captured by the elite (Acemoglu et al., 2013).

In contrast, establishment parties may not be willing or able to exploit creditor-debtor conflict. These parties may be less willing to advocate for debtors at the expense of other interest groups that are important for their electoral coalitions, including banks, firms that rely on bank credit, and savers who do not stand to directly benefit from debt relief. Establishment parties may also have less of an incentive to experiment with more aggressive debtor-friendly policies. As Rodrik (2014) puts it: “Political incumbents may be deterred from [policy] experimentation because they will bear the full cost of failed policy experiments, but will share the rents resulting from any successes with potential challengers who act as copycats.”

5.1.2 Evidence: Debtor-friendly rhetoric and policies

Campaign promises The first piece of evidence for the creditor-debtor conflict hypothesis comes from campaign promises made to foreign currency debtors in campaign manifestos. In its manifesto, the main far-right populist party Jobbik mentions FC debt 7 times, advocating for payment relief and debt restructuring, as well as other forms of debtor protections. For example, Jobbik’s manifesto (Jobbik, 2010, p. 12.) contains the following pledges (translated from Hungarian):

“The eviction of troubled foreign currency borrowers will be suspended immediately for one year... We will make it mandatory for loans with a maturity of more than three years to be able to suspend repayment for 6-12 months, without any additional conditions or penalties. If foreclosure cannot be avoided, then the owner should be given at least six months to sell the property. A long term solution is a maintained low interest rate from the National Bank of Hungary, and the refinancing of the foreign currency loans into low-interest rate domestic currency loans provided by the National Bank of Hungary. After the significant decrease in the interest rate, we will incentivize maturity extension for both domestic and foreign currency denominated loans.”

In contrast, the incumbent Socialist Party’s 2010 election manifesto contains only one vague reference to household FC debt (MSZP, 2010):

“In the field of retail lending we need greater security, a mitigation of risks, and the introduction of new products. Regarding entrepreneurial and bank lending, the ratio of foreign currency debt should be reduced. Customer vulnerability must be further reduced.”

Moreover, promises made by the Socialist Party were regarded as less credible, as they were in government during the outbreak of the crisis, overseeing an unpopular \$25 billion IMF bailout. The Socialist government also passed a bank bailout but did not pass any legislation to address the FC debt crisis, which the far right criticized heavily. The center-right party Fidesz’s manifesto does not contain any reference to foreign currency debtors (Fidesz, 2010). The newly founded green party also does not mention foreign currency debtors in their manifesto (LMP, 2010).

Party leaders’ campaign speeches show a similar pattern. Gábor Vona, the Jobbik leader, campaigned on the conversion of foreign currency denominated loans to local currency to prevent foreclosures. At the same time, Viktor Orbán, prime minister candidate for the leading opposition party Fidesz, made no mention of foreign currency debt in several of his speeches in the months prior to the 2010 election.²⁷ In addition to campaign pledges in their manifesto, in August 2009, Jobbik held demonstrations at the Ministry of Finance and the Hungarian Banking Association to protest against rising monthly payments on foreign currency loans.

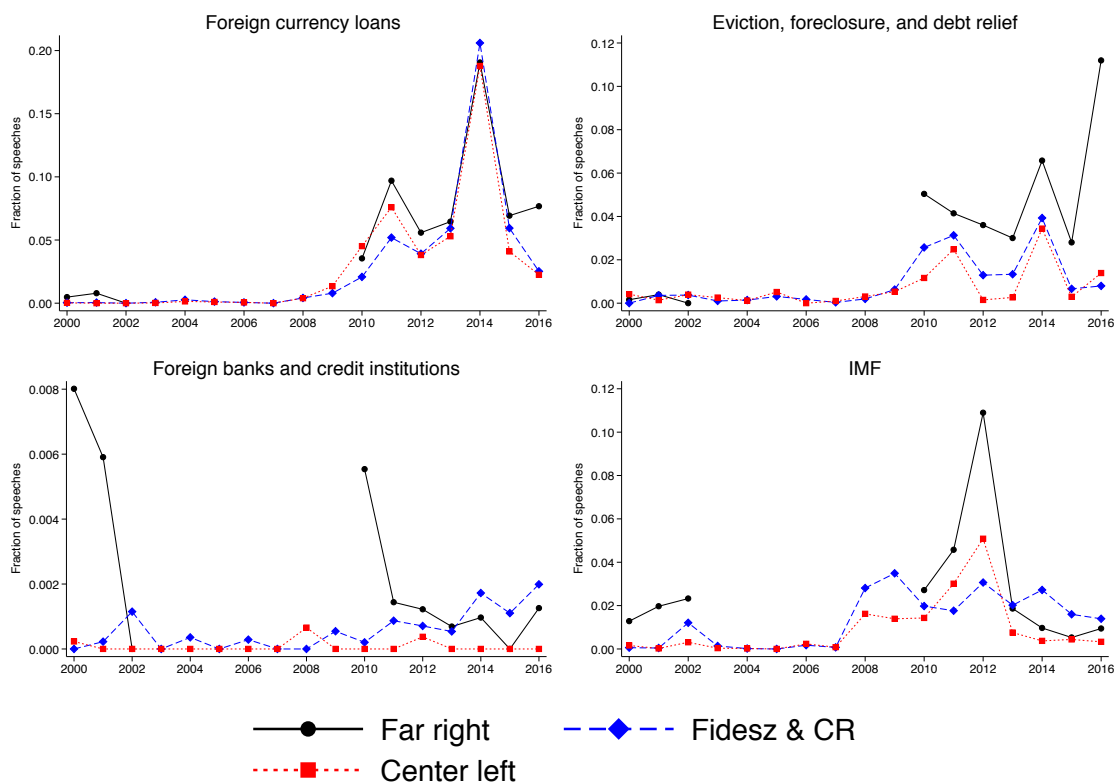
Parliamentary speeches To provide additional evidence for the argument that far-right populist rhetoric was pro-debtor, we scraped and analyzed 350,251 speeches given on the floor of the Hungarian parliament between 2000 and 2016.²⁸ Figure 7 plots the frequency of keywords related to the crisis by party groups in these parliamentary speeches. The top left panel in Figure 7 shows that mentions of terms related to FC loans increases sharply in 2010, after the far-right enters parliament. The far right is among the party groups that most frequently mentions FC loans, although they are mentioned by all parties, especially in 2014 when the settlement and conversion policies were debated in parliament. The top right panel Figure 7 shows that the far right most frequently references evictions, foreclosures, and debt relief. Figure 7 also shows that the far right also frequently mentions the IMF and is more likely to mention terms related to foreign banks.

To better understand whether the far right’s rhetoric about the FC debt crisis differed from the rhetoric of other parties, we use machine learning to analyze whether certain words are more likely to be associated with the far right. From the population of all parliamentary speeches, we select the subset of 3,349 speeches from 2010 to 2014 that contain at least one keyword referencing the FC loan crisis. The keywords are listed in the note to Figure 7. From these speeches, we then extract all sentences containing the keyword(s). We restrict the sample to speeches from 2010 to 2014 because the far right only entered parliament in

²⁷Jobbik and Fidesz speeches can be found online: <https://szolnok.jobbik.hu/content/vona-gabor-beszede-2010-marcius-15-en> and <http://2010-2015.miniszterelnok.hu/beszedek/>.

²⁸The speeches are available at: <https://www.parlament.hu/web/guest/orszaggyules>.

Figure 7: Frequency of terms related to the crisis in parliamentary speeches by party



Notes: This figure plots the fraction of parliamentary speeches in containing specific keywords related to the crisis by party group. The translation of keywords related to “foreign currency loans” are: “foreign currency loans,” “foreign currency debt,” “foreign debt,” “Swiss franc,” and “exchange rate.” Keywords related to “evictions, foreclosure, and debt relief” are: “eviction,” “eviction moratorium,” “debt rescheduling,” “debt forgiveness,” “early repayment [program],” “settlement [law],” and “foreclosure.” Keywords related to “foreign banks and credit institutions” are: “foreign bank,” “credit institutions,” “finance,” “unilateral contract changes,” “bank tax,” and “financial transactions tax.” No far-right parties were in parliament between the 2002 and 2010 elections, so the frequency of keywords is missing for this period.

2010. To this subsample of speeches, we apply random forests (RF), a standard classification algorithm, to classify whether the speech is by the far right. As predictors we use words or collections of words from the speech (*bag of words*).

Appendix Table A.6 presents the results from the RF classification. The table shows that the in-sample classification performance of the RF algorithm is close to perfect. We also list the top 40 most important words (*features*) selected by the algorithm for predicting whether the speech is by a far-right member of parliament.

The selected features listed in Table A.6 illustrate the debtor-friendly nature of the far-

right's rhetoric. The second most important term, after the keyword "Jobbik" itself, is "time of origination." This term is a reference to the far right's demand that loan payments be calculated using the exchange rate at the time of origination and not the depreciated exchange rate. The fourth most strongly associated term is "victims," a reference to the far right's frequent argument that foreign currency borrowers were victims of predatory banks. The "IMF" is another important term. Far right speeches often criticized the IMF bailout for assisting the government and recapitalizing the banking sector without offering relief for FC debtors. Other notable terms selected by the algorithm are "contract amendments," a reference to unilateral contract changes that increased debt service costs for borrowers, and various terms for "banks," "loans," and "foreign currency loans."

Policies targeting foreign currency debt After the 2010 election, political pressure from the far right played an important role in Fidesz's push to pass several FC debt relief programs. The first of these policies was the Early Repayment Program (ERP) in fall 2011. [Róna \(2015\)](#) notes that Jobbik began collecting signatures on September 1, 2011 for a petition to force banks to convert foreign currency loans into domestic currency at the exchange rate at the time of origination.²⁹ In response to the popularity of the petition, Fidesz quickly responded by proposing the ERP, which was enacted on September 19, 2011. The ERP allowed households to prepay FC mortgage and home equity loans at a preferential exchange rate, with the banking sector bearing most of the cost. The program, however, only assisted 23 percent of FC debtors, as it required that the entire principal be prepaid.

The ERP only helped a fraction of mainly wealthier FC borrowers, while the additional depreciation further increased the debt burden of FC borrowers, inciting criticism from the far right. In late 2014, the Fidesz government therefore implemented two additional policies targeted at FC borrowers. The first policy required banks to compensate borrowers for charges from unilateral changes in the terms of the contracts (interest rate increases and exchange rate spreads). The compensation amounted to more than 3 percent of 2014 GDP. The second policy was the conversion of all FC mortgage and home equity loans into domestic currency at the late 2014 market exchange rate. The conversion thus eliminated households' exposure to subsequent exchange rate movements.

²⁹The question on the petition was: "Do you agree that the conversion of foreign currency loans to domestic currency should happen at the exchange rate at the time of origination, and the burden of the conversion should be borne by the banking sector?"

Table 8: Foreign currency debt exposure and populist far right support in survey data

	Pr(Far right vote)				
	(1)	(2)	(3)	(4)	(5)
Loan	0.0463** (0.0178)	0.0360* (0.0181)			
FC loan			0.0618** (0.0228)	0.0543* (0.0235)	0.0651** (0.0234)
LC loan			0.0286 (0.0224)	0.0164 (0.0225)	0.0281 (0.0228)
Local FC debt share, <i>FCS</i>					-0.218+ (0.118)
Individual controls		✓		✓	✓
Settlement FE		✓		✓	
Observations	1833	1833	1833	1833	1756

Notes: This table presents linear probability model estimates of the intention to vote for the far right based on survey data from the Tarki Monitor. Variables are measured in February 2010, two months prior to the April 2010 election. Individual controls include education, income, gender, and household size. Robust standard errors in parentheses.

+, *, ** indicate significance at the 0.1, 0.05 and 0.01 levels, respectively.

5.1.3 Evidence: Directly vs indirectly affected voters

The creditor-debtor conflict hypothesis implies that it is distressed debtors *themselves* who vote for the far-right. This effect should be strongest for FC debtors, as these borrowers were the main target of the far-right’s debt-relief proposals. In contrast, individuals who are negatively affected by the crisis, but who do not have FC debt, should be relatively less likely to support the far right.

Individual-level survey data Table 8 confirms that foreign currency debtors themselves are more likely to support the far right. To measure individual debt positions by currency and populist far-right support, we use the February 2010 Tarki Household Monitor, conducted two months prior to the April 2010 election. The advantage of survey data is that it is immune to the ecological inference problem (King, 1997) and allows us to verify that FC debtors themselves support the populist far right. Moreover, survey data allows us to exploit variation within settlements and control for individual-level characteristics.³⁰

³⁰The drawbacks of the Tarki Household Monitor are that loan currency denomination is likely to be measured with error, the sample size is limited to 1,833 individuals, and actual voting behavior may differ from reported preferences, especially for populist, anti-establishment parties.

Table 8 presents estimates from individual-level linear probability models of far right support. Column 1 and 2 show that individuals with a loan are 3.6 to 4.6 percentage points more likely to support the far right. Columns 3 and 4 separate individuals with a loan into those who have a FC debt and those with only LC debt. The effect of having a loan is driven entirely by individuals with a foreign currency loan. Individuals with a FC loan are 5.4 to 6.1 percentage points more likely to vote far right. This effect is large relative to the mean intention to vote far-right of 11.8 percent and is robust to the inclusion of education, income, and other household controls. Furthermore, the effect holds as strongly when exploiting only variation across individuals *within* settlements. Finally, columns 5 includes the local *FCS* measure and shows that individual FC debt exposure, not local FC debt exposure, predicts higher support for the far right.

Local and foreign currency defaults The 2008 financial crisis in Hungary not only led to a rise in financial distress and defaults for FC borrowers. Local currency borrowers also saw increased defaults. The rise in LC default rates was partly driven by the indirect effect on FC debt on the local economy, as well as by other negative shocks in the crisis.³¹ However, unless LC borrowers have a sophisticated understanding of the negative local equilibrium effects of FC debt, LC debtors in default should not necessarily support the far right because of their FC debtor-friendly policies. In fact, distressed LC debtors may even resent far-right policies targeted at FC borrowers.

Consistent with this logic, Table 9 provides evidence that only distressed *foreign currency* debtors were more likely to support the populist far right. Column 1 confirms that zip-code-level FC debt exposure predicts a rise in the zip code default rate from 2008 to 2010. Columns 2 and 3 show that areas that experience a larger rise in default rates see a larger increase in the far-right vote share. Columns 4 through 6 show that the relation between the rise in default rates and the far-right vote share is driven entirely by the rise in FC loan defaults. In contrast, a higher default rate on LC loans has a limited effect on the far-right vote share. These results imply that the impact of FC exposure on the far-right share is driven by the direct effect on FC debtors themselves, consistent with the creditor-debtor conflict hypothesis.

In Table A.7, we examine how the direct and indirect channels affect the vote share of the center-right parties that were in opposition prior to 2010. We run the same regressions as in Table 9 but use the center-right vote share as a dependent variable. In contrast to the results for the far right, the LC default rate has a significant positive effect on center-right votes, while FC default is smaller and not statistically significant. These results suggest that FC

³¹In Verner and Gyöngyösi (2018), we find that the revaluation of foreign currency debt depresses local employment through a decline in local demand and leads to a rise in default rates for all borrowers, including LC borrowers.

Table 9: Local and foreign currency debtor distress and the far right vote share

	Δ_{08-10} Default	Δ_{06-10} Far right vote share				
	(1)	(2)	(3)	(4)	(5)	(6)
FC share	0.0500** (0.00496)					
Δ_{08-10} Default		12.17** (3.892)	11.94** (3.943)			
Δ_{08-10} Unemp. rate			3.443 (8.902)	3.583 (8.914)	4.109 (8.880)	3.510 (8.904)
Δ_{08-10} Default, FC				8.917** (3.039)		8.773** (3.034)
Δ_{08-10} Default, LC					3.013 (2.955)	2.327 (2.958)
Controls	✓	✓	✓	✓	✓	✓
County FE	✓	✓	✓	✓	✓	✓
R^2	0.230	0.686	0.686	0.686	0.685	0.686
Observations	3474	3473	3468	3468	3468	3468

Notes: Columns 1 reports a regression of the rise in the local household default rates on local foreign currency debt exposure. Columns 2-6 estimate the relation between various variables and the change in the far right vote share from 2006 to 2010. Controls include the number of loans in 2008 per eligible number of voters, debt-to-income in September 2008, per capita income in 2008, education shares, age shares, and log settlement population. Regressions are weighted by number of eligible voters in 2006. Standard errors are clustered at the subregion level.

+, *, ** indicate significance at the 0.1, 0.05 and 0.01 levels, respectively.

borrowers saw the far right as providing a solution to their distress. At the same time, people who experienced financial distress, but who were not directly affected by FC debt, voted for the opposition center-right parties.

5.2 Alternative channels

In this subsection we examine several alternative channels through which the increase in foreign currency debt burdens may have influenced political preferences.

Declining trust Distressed foreign currency debtors may have voted for the far right to express their discontent with establishment parties. For example, [Algan et al. \(2017\)](#) find a strong correlation between the decline in trust and the rise in populism across European regions. This explanation differs from the creditor-debtor conflict hypothesis, as it implies that dissatisfaction with the mainstream parties drove exposed individuals to vote for the far

Table 10: Effect of foreign currency exposure on other parties' vote shares, turnout and invalid votes

	Center right	Center left	Far left	Green		Turnout		Invalid votes
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
FC share×Post	4.355** (1.192)	-7.258** (1.246)	-1.824** (0.422)			-4.547** (0.866)	-1.338 (1.827)	0.0771 (0.151)
FC share				-0.369 (0.618)	-1.402** (0.495)			
Election FE	✓	✓	✓			✓	✓	✓
Zip code FE	✓	✓	✓			✓	✓	✓
Controls	✓	✓	✓	✓	✓	✓	✓	✓
County-election FE	✓	✓	✓			✓	✓	✓
County FE				✓				
Political preferences in 2006					✓			
Zip code specific trend							✓	
R^2	0.881	0.950	0.763	0.835	0.856	0.890	0.953	0.640
Observations	13900	13900	13900	3475	3475	13872	13872	13872

Notes: This table shows the results of zip code level regressions where the dependent variable is the vote share of various political parties. Controls include the number of loans in 2008 per eligible number of voters, debt-to-income in September 2008, per capita income in 2008, education shares, age shares, and log population. Controls are interacted with election years. Regressions are weighted by the number of eligible voters in 2006. Standard errors are clustered at the subregion level. +, *, ** indicate significance at the 0.1, 0.05 and 0.01 levels, respectively.

right, instead of the far right's debtor-friendly policies.

The declining trust channel has several testable implications. First, the declining trust channel implies that other anti-establishment parties should also have benefited from the household balance sheet crisis. Second, declining trust and increased dissatisfaction with the political system would imply lower turnout and an increase in the number of invalid (blank) votes in areas more exposed to FC debt.

Table 10 presents the effect of *FCS* on the vote share of other parties by re-estimating equation (1) for other blocs. Column 1 reports the result for the center-right parties. The center right was in opposition in 2008, and they saw a significant increase in high *FCS* zip codes. The opposite is true for the governing center-left parties, that lost more in exposed regions. These results are consistent with economic voting theory, whereby people vote against the incumbent in recessions.

Column 3 of Table 10 presents the estimate for the communist far left. The point estimate is significantly negative, indicating that the far left did *worse* in zip codes with higher foreign currency share. Even more telling, Table 1 shows that the far-left received only 0.11 percent of the votes in 2010, so the far left did benefit from the FC debt crisis. While the newly-founded green party received 7.5 percent of the overall vote in the 2010 election, column 4 reveals that

it fared relatively worse in areas with greater foreign currency exposure.³² Since the green party was newly established, we estimate the relation cross-sectionally for the 2010 election. Column 5 shows that the point estimate falls further when we include the 2006 vote shares of other parties to control for persistent differences in political preferences across zip codes.

Next, we examine the relation between foreign currency exposure and turnout.³³ Column 6 shows that the estimate on *FCS* is negative, suggesting that the crisis had a discouraging effect on participation. However, the negative estimate is driven by a negative trend in turn-out in high *FCS* areas. When we control for zip code specific time trends, household foreign currency debt exposure has only a modest discouraging effect on turnout (column 7). Furthermore, FC debtors were not less likely to abstain from voting according to individual-level survey data from the Tarki Monitor (see Table A.10).

In column 8, we examine how FC debt exposure affects the share of invalid votes. Invalid votes are typically blank protest votes, and voting blank provides a way to express dissatisfaction with the political system. The impact of *FCS* on invalid votes is a tightly estimated zero. The emergence of the debtor-friendly far right provided a policy platform for distressed debtors who might otherwise have cast a blank vote to express their frustration.

Overall, there is limited evidence that foreign currency debt exposure increased support for other anti-establishment parties, depressed turnout, or led to an increase in protest votes. This suggests that declining trust in the establishment is not the main reason for the rising popularity of the populist far right in regions exposed to foreign currency debt.³⁴

Inequality and redistribution Financial crises can also affect political preferences through their impact on inequality (Funke et al., 2016; Mian et al., 2014). Economic crises tend to increase inequality (Atkinson and Morelli, 2011), and financial crises disproportionately affect the poor (Halac et al., 2004). Populist parties may respond by advocating for redistributive policies. In this context, however, there are several reasons why inequality and preferences

³²The green party, *Politics Can Be Different*, campaigned on standard green issues such as environmental protection and sustainable development, but also emphasized corruption among political elites and a rejection of the mainstream political parties.

³³Charles and Stephens (2013) and Burden and Wichowsky (2014) document that unemployment increases turnout. Guiso et al. (2017) emphasizes that preference to vote for a populist candidate is positively correlated with abstention, which lowers the likelihood of electing a populist. Similarly, McCartney (2017) finds that household financial distress depressed voter participation in North Carolina.

³⁴Another possibility is that increased EU-skepticism explains the rise of the far right. Jobbik's campaign rhetoric was critical of European integration. While we cannot match local FC debt exposure to surveys data on opinions about EU membership, Figure A.3 uses Eurobarometer data to show that there was no aggregate decline in EU-skepticism in Hungary leading up to the 2010 election. The figure plots the share of people who answer "yes" to the question, "Taking everything into consideration, would you say that Hungary benefited from being a member of the EU?"

for redistribution are unlikely to explain the increasing popularity of the far right.³⁵

First, overall income inequality measured by the Gini coefficient was declining between 2006 and 2010, as seen in Figure A.4. Second, the importance of inequality should also be reflected in the composition far right voters. Poorer individuals tend to favor more redistribution (Alesina and Giuliano, 2009), so the popularity of the far right should be higher among poorer people. Contrary to this hypothesis, Table 3 showed that average income of far-right supporters is similar to supporters of mainstream parties, and far right voters are more likely to be employed compared to voters of other parties.³⁶

Third, if concerns about inequality influenced far right support in 2010, then one would also expect the far right to advocate for more redistributive policies. In Table A.8, we compare policy positions of the far right to other moderate parties in 2010 using the Manifesto Project data. The far right scores lower on support for redistribution through welfare compared to the center-left and center-right, which is inconsistent with the support for redistribution hypothesis.

Xenophobia Economic shocks may also increase xenophobic attitudes. Far-right populists tend to use nativist and xenophobic rhetoric, which may have increased appeal during times of economic distress. To understand whether foreign currency debt exposure increased support for the far right by kindling xenophobic preferences, we examine attitudes toward refugees captured by the 2016 referendum on EU migrant country quotas. The referendum was initiated by the Fidesz government, and both Fidesz and Jobbik campaigned aggressively against the migrant quotas.³⁷ Opposition parties, on the other hand, campaigned against participation in the referendum, and voter turnout fell short of the 50 percent threshold required for the referendum outcome to be binding. This resulted in a 97 percent of votes against the EU quota, with a turnout of 44 percent.

In Table A.9, we investigate how foreign currency debt exposure impacted on the 2016 referendum. The table shows that turnout was lower in areas with higher exposure to FC debt in September 2008. Moreover, the share of “yes” votes, indicating support for the EU’s migrant resettlement plan, was slightly higher in high *FCS* areas. While we cannot observe the pre-crisis response to this question, this evidence does suggest that increased xenophobia was not a key channel through which FC exposure translated into far-right support. Instead, this suggests that individuals who voted for Jobbik because of their exposure to foreign

³⁵Of course, debtor-friendly policies themselves are also a form of redistributive policies, but here we focus on more traditional policies (e.g., tax and transfer policy) to reduce inequality.

³⁶Rudas (2010) also finds that far right voters are more likely to have other assets compared to voters of other parties.

³⁷The referendum question was: “Do you want the European Union to impose compulsory introduction of non-Hungarian citizens to Hungary without the consent of the National Assembly?”

currency debt may be single-issue voters, voting primarily in support of their debtor-friendly policies. More broadly, some far right voters may vote for the far right because they support a particular aspect of a that party’s platform, while ignoring the party’s toxic messages on other topics.

6 Conclusion

We study the effect of the recent financial crisis on support for far-right populism using a natural experiment in Hungary. Our empirical framework uses detailed zip code level data and exploits variation the prevalence of foreign currency household loans around a sharp exchange rate depreciation. Foreign currency debt exposure leads to a substantial increase in the vote share of the populist far right, explaining 20 percent of the overall increase in the far-right vote share. We present evidence that this result is consistent with the creditor-debtor conflict hypothesis for political polarization after financial crises.

An important implication of our paper is that increased financial distress as a consequence of risky lending not only affects the real economy. Financial distress can also influence political outcomes. Even when populist or extremist parties are not part of government, they can shape policymaking indirectly by setting the agenda (Minkenberg, 2001) and exerting influence on the strategy of moderate parties (Guiso et al., 2017; Abou-Chadi and Krause, 2018). As a result, interventions in credit markets during a crisis may be needed to mitigate political polarization, beyond traditional motivations based on reducing inefficient debt overhang and stimulating aggregate demand (Bolton and Rosenthal, 2002; Mian and Sufi, 2015).

A discussion about external validity and the broader interpretation of our results is warranted. Although we focus on Hungary, the change of political preferences in Europe and the U.S. after the outbreak of the crisis suggests that our results might be more general. While foreign currency lending was prevalent mainly in Central and Eastern Europe, household financial distress and conflicts between debtors and creditors were widespread. For example, other European far-right and far-left populist parties, such as the Law and Justice Party in Poland and Podemos in Spain, have evoked distressed debtors in their campaign rhetoric and proposals. In the United States, several Democratic primary candidates have proposed sweeping student debt forgiveness plans as a central part of their campaign platforms.

More broadly, our results suggest that the fallout from capital inflows and financial globalization can contribute to increased support for populism, in addition to trade globalization. Financial distress may be particularly powerful in engendering support for populist parties when the source of distress is easily identifiable and the distribution of adjustment to a crisis is perceived to be unfair. Future research should seek to understand whether redistributive

policies that target indebted households, or households economic distress more generally, can moderate the electoral success of populist parties. As Rodrik (2018) suggests, “some economic populism may in fact be the only way to forestall its much more dangerous cousin, political populism.”

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A Appendix

Table A.1: Characteristics of foreign currency borrowers, local currency borrowers, and non-borrowers in Tarki Monitor survey data

	FC mean/sd	LC mean/sd	Non-borr. mean/sd	FC-LC difference b/t	Borrower-non-borr. difference b/t
Primary	0.18 (0.38)	0.33 (0.47)	0.31 (0.46)	-0.15** (-4.41)	-0.06** (-2.76)
Vocational	0.32 (0.47)	0.35 (0.48)	0.30 (0.46)	-0.03 (-0.77)	0.03 (1.27)
High school	0.34 (0.48)	0.21 (0.41)	0.28 (0.45)	0.13** (3.86)	0.00 (0.03)
College	0.16 (0.37)	0.11 (0.32)	0.11 (0.31)	0.05+ (1.87)	0.03+ (1.86)
HH income in 2009 (1000 HUF)	2778.53 (1365.64)	2703.11 (1377.13)	2228.05 (1191.66)	75.43 (0.70)	515.34** (7.84)
Employed	0.60 (0.49)	0.51 (0.50)	0.36 (0.48)	0.08* (2.15)	0.19** (7.64)
Retired/student	0.30 (0.46)	0.37 (0.48)	0.53 (0.50)	-0.07+ (-1.89)	-0.23** (-8.42)
Age	41.43 (13.38)	44.59 (15.32)	53.34 (18.49)	-3.16** (-2.85)	-10.44** (-12.89)
HH size	3.40 (1.35)	3.41 (1.60)	2.62 (1.48)	-0.01 (-0.05)	0.78** (10.07)
Observations	365	331	1137	696	1833

Notes: This table presents the average characteristics of foreign currency borrowers, local currency borrowers, and non-borrowers from the February 2010 Tarki Monitor survey. Foreign currency borrowers are individuals who report having positive loan payments in foreign currency. Local currency borrowers are individuals who report having positive loan payments, but zero foreign currency loan payments. Non-borrowers are individuals who report having no loan payments. +, *, ** indicate significance at the 0.1, 0.05 and 0.01 levels, respectively.

Table A.2: Correlation between debt revaluation to income shock and zip code level observables

	Coefficient	Standard error	N	R^2
Debt to income	0.15**	0.0027	3475	0.860
Per capita number of loans, 2008	0.65**	0.061	3475	0.500
Vocational share	0.051	0.062	3475	0.004
High school share	0.095 ⁺	0.053	3475	0.020
College share	-0.0086	0.05	3475	0.000
Log per capita income, 2007	-0.002**	0.00062	3475	0.008
Log number of eligible voters, 2006	0.0017	0.0017	3475	0.004
Unemployment, 2007	-0.15*	0.059	3475	0.035
Share of people age 18-29	-0.19	0.18	3475	0.003
Share of people age 59+	-0.35**	0.051	3475	0.066
Debt per capita, 2004	0.24**	0.034	3475	0.130
Employment share of exporters, 2007	-0.0012	0.0077	3475	0.000
Employment share of manufacturing, 2007	0.0075	0.0089	3475	0.001
Employment share of firms with FC debt, 2007	-0.0053	0.0077	3475	0.000
Corporate foreign currency share of debt	0.0004	0.01	2867	0.000

Notes: This table presents bivariate regressions the household debt revaluation to income shock on zip code level covariates. The household debt revaluation to income measure is computed as the increase in zip code housing debt induced by the exchange rate depreciation between September 2008 and April 2010, relative to 2008 zip code level income. Regressions are weighted by number of eligible voters in 2006. Standard errors are clustered at the subregion level.

+, *, ** indicate significance at the 0.1, 0.05 and 0.01 levels, respectively.

Table A.3: Balance test for matched sample

	Above median average	Below median average	Difference	<i>t</i> stat.	Normalized difference
Debt to income, 2008	0.841	0.924	-0.082	-1.61	-0.20
Per capita number of loans, 2008	0.146	0.149	-0.003	-0.54	-0.04
Vocational share	0.213	0.214	-0.0006	-0.21	-0.01
High school share	0.258	0.258	-0.0003	-0.04	-0.003
College share	0.118	0.118	0.0006	0.10	0.006
Log per capita income, 2007	7.39	7.43	-0.044	-0.39	-0.01
Log number of eligible voters, 2006	8.94	8.84	0.10	0.57	0.04
Unemployment, 2007	0.083	0.079	0.004	0.76	0.05
Share of people age 18-29	0.164	0.163	0.001	1.02	0.06
Share of people age 59+	0.218	0.219	-0.0003	-0.14	-0.006
Empl. share of exporters, 2007	0.326	0.343	-0.017	-0.97	-0.05
Empl. share of manuf., 2007	0.285	0.282	0.002	0.16	0.009
Empl. share of firms with FC debt, 2007	0.263	0.254	0.009	0.65	0.04
Corporate FC debt share	0.393	0.407	-0.014	-0.73	-0.04
Observations	1730	689	2419	2419	2419

Notes: This table presents covariate balance tests for the matched sample. The first two columns present averages for zip codes above and below the median *FCS*. Averages are weighted by the number of eligible voters in 2006. *t*-statistics for the difference are computed using standard errors clustered at the subregion level. The Normalized Difference is defined as $\frac{\bar{X}_1 - \bar{X}_0}{\sqrt{V_1 + V_0}}$, where X_ω (V_ω) is the sample average (variance) for the samples above and below the median, as defined in [Imbens and Wooldridge \(2009\)](#).

+, *, ** indicate significance at the 0.1, 0.05 and 0.01 levels, respectively.

Table A.4: Robustness to persistent extremist attitudes

	1939 far right vote share		Δ_{06-10} Far right vote share				Far right vote share
	(1) Only far right list	(2) Full sample	(3) Only far right list	(4) Full sample	(5) Only far right list	(6) Full sample	(7) Full sample
FC share	-5.420 (10.82)	-25.45 ⁺ (13.88)			27.22** (8.144)	11.48** (4.150)	
Far right vote share 1939			0.0225 (0.0188)	-0.0471 (0.0330)	0.0854 (0.0866)	-0.223 ⁺ (0.116)	
Far right vote share 1939×FC share					-0.0893 (0.128)	0.274 ⁺ (0.148)	
FC share×Post							4.014** (1.186)
Far left vote share in 1998×Post							0.167** (0.0468)
Election and Zip code FE							✓
Controls							✓
County-election FE							✓
R^2	0.000671	0.0112	0.00349	0.0218	0.0963	0.0774	0.924
Observations	1676	2876	1680	2890	1676	2876	13900

Notes: Regressions are weighted by number of eligible voters in 2006. Standard errors are clustered at the subregion level.

+, *, ** indicate significance at the 0.1, 0.05 and 0.01 levels, respectively.

Table A.5: Robustness to alternative hypotheses

	Far right vote share					
	(1)	(2)	(3)	(4)	(5)	(6)
	Minority	Financial literacy	Local labor market	Local labor market	House Prices	All controls
FC share×Post	4.446** (1.195)	3.997** (1.269)	4.742** (1.229)	4.354** (1.210)	4.185** (1.161)	4.145** (1.321)
Share of local minorities×Post	-6.651** (1.631)					-5.917** (1.613)
Share of immigrants×Post	-31.07* (15.37)					-39.58* (16.18)
Share of Roma population×Post	-0.470 (3.756)					0.810 (3.934)
Pre-crisis default rate×Post		17.15* (7.750)				15.56+ (8.252)
Share of home equity FC loans×Post		3.927* (1.558)				3.899* (1.612)
Share of firms with FC debt, 07 × Post			0.367 (0.626)			0.336 (0.604)
Change in unemployment, 08-10 × Post				1.309 (8.699)		-3.143 (8.946)
Change in house prices, 08-10 × Post					-0.0297* (0.0127)	-0.0287* (0.0121)
Far left vote share in 1998×Post						0.168** (0.0462)
Election and Zip code FE	✓	✓	✓	✓	✓	✓
Controls	✓	✓	✓	✓	✓	✓
County-election FE	✓	✓	✓	✓	✓	✓
Industry employment shares in 2007			✓			✓
R^2	0.924	0.924	0.925	0.923	0.924	0.928
Observations	13900	13760	13060	13880	13900	12960

Notes: Regressions are weighted by number of eligible voters in 2006. Standard errors are clustered at the subregion level.

+, *, ** indicate significance at the 0.1, 0.05 and 0.01 levels, respectively.

Table A.6: Far-right speech random forest classification: Performance and important features

Panel A: Random Forest Model Performance			
Mean 5-fold cross-validation precision for 1			97.96%
Mean 5-fold cross-validation precision for 0			77.91%
Mean 5-fold cross-validation recall for 1			17.52%
Mean 5-fold cross-validation recall for 0			99.88%
In-sample precision			100.00%
In-sample recall			100.00%
Number of documents (speeches)			3,339

Panel B: Features Selected by the Random Forest Model			
Selected feature	English translation	Feature importance	Linear prob. coeff.
jobbik	better (far-right party's name)	0.0152	2.5806
felvételtkori	recording time (time of origination)	0.0095	1.8664
kormányzat	government	0.0083	0.9058
károsultak	victims	0.0066	1.2784
külföldi	foreign	0.0039	0.8261
imf	imf	0.0032	0.1683
magyar	Hungarian	0.0031	0.1925
példának	example	0.0030	-0.6711
okáért	Wherefore	0.0028	2.8263
látható	visible	0.0028	1.1180
forint	forint	0.0026	-0.2491
mondjuk	let's say	0.0025	0.5658
megoldási	solutions	0.0022	1.0406
szabadságharc	War of Independence	0.0022	2.7960
árfolyamgát	exchange rate	0.0021	-0.0841
módon	way	0.0020	0.4526
szó	weave	0.0020	0.2827
szervezőmódosítások	contract amendments	0.0019	0.9083
hitelek	loans	0.0019	0.3251
bank	bank	0.0018	0.2925
elképesztő	amazing	0.0018	1.6982
bankok	banks	0.0018	0.1772
otthonteremtési	homemaking	0.0018	1.7365
semmiféle	no	0.0018	1.4905
látni	see	0.0018	0.8221
tranzakció	transaction	0.0018	0.2874
jelen	present	0.0018	0.6564
árfolyamon	exchange rate	0.0018	-0.2054
bizony	certainly	0.0017	0.6584
tisztelt	respected	0.0017	-0.8485
adott	given	0.0017	0.4848
kormány	government	0.0016	-0.1993
nek	s	0.0016	0.3824
devizahitelek	foreign currency loans	0.0016	0.0621
lényegében	essentially	0.0016	0.7734
forintosítása	HUF at (time of origination)	0.0016	0.2206
uniónak	union	0.0015	2.0727
unió	union	0.0014	0.7579
bankadó	bank tax	0.0014	-0.3949
szinten	also	0.0014	0.7514

Notes: This table presents results from a using a random forest model to classify whether speeches about the foreign currency debt crisis are given by the far right party. The sample is the subpopulation of speeches that contain at least one keyword related to the foreign currency debt crisis (see the note to Figure 7 for out dictionary of keywords). From these speeches we extract the sentences containing these keywords and use these features to predict whether the speech is given by a far-right member of parliament. The random forest model uses 100 trees. Feature importance is scaled by the sum of the importance of all selected features. The linear probability (LP) model coefficient is the coefficient on the feature in a regression of an indicator for whether the speech is by the far right on the top 100 features selected by the RF algorithm. The LP coefficient provides information on the sign of a term in the classification.

Table A.7: Effect of economic distress on change in the center right vote share

	Δ_{06-10} Center right vote share				
	(1)	(2)	(3)	(4)	(5)
Δ_{08-10} Default	8.520 (5.225)	8.438 (5.216)			
Δ_{08-10} Unemployment		0.808 (7.151)	1.133 (7.162)	1.135 (7.169)	0.947 (7.161)
Δ_{08-10} Default, FC			3.120 (3.826)		2.754 (3.840)
Δ_{08-10} Default, LC				6.137 ⁺ (3.188)	5.922 ⁺ (3.172)
Controls	✓	✓	✓	✓	✓
County FE	✓	✓	✓	✓	✓
R^2	0.260	0.260	0.259	0.260	0.260
Observations	3473	3468	3468	3468	3468

Notes: Regressions are weighted by number of eligible voters in 2006. Standard errors are clustered at the subregion level. +, *, ** indicate significance at the 0.1, 0.05 and 0.01 levels, respectively.

Table A.8: Manifesto Project party positions

	Far right	Center right	Center left
Percent of vote	16.67	52.73	19.3
Right-left ideological index	14.328	-4.462	-15.2
Planned economic index	4.666	11.93	5.133
Market economic index	1.58	.776	2.267
Party policy positioning on welfare	8.45	24.054	22.4

Notes: This table presents party positions from the Manifesto Project Database.

Table A.9: Foreign currency exposure and participation in the 2016 referendum on migrant quotas

	Turnout				Share of yes				Share of blank votes			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
FC share	-13.35** (2.647)	-12.03** (3.022)	-6.647** (2.041)	-7.728** (2.084)	0.301 (0.188)	0.404* (0.178)	0.0717 (0.158)	0.286+ (0.163)	-1.269* (0.641)	-12.03** (3.022)	-2.053** (0.784)	-2.177* (0.893)
Controls	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
County FE	✓		✓		✓		✓		✓		✓	
Subregion FE		✓		✓		✓		✓		✓		✓
Political preferences in 2014			✓	✓			✓	✓			✓	✓
R^2	0.450	0.612	0.685	0.767	0.195	0.263	0.240	0.294	0.813	0.612	0.830	0.846
Observations	3380	3380	3380	3380	3380	3380	3380	3380	3380	3380	3380	3380

Notes: This table presents cross-sectional regressions of outcomes in the 2016 Hungarian referendum on European migrant quotas. The referendum question was: "Do you want the European Union to be able to mandate the obligatory resettlement of non-Hungarian citizens into Hungary even without the approval of the National Assembly?" Controls include the number of loans in 2008 per eligible number of voters, debt-to-income in September 2008, per capita income in 2008, education shares, age shares, and log settlement population.

+, *, ** indicate significance at the 0.1, 0.05 and 0.01 levels, respectively.

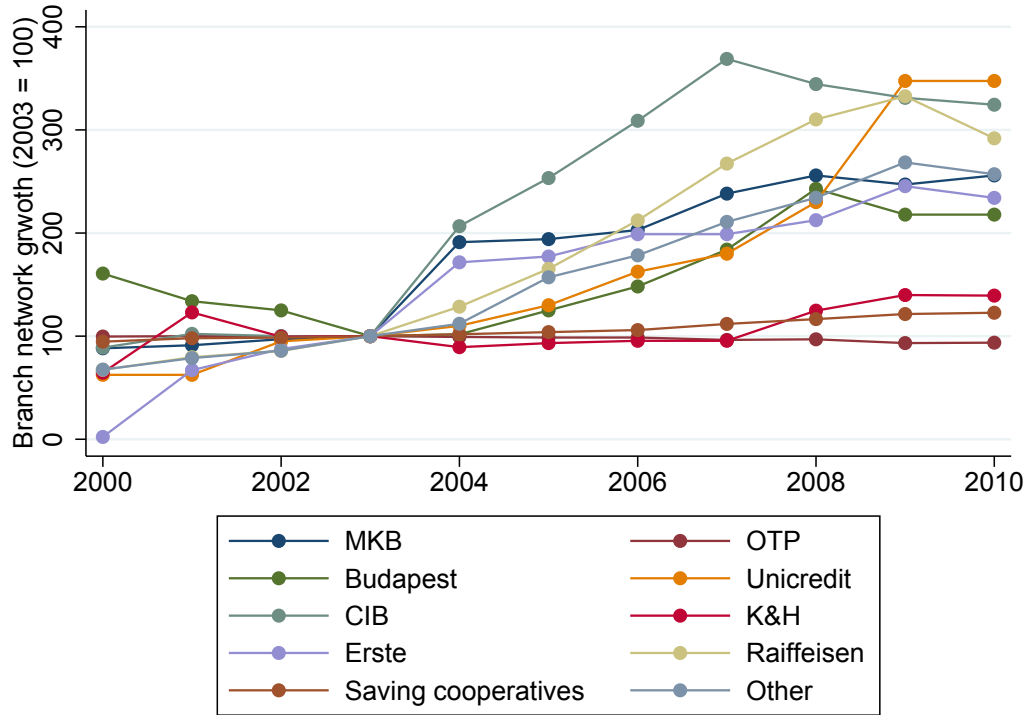
Table A.10: FC debtors and election participation in survey data

	Pr(Voting in the April 2010 election)					
	(1)	(2)	(3)	(4)	(5)	(6)
Loan	0.00377 (0.0125)	-0.00317 (0.0135)				
FC loan			0.00136 (0.0157)	-0.00966 (0.0168)		
LC loan			0.00653 (0.0156)	0.00381 (0.0168)		
FC payments (1000 HUF)					0.000274 (0.000231)	0.000158 (0.000275)
LC payments (1000 HUF)					0.000247* (0.000120)	0.000112 (0.000141)
Vocational		0.0280 (0.0184)		0.0290 (0.0184)		0.0279 (0.0186)
High school		0.0366+ (0.0197)		0.0384+ (0.0196)		0.0364+ (0.0199)
College		0.0775** (0.0220)		0.0794** (0.0218)		0.0768** (0.0221)
Female		-0.00980 (0.0122)		-0.00970 (0.0122)		-0.00920 (0.0123)
Log HH income		0.0155 (0.0184)		0.0154 (0.0184)		0.0143 (0.0187)
HH size		0.00171 (0.00519)		0.00171 (0.00519)		0.000904 (0.00520)
Constant	0.932** (0.00823)	0.788** (0.129)	0.932** (0.00823)	0.787** (0.129)	0.929** (0.00704)	0.795** (0.131)
Settlement FE		✓		✓		✓
Observations	1818	1818	1818	1818	1805	1805

Notes: This table presents linear probability model estimates of the intention to participate in the April 2010 election using survey data from the Tarki Monitor. The table shows that debtors, and FC debtors in particular, do not state that they are less likely to participate in the election. Variables are measured in February 2010, two months prior to the April 2010 election. Robust standard errors in parentheses.

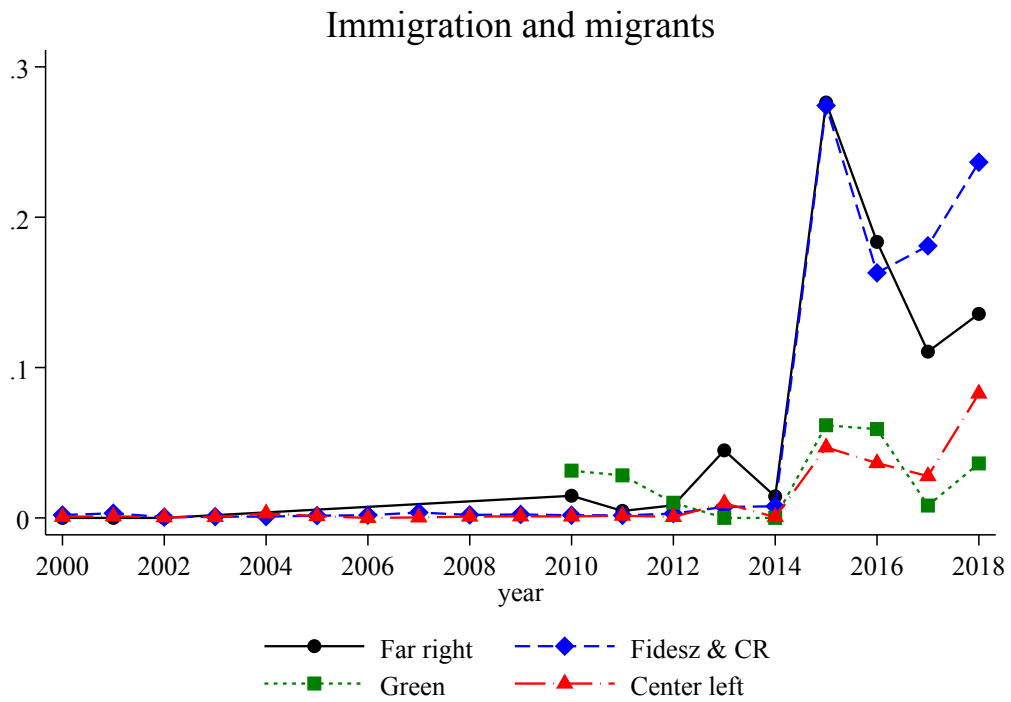
+, *, ** indicate significance at the 0.1, 0.05 and 0.01 levels, respectively.

Figure A.1: Expansion in the branch network of foreign banks



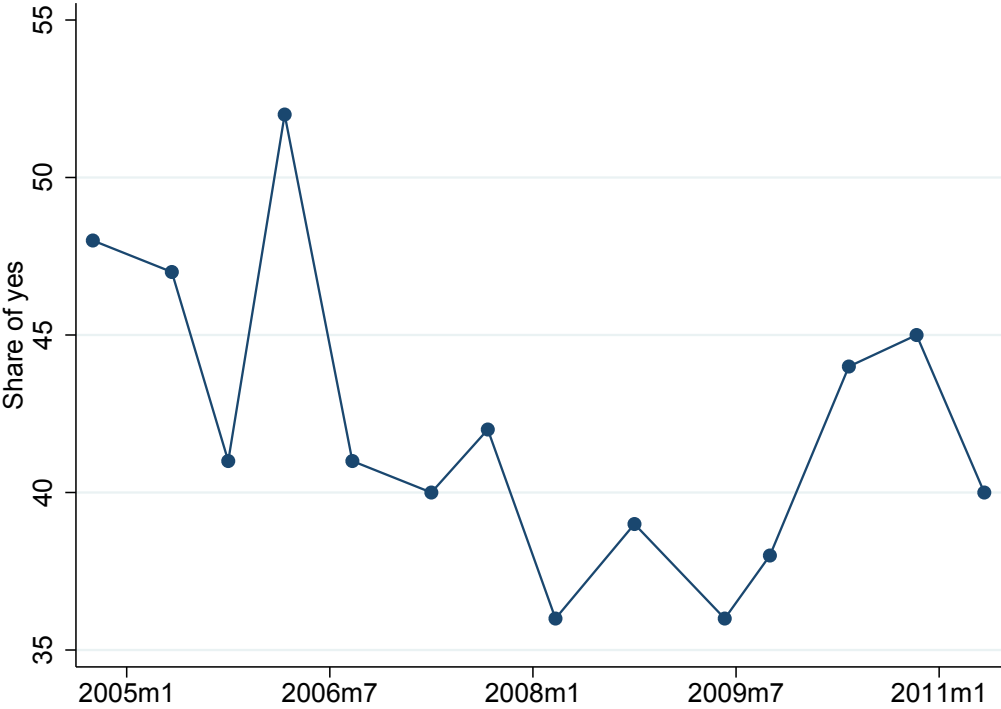
Note: This figure shows the growth in number of branches by bank.

Figure A.2: Mentions of immigration topics in parliamentary speeches



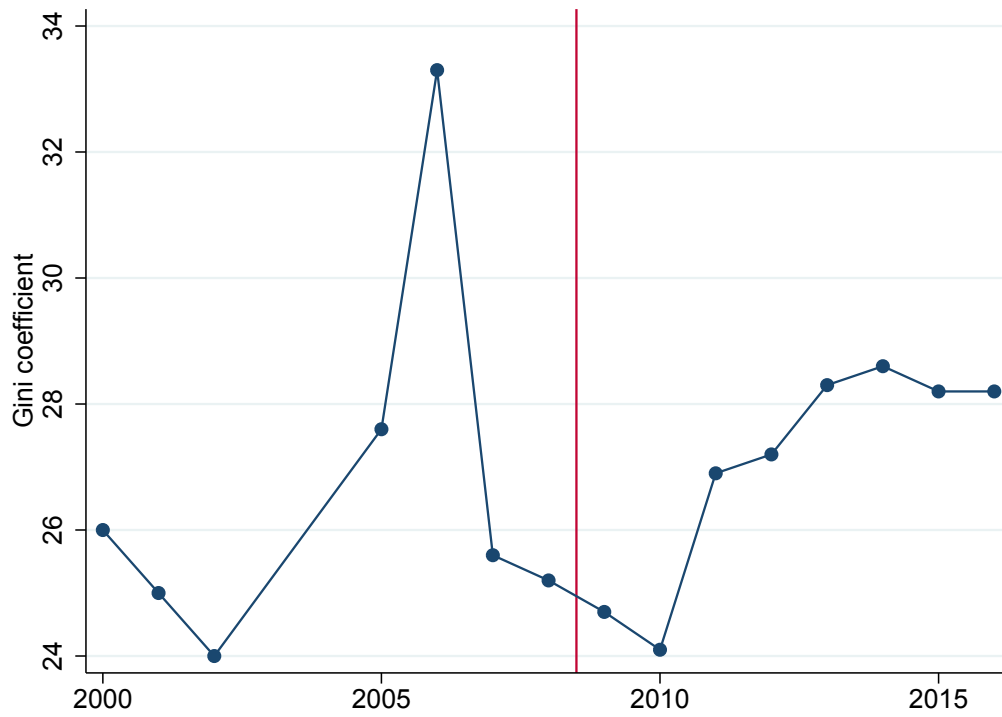
Note: This figure shows the fraction of parliamentary speeches that mention the words "immigrants" or "migrants" by year and party group.

Figure A.3: Share of people saying that Hungary benefited from EU membership



Note: This figure shows the aggregate share of people who say that Hungary benefited from the membership of EU from Eurobarometer.

Figure A.4: Income inequality in Hungary



Note: This figure shows the Gini coefficient for Hungary from Eurostat and World Bank. The increase in the Gini index in 2011 partly reflects the effect of a 2011 tax reform that benefited high-income individuals.

B Data construction

B.1 Credit Register data

Outstanding amount and monthly payment

The household credit register database (KHR) was set up in spring 2012 and data collection started in April 2012. Therefore, data on outstanding debt is available from April 2012 onwards. For the preceding period, we construct outstanding debt at the loan level by assuming that the amortization schedule of mortgage and home equity loans in our sample follows an annuity. Note that this reconstruction only affects the foreign currency share of debt in 2008, not the fraction of loans in foreign currency. For ease of computation, we allow for monthly changes in the interest rate. Due to the large number of delinquent loans during the crisis, we calculate the annuities forward from origination until 2012, instead backwards from actual balances in 2012. The default rate was close to zero before the crisis, so this approximation is reasonable and allows us to capture households' local and foreign currency debt positions before the crisis. We calculate the payment according to the following formula:

$$P_t^{HUF} = \frac{r(PV_t)}{1 - (1 + r_t)^{-N_t}} \times E_t$$

where P_t is the payment in month t , PV_t is the present value of the debt in month t , r_t is the interest rate, N is the remaining maturity, and E_t is the monthly average exchange rate (which equals 1 for domestic currency loans). Given the payment in t we determine the outstanding debt in t :

$$D_t^{HUF} = (1 + r_t)(D_{t-1}^{HUF} - P_t^{HUF})$$

This way we reconstruct outstanding debt for each loan in each month from origination until April 2012.

Interest rate data We use detailed interest rate data to calculate outstanding debt. The National Bank of Hungary collects monthly average interest rate data at bank-month-currency-product-level from banks. Smaller banks or saving cooperatives might not provide interest rate data in each cell if they do not lend much in that particular segment of the market. In these cases, we use the average interest rate across banks. The credit register does not contain information on the interest rate fixed-rate period. Therefore, we use the less-than-1-year fixed-rate, which is the most common contract structure in Hungary.

The collection of interest rate data started around 2005, depending on the currency. For the preceding period, we use out of sample prediction. We estimate a regression of average

interest rate on a set of macro variables (inflation, GDP, and policy rates in each currency) and then backcast the interest rates using these variables.

Banks report the market interest rates for the domestic currency loans but not the subsidized interest rates. As approximately 92 per cent of domestic currency mortgages outstanding in 2008 were subsidized, we need to determine the amount of subsidy. The subsidy program distinguished between asset and liability side subsidies (description of the subsidy program for the early period can be found in (Farkas et al., 2004)). The asset side subsidy was given to all banks, while the liability side subsidy was tied to mortgage bond financing. During this period only a few banks issued mortgage bonds. The subsidy was initially linked to the mortgage bond interest rates and subsequently to government bond interest rates.

Figure B.1 compares the official aggregate debt to the aggregate calculated based on the reconstructed data by currency denomination and loan type. In September 2008, prior to the start of the forint depreciation, the two match quite well. For domestic currency loans the aggregates are nearly identical in 2008:9, but for foreign currency loans, there is a 27 percent shortfall in the credit registry. This is almost entirely because of the Early Repayment Program, as the loans participating in the program are missing from our dataset. Therefore, we estimate participation in the program as a next step.

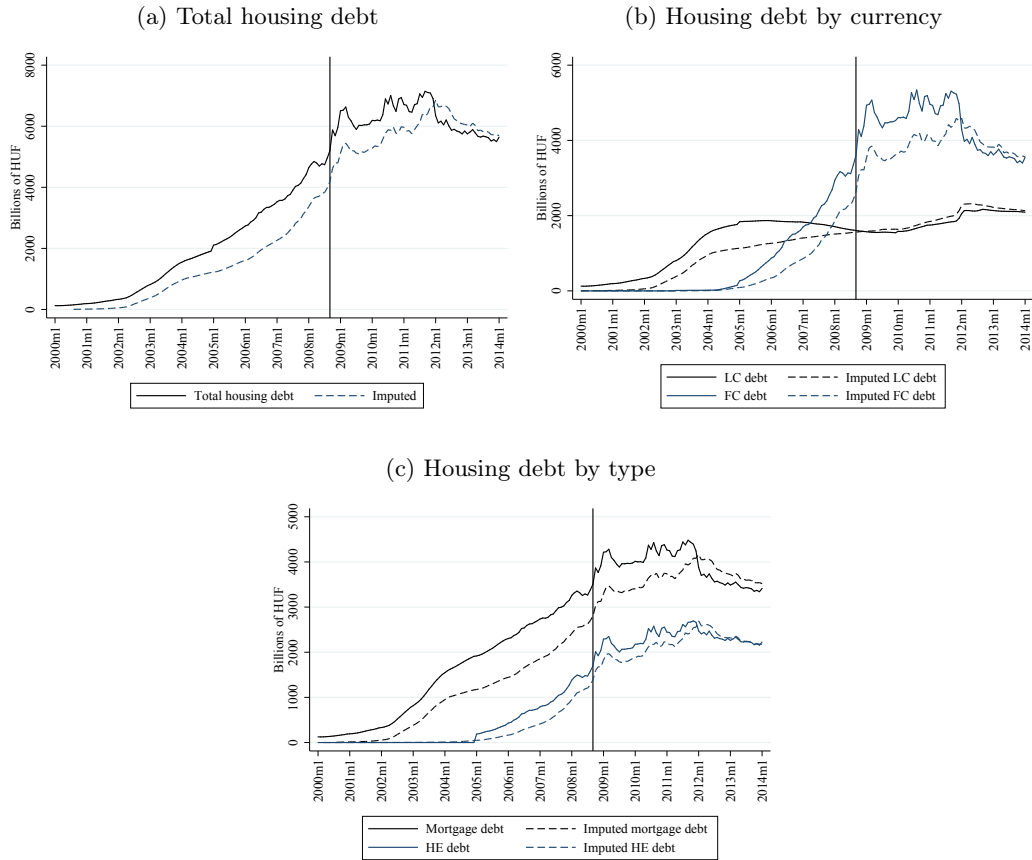
Early repayment program In September 2011, the government initiated the Early Repayment Program (ERP), which allowed households to prepay their foreign currency mortgage and home equity loans between October 2011 and February 2012 at a preferential exchange rate. The rate was considerably cheaper than the market exchange rate at that time. However, the program required full prepayment of the loans. The ERP was implemented a few months before the construction of the universal credit register, so loans that were prepaid are missing from our dataset.

To ensure that our results are not biased by loans missing through the ERP, we use two approaches to estimate zip code level participation in the program. First, we estimate the zip code level participation rate in the program using a loan-level monthly panel database of three large banks with market share of approximately 25 percent. The database follows loans from origination, and contains detailed loan and borrower characteristics. We identify loans as being prepaid through the ERP if they disappear from the dataset during the program, between October 2011 and February 2012. We complement this data with aggregate statistics on participation rates by bank collected by the National Bank of Hungary.

With this information, we estimate the participation in zip code i using a shift-share approach:

$$P_i = \sum_b TP_i^{3banks} \cdot (TP^b / TP^{3banks}) \cdot \alpha_{b,i}$$

Figure B.1: Comparing the KHR credit register to official aggregate debt statistics by loan type and currency



Notes: This figure compares housing debt from aggregate statistics (financial accounts) to aggregate housing debt in KHR (credit register). Imputed debt refers to debt in the KHR. The vertical line represents September 2008.

where $\alpha_{b,i}$ is the market share of bank b in zip code i , TP^b is the aggregate participation rate of bank b , TP_i^{3banks} is the participation rate for loans held by the three banks in zip code i , and TP^{3banks} is the aggregate participation rate for the three banks.

Our second approach uses the fact that approximately a third of the loans were prepaid by refinancing. Because the credit register starts in April 2012, these new loans can be observed. We assume that all housing loans originated between October 2011 and February 2012 are used to refinance the FC loans prepaid through the ERP. Both of these approaches give the zip code participation in the ERP, and hence the outstanding debt at the time of the program. By assuming an annuity payment structure, we can calculate the outstanding debt at the start of the crisis.

Delinquency before 2010

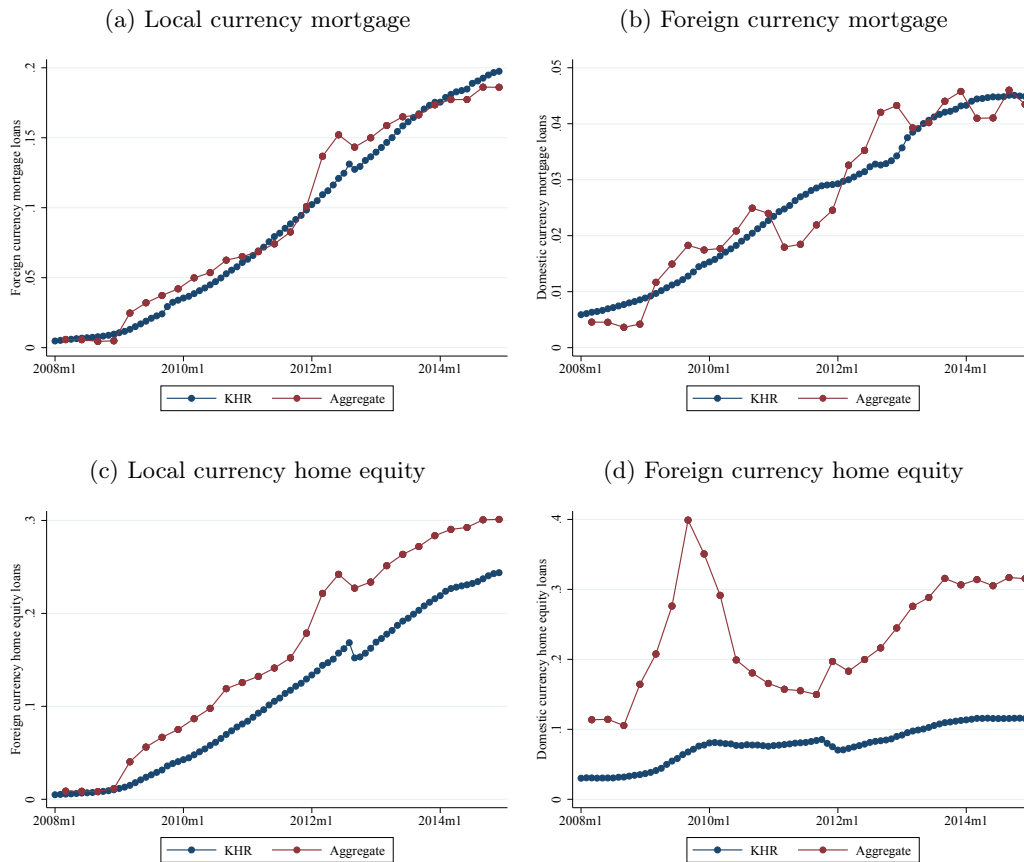
The household credit registry contains all loans starting in April 2012 and contains delinquent loans starting in January 2010. Information on the start date of the delinquency is available in both cases. This implies that we can only observe the last delinquency spell before 2010. That is, we cannot observe delinquencies that started and ended before 2010 if they were followed by another delinquency spell that started before 2010. This nature of data implies that from January 2010 onwards we observe all delinquent loans. However, moving backwards in time, information on delinquent status might not be known for some loans.

As a result, the observed share of delinquent loans in KHR prior to 2010 is a lower bound for the true delinquency rate. As the share of non-performing loans was steadily increasing from October 2008, the difference between the observed and true delinquency rate is likely to be small after October 2008, but it could be larger before October 2008. If delinquency status during this period is an absorbing state, then the data would give the true delinquency status. Because of the large exchange rate depreciation, this is a plausible assumption.

To minimize the problem stemming from this nature of the data, we construct backwards delinquency status only until August 2008, two months prior to the October 2008 depreciation. Aggregate statistics show that before August 2008, the delinquency rate was almost flat.

Figure B.2 compares the delinquency rate calculated from the credit registry data to delinquency rates from aggregate statistics reported by the banking sector to the National Bank of Hungary. We plot the two series for domestic currency mortgage and home equity loans and foreign currency mortgage and home equity loans. The correlation between the two series is visibly high, with the exception of domestic currency home equity loans. However, the overall stock of domestic currency home equity loans is very low, as these loans were not eligible for the interest rate subsidy.

Figure B.2: Comparing KHR to official aggregate 90-day delinquency statistics by loan type and currency



Notes: This figure plots the default rates for loans in KHR (credit registry) against default rates in aggregate statistics separately by currency and loan type.

Borrower address

Detailed borrower address (settlement and zip code) is available for all loans outstanding in June 2014. Borrower subregion, a coarser level of aggregation, is available for all loans in the credit registry. In the credit registry, the zip code is provided at the loan-level, not the individual level. If the address is missing for a given loan, but an individual has other loans with an address, we use the zip code reported on nearest originated loan. To address the issue that borrowers may have different addresses stated for different loans, we determine borrower addresses in the following way. At the time of the origination, the creditor asks the address of the debtor, so at the time of origination, the reported address is the borrowers true address. However, after origination individuals may move and might have not reported their move to the bank, so their address would not be updated in the database. We assume that none of the moves are reported to the banks, so all addresses correspond to the true address at the time of origination.

Election data

1998-2018 elections We obtain election data at the polling station level. Because the boundaries of the polling places change over time, we aggregate voting data to zip code level. We assume that the zip code of the polling place is the same as voters' zip code assigned to that polling station. In larger cities, voters belonging to a polling place might split across several zip codes. However, since the number of voters assigned to each polling place is small, this is unlikely to significantly affect the results. Because the polling station address does not contain the zip code, we geocode the addresses obtain the polling station zip code.

1939 election Data on the 1939 election is from Hubai (2001), who collected settlement level election results. Between 1939 and 2010 the settlement structure changed substantially. Many settlements were either merged or split. We use Hungarian Statistical Office's gazetteer³⁸ to find the successors and predecessors of settlements. We define inclusive settlements, which are artificial settlements that enable us to match the current settlement structure to the historical structure. If two settlements overlap in any of the two elections years, then we merge those in the other election year as well. This provides us with a balanced panel of settlements for 1939 and 2010.

The 1939 election system was similar to the present system in Hungary. Most of the voters had two votes, one for a candidate in their electoral district and one for a party list. Voters living in large cities could only vote for party lists. As for the recent elections, for the 1939

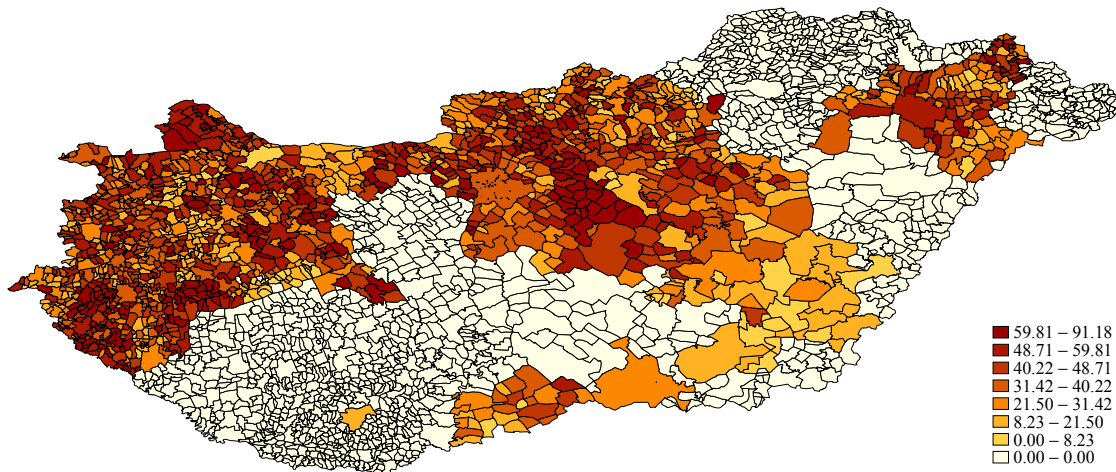
³⁸http://www.ksh.hu/apps/hntr.main?p_lang=EN

election we also focus on votes cast on party lists.

Six far-right parties participated in the 1939 election: the Arrow Cross Party, National Front, United Hungarian National Socialist Party, Christian National Socialist Party, Hungarian National Socialist Agricultural Labourers' and Workers' Party, and far-right candidates without a party affiliation. Historians aggregate the votes for these parties, as they coordinated before the election by running one candidate and one party list in most electoral districts to prevent the division of their support. The Communist Party was barred from participating in the 1939 election.

The 1939 election was the first secret ballot election, which was introduced with a change in the election law in 1938. There was not universal suffrage at this time, and the government, concerned with the popularity of the far-right, used various measures to prevent the far-right from winning. For example, an election law decreased the number of eligible voters, there was gerrymandering weeks before the election, a certain number of nominations were required for candidates and party lists, a financial deposit was required to run a party list or candidate, etc. (for more details, see [Pintér \(2010\)](#)). This implied that in many electoral districts there was no far-right party list to vote for, and the number of party lists varied across electoral districts. Figure B.3 shows the electoral map for the far right. In large parts of the country, the far right vote share was zero, while in other regions the far right received over 30 percent of the votes.

Figure B.3: Vote share of far-right parties in 1939



Note: This figure is the settlement level choropleth map showing combined vote share of six far-right parties in 1939. The shading shows the per cent of votes cast on far-right party lists. The far-right parties are Arrow Cross Party, National Front, United Hungarian National Socialist Party, Christian National Socialist Party, Hungarian National Socialist Agricultural Labourers' and Workers' Party and the candidates without a party.